

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

Tel: (916)373-5600

TestAmerica Job ID: 320-44239-1

Client Project/Site: 2018 PFAS Phase 2

For:

Shannon & Wilson, Inc

2355 Hill Rd.

Fairbanks, Alaska 99709-5244

Attn: Sheila Hinkley



Authorized for release by:

10/31/2018 9:43:53 AM

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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: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

### 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: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

**Job ID: 320-44239-1**

**Laboratory: TestAmerica Sacramento**

### Narrative

#### Job Narrative 320-44239-1

#### Receipt

The samples were received on 10/16/2018 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.0° C and 3.4° 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 was observed to be a light yellow color and contained sediment prior to extraction: [REDACTED]-2018PFAS-P2Pre (320-44239-2). All the samples were still able to go through the SPE extraction disk.

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-253030.

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: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

Client Sample ID: [REDACTED] -2018PFAS-P2Post

Lab Sample ID: 320-44239-1

| Analyte                              | Result | Qualifier | RL  | MDL  | Unit | Dil Fac | D | Method         | Prep Type |
|--------------------------------------|--------|-----------|-----|------|------|---------|---|----------------|-----------|
| Perfluorohexanoic acid (PFHxA)       | 1.3    | J         | 1.7 | 0.50 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluoroheptanoic acid (PFHpA)      | 0.39   | J         | 1.7 | 0.21 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorononanoic acid (PFNA)        | 0.31   | J         | 1.7 | 0.23 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorohexanesulfonic acid (PFHxS) | 0.45   | J B       | 1.7 | 0.15 | ng/L | 1       |   | 537 (modified) | Total/NA  |

Client Sample ID: [REDACTED] -P2Pre

Lab Sample ID: 320-44239-2

| Analyte                              | Result | Qualifier | RL  | MDL  | Unit | Dil Fac | D | Method         | Prep Type |
|--------------------------------------|--------|-----------|-----|------|------|---------|---|----------------|-----------|
| Perfluorohexanoic acid (PFHxA)       | 6.1    |           | 1.8 | 0.53 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluoroheptanoic acid (PFHpA)      | 3.0    |           | 1.8 | 0.23 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorooctanoic acid (PFOA)        | 4.0    |           | 1.8 | 0.78 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorononanoic acid (PFNA)        | 5.3    |           | 1.8 | 0.25 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorobutanesulfonic acid (PFBS)  | 0.87   | J         | 1.8 | 0.18 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorohexanesulfonic acid (PFHxS) | 5.3    | B         | 1.8 | 0.16 | ng/L | 1       |   | 537 (modified) | Total/NA  |
| Perfluorooctanesulfonic acid (PFOS)  | 2.8    |           | 1.8 | 0.50 | ng/L | 1       |   | 537 (modified) | Total/NA  |

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

Client Sample ID: [REDACTED] -2018PFAS-P2Post

Lab Sample ID: 320-44239-1

Date Collected: 10/04/18 10:30

Matrix: Water

Date Received: 10/16/18 10:15

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

| Analyte                              | Result    | Qualifier | RL       | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|--------------------------------------|-----------|-----------|----------|------|------|---|----------------|----------------|---------|
| Perfluorohexanoic acid (PFHxA)       | 1.3       | J         | 1.7      | 0.50 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluoroheptanoic acid (PFHpA)      | 0.39      | J         | 1.7      | 0.21 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorooctanoic acid (PFOA)        | ND        |           | 1.7      | 0.73 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorononanoic acid (PFNA)        | 0.31      | J         | 1.7      | 0.23 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorodecanoic acid (PFDA)        | ND        |           | 1.7      | 0.27 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluoroundecanoic acid (PFUnA)     | ND        |           | 1.7      | 0.94 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorododecanoic acid (PFDoA)     | ND        |           | 1.7      | 0.47 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorotridecanoic acid (PFTriA)   | ND        |           | 1.7      | 1.1  | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorotetradecanoic acid (PFTeA)  | ND        |           | 1.7      | 0.25 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorobutanesulfonic acid (PFBS)  | ND        |           | 1.7      | 0.17 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorohexanesulfonic acid (PFHxS) | 0.45      | J B       | 1.7      | 0.15 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Perfluorooctanesulfonic acid (PFOS)  | ND        |           | 1.7      | 0.46 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| Isotope Dilution                     | %Recovery | Qualifier | Limits   |      |      |   | Prepared       | Analyzed       | Dil Fac |
| 13C5-PFPeA DNU                       | 89        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C2 PFHxA                           | 84        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C4 PFHpA                           | 90        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C4 PFOA                            | 93        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C5 PFNA                            | 87        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C2 PFDA                            | 84        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C2 PFUnA                           | 89        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C2 PFDoA                           | 76        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C2 PFTeDA                          | 78        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C3 PFBS                            | 87        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 18O2 PFHxS                           | 84        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |
| 13C4 PFOS                            | 91        |           | 25 - 150 |      |      |   | 10/18/18 07:58 | 10/24/18 18:39 | 1       |

TestAmerica Sacramento

# Client Sample Results

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

Client Sample ID: [REDACTED] -2018PFAS-P2Pre

Lab Sample ID: 320-44239-2

Date Collected: 10/04/18 10:35

Matrix: Water

Date Received: 10/16/18 10:15

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

| Analyte                              | Result | Qualifier | RL  | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|--------------------------------------|--------|-----------|-----|------|------|---|----------------|----------------|---------|
| Perfluorohexanoic acid (PFHxA)       | 6.1    |           | 1.8 | 0.53 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluoroheptanoic acid (PFHpA)      | 3.0    |           | 1.8 | 0.23 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorooctanoic acid (PFOA)        | 4.0    |           | 1.8 | 0.78 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorononanoic acid (PFNA)        | 5.3    |           | 1.8 | 0.25 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorodecanoic acid (PFDA)        | ND     |           | 1.8 | 0.28 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluoroundecanoic acid (PFUnA)     | ND     |           | 1.8 | 1.0  | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorododecanoic acid (PFDoA)     | ND     |           | 1.8 | 0.51 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorotridecanoic acid (PFTriA)   | ND     |           | 1.8 | 1.2  | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorotetradecanoic acid (PFTeA)  | ND     |           | 1.8 | 0.27 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorobutanesulfonic acid (PFBS)  | 0.87   | J         | 1.8 | 0.18 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorohexanesulfonic acid (PFHxS) | 5.3    | B         | 1.8 | 0.16 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| Perfluorooctanesulfonic acid (PFOS)  | 2.8    |           | 1.8 | 0.50 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:47 | 1       |

| Isotope Dilution | %Recovery | Qualifier | Limits   | Prepared       | Analyzed       | Dil Fac |
|------------------|-----------|-----------|----------|----------------|----------------|---------|
| 13C5-PFPeA DNU   | 77        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C2 PFHxA       | 85        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C4 PFHpA       | 90        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C4 PFOA        | 89        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C5 PFNA        | 85        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C2 PFDA        | 81        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C2 PFUnA       | 83        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C2 PFDoA       | 74        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C2 PFTeDA      | 72        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C3 PFBS        | 78        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 18O2 PFHxS       | 80        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |
| 13C4 PFOS        | 80        |           | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:47 | 1       |

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# Isotope Dilution Summary

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

| Lab Sample ID       | Client Sample ID                            | PFPeA<br>(25-150) | PFHxA<br>(25-150) | PFHpA<br>(25-150) | PFOA<br>(25-150) | PFNA<br>(25-150) | PFDA<br>(25-150) | PFUnA<br>(25-150) | PFDaA<br>(25-150) |
|---------------------|---------------------------------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|-------------------|-------------------|
| 320-44239-1         | ██████████-2018PFAS-P2Po:                   | 89                | 84                | 90                | 93               | 87               | 84               | 89                | 76                |
| 320-44239-2         | 2601                                        | 77                | 85                | 90                | 89               | 85               | 81               | 83                | 74                |
| LCS 320-253030/2-A  | ██████████ PFAS-P2Pre<br>Lab Control Sample | 87                | 86                | 92                | 94               | 90               | 90               | 90                | 81                |
| LCSD 320-253030/3-A | Lab Control Sample Dup                      | 93                | 83                | 95                | 94               | 88               | 91               | 89                | 82                |
| MB 320-253030/1-A   | Method Blank                                | 89                | 88                | 94                | 91               | 89               | 85               | 85                | 79                |

### Percent Isotope Dilution Recovery (Acceptance Limits)

| Lab Sample ID       | Client Sample ID                            | PFTDA<br>(25-150) | 3C3-PFBs<br>(25-150) | PFHxS<br>(25-150) | PFOS<br>(25-150) |
|---------------------|---------------------------------------------|-------------------|----------------------|-------------------|------------------|
| 320-44239-1         | ██████████-2018PFAS-P2Po:                   | 78                | 87                   | 84                | 91               |
| 320-44239-2         | ██████████                                  | 72                | 78                   | 80                | 80               |
| LCS 320-253030/2-A  | ██████████ PFAS-P2Pre<br>Lab Control Sample | 86                | 78                   | 89                | 92               |
| LCSD 320-253030/3-A | Lab Control Sample Dup                      | 86                | 88                   | 91                | 95               |
| MB 320-253030/1-A   | Method Blank                                | 85                | 86                   | 85                | 92               |

### Surrogate Legend

PFPeA = 13C5-PFPeA DNU  
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: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

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

Lab Sample ID: MB 320-253030/1-A

Matrix: Water

Analysis Batch: 254640

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 253030

| Analyte                              | MB Result | MB Qualifier | RL  | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|--------------------------------------|-----------|--------------|-----|------|------|---|----------------|----------------|---------|
| Perfluorohexanoic acid (PFHxA)       | ND        |              | 2.0 | 0.58 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluoroheptanoic acid (PFHpA)      | ND        |              | 2.0 | 0.25 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorooctanoic acid (PFOA)        | ND        |              | 2.0 | 0.85 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorononanoic acid (PFNA)        | ND        |              | 2.0 | 0.27 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorodecanoic acid (PFDA)        | ND        |              | 2.0 | 0.31 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluoroundecanoic acid (PFUnA)     | ND        |              | 2.0 | 1.1  | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorododecanoic acid (PFDoA)     | ND        |              | 2.0 | 0.55 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorotridecanoic acid (PFTriA)   | ND        |              | 2.0 | 1.3  | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorotetradecanoic acid (PFTeA)  | ND        |              | 2.0 | 0.29 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorobutanesulfonic acid (PFBS)  | ND        |              | 2.0 | 0.20 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorohexanesulfonic acid (PFHxS) | 0.274     | J            | 2.0 | 0.17 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| Perfluorooctanesulfonic acid (PFOS)  | ND        |              | 2.0 | 0.54 | ng/L |   | 10/18/18 07:58 | 10/24/18 18:17 | 1       |

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits   | Prepared       | Analyzed       | Dil Fac |
|------------------|--------------|--------------|----------|----------------|----------------|---------|
| 13C5-PFPeA DNU   | 89           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C2 PFHxA       | 88           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C4 PFHpA       | 94           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C4 PFOA        | 91           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C5 PFNA        | 89           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C2 PFDA        | 85           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C2 PFUnA       | 85           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C2 PFDoA       | 79           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C2 PFTeDA      | 85           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C3 PFBS        | 86           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 18O2 PFHxS       | 85           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |
| 13C4 PFOS        | 92           |              | 25 - 150 | 10/18/18 07:58 | 10/24/18 18:17 | 1       |

Lab Sample ID: LCS 320-253030/2-A

Matrix: Water

Analysis Batch: 254640

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 253030

| Analyte                              | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | Limits   |
|--------------------------------------|-------------|------------|---------------|------|---|------|----------|
| Perfluorohexanoic acid (PFHxA)       | 40.0        | 38.3       |               | ng/L |   | 96   | 66 - 126 |
| Perfluoroheptanoic acid (PFHpA)      | 40.0        | 36.1       |               | ng/L |   | 90   | 66 - 126 |
| Perfluorooctanoic acid (PFOA)        | 40.0        | 38.5       |               | ng/L |   | 96   | 64 - 124 |
| Perfluorononanoic acid (PFNA)        | 40.0        | 40.9       |               | ng/L |   | 102  | 68 - 128 |
| Perfluorodecanoic acid (PFDA)        | 40.0        | 36.8       |               | ng/L |   | 92   | 69 - 129 |
| Perfluoroundecanoic acid (PFUnA)     | 40.0        | 41.2       |               | ng/L |   | 103  | 60 - 120 |
| Perfluorododecanoic acid (PFDoA)     | 40.0        | 37.9       |               | ng/L |   | 95   | 71 - 131 |
| Perfluorotridecanoic acid (PFTriA)   | 40.0        | 42.1       |               | ng/L |   | 105  | 72 - 132 |
| Perfluorotetradecanoic acid (PFTeA)  | 40.0        | 38.5       |               | ng/L |   | 96   | 68 - 128 |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4        | 37.8       |               | ng/L |   | 107  | 73 - 133 |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4        | 32.0       |               | ng/L |   | 88   | 63 - 123 |

TestAmerica Sacramento

# QC Sample Results

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

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

Lab Sample ID: LCS 320-253030/2-A

Matrix: Water

Analysis Batch: 254640

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 253030

| Analyte                             | Spike Added   | LCS Result    | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|-------------------------------------|---------------|---------------|---------------|------|---|------|--------------|
| Perfluorooctanesulfonic acid (PFOS) | 37.1          | 33.7          |               | ng/L |   | 91   | 67 - 127     |
| Isotope Dilution                    | LCS %Recovery | LCS Qualifier | Limits        |      |   |      |              |
| 13C5-PFPeA DNU                      | 87            |               | 25 - 150      |      |   |      |              |
| 13C2 PFHxA                          | 86            |               | 25 - 150      |      |   |      |              |
| 13C4 PFHpA                          | 92            |               | 25 - 150      |      |   |      |              |
| 13C4 PFOA                           | 94            |               | 25 - 150      |      |   |      |              |
| 13C5 PFNA                           | 90            |               | 25 - 150      |      |   |      |              |
| 13C2 PFDA                           | 90            |               | 25 - 150      |      |   |      |              |
| 13C2 PFUnA                          | 90            |               | 25 - 150      |      |   |      |              |
| 13C2 PFDoA                          | 81            |               | 25 - 150      |      |   |      |              |
| 13C2 PFTeDA                         | 86            |               | 25 - 150      |      |   |      |              |
| 13C3 PFBS                           | 78            |               | 25 - 150      |      |   |      |              |
| 18O2 PFHxS                          | 89            |               | 25 - 150      |      |   |      |              |
| 13C4 PFOS                           | 92            |               | 25 - 150      |      |   |      |              |

Lab Sample ID: LCSD 320-253030/3-A

Matrix: Water

Analysis Batch: 254640

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 253030

| Analyte                              | Spike     | LCSD      | LCSD      | Unit | D | %Rec   | %Rec.    | RPD | RPD |
|--------------------------------------|-----------|-----------|-----------|------|---|--------|----------|-----|-----|
|                                      | Added     | Result    | Qualifier |      |   | Limits | Limit    |     |     |
| Perfluorohexanoic acid (PFHxA)       | 40.0      | 40.4      |           | ng/L |   | 101    | 66 - 126 | 5   | 30  |
| Perfluoroheptanoic acid (PFHpA)      | 40.0      | 34.9      |           | ng/L |   | 87     | 66 - 126 | 3   | 30  |
| Perfluorooctanoic acid (PFOA)        | 40.0      | 39.7      |           | ng/L |   | 99     | 64 - 124 | 3   | 30  |
| Perfluorononanoic acid (PFNA)        | 40.0      | 43.8      |           | ng/L |   | 109    | 68 - 128 | 7   | 30  |
| Perfluorodecanoic acid (PFDA)        | 40.0      | 38.7      |           | ng/L |   | 97     | 69 - 129 | 5   | 30  |
| Perfluoroundecanoic acid (PFUnA)     | 40.0      | 41.7      |           | ng/L |   | 104    | 60 - 120 | 1   | 30  |
| Perfluorododecanoic acid (PFDoA)     | 40.0      | 37.4      |           | ng/L |   | 94     | 71 - 131 | 1   | 30  |
| Perfluorotridecanoic acid (PFTriA)   | 40.0      | 40.5      |           | ng/L |   | 101    | 72 - 132 | 4   | 30  |
| Perfluorotetradecanoic acid (PFTeA)  | 40.0      | 37.3      |           | ng/L |   | 93     | 68 - 128 | 3   | 30  |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4      | 33.7      |           | ng/L |   | 95     | 73 - 133 | 11  | 30  |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4      | 32.1      |           | ng/L |   | 88     | 63 - 123 | 0   | 30  |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1      | 33.2      |           | ng/L |   | 90     | 67 - 127 | 1   | 30  |
|                                      | LCSD      | LCSD      |           |      |   |        |          |     |     |
| Isotope Dilution                     | %Recovery | Qualifier | Limits    |      |   |        |          |     |     |
| 13C5-PFPeA DNU                       | 93        |           | 25 - 150  |      |   |        |          |     |     |
| 13C2 PFHxA                           | 83        |           | 25 - 150  |      |   |        |          |     |     |
| 13C4 PFHpA                           | 95        |           | 25 - 150  |      |   |        |          |     |     |
| 13C4 PFOA                            | 94        |           | 25 - 150  |      |   |        |          |     |     |
| 13C5 PFNA                            | 88        |           | 25 - 150  |      |   |        |          |     |     |
| 13C2 PFDA                            | 91        |           | 25 - 150  |      |   |        |          |     |     |
| 13C2 PFUnA                           | 89        |           | 25 - 150  |      |   |        |          |     |     |

TestAmerica Sacramento

## QC Sample Results

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

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

Lab Sample ID: LCSD 320-253030/3-A

Matrix: Water

Analysis Batch: 254640

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 253030

| <i>Isotope Dilution</i> | <i>LCSD</i>      |                  | <i>Limits</i> |
|-------------------------|------------------|------------------|---------------|
|                         | <i>%Recovery</i> | <i>Qualifier</i> |               |
| 13C2 PFDoA              | 82               |                  | 25 - 150      |
| 13C2 PFTeDA             | 86               |                  | 25 - 150      |
| 13C3 PFBS               | 88               |                  | 25 - 150      |
| 18O2 PFHxS              | 91               |                  | 25 - 150      |
| 13C4 PFOS               | 95               |                  | 25 - 150      |

## QC Association Summary

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

### LCMS

#### Prep Batch: 253030

| Lab Sample ID       | Client Sample ID       | Prep Type | Matrix | Method | Prep Batch |
|---------------------|------------------------|-----------|--------|--------|------------|
| 320-44239-1         | -2018PFAS-P2Post       | Total/NA  | Water  | 3535   |            |
| 320-44239-2         | -2018PFAS-P2Pre        | Total/NA  | Water  | 3535   |            |
| MB 320-253030/1-A   | Method Blank           | Total/NA  | Water  | 3535   |            |
| LCS 320-253030/2-A  | Lab Control Sample     | Total/NA  | Water  | 3535   |            |
| LCSD 320-253030/3-A | Lab Control Sample Dup | Total/NA  | Water  | 3535   |            |

#### Analysis Batch: 254640

| Lab Sample ID       | Client Sample ID       | Prep Type | Matrix | Method         | Prep Batch |
|---------------------|------------------------|-----------|--------|----------------|------------|
| 320-44239-1         | -2018PFAS-P2Post       | Total/NA  | Water  | 537 (modified) | 253030     |
| 320-44239-2         | -2018PFAS-P2Pre        | Total/NA  | Water  | 537 (modified) | 253030     |
| MB 320-253030/1-A   | Method Blank           | Total/NA  | Water  | 537 (modified) | 253030     |
| LCS 320-253030/2-A  | Lab Control Sample     | Total/NA  | Water  | 537 (modified) | 253030     |
| LCSD 320-253030/3-A | Lab Control Sample Dup | Total/NA  | Water  | 537 (modified) | 253030     |

## Lab Chronicle

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

**Client Sample ID:** [REDACTED]-2018PFAS-P2Post

**Lab Sample ID:** 320-44239-1

**Date Collected:** 10/04/18 10:30

**Matrix:** Water

**Date Received:** 10/16/18 10:15

| Prep Type | Batch Type | Batch Method   | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|----------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA  | Prep       | 3535           |     |            | 291.2 mL       | 10.00 mL     | 253030       | 10/18/18 07:58       | MYV     | TAL SAC |
| Total/NA  | Analysis   | 537 (modified) |     | 1          |                |              | 254640       | 10/24/18 18:39       | S1M     | TAL SAC |

**Client Sample ID:** [REDACTED]-2018PFAS-P2Pre

**Lab Sample ID:** 320-44239-2

**Date Collected:** 10/04/18 10:35

**Matrix:** Water

**Date Received:** 10/16/18 10:15

| Prep Type | Batch Type | Batch Method   | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|----------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA  | Prep       | 3535           |     |            | 272 mL         | 10.00 mL     | 253030       | 10/18/18 07:58       | MYV     | TAL SAC |
| Total/NA  | Analysis   | 537 (modified) |     | 1          |                |              | 254640       | 10/24/18 18:47       | S1M     | TAL SAC |

### Laboratory References:

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

# Accreditation/Certification Summary

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

## 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               | 12-31-20        |
| 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        |

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

TestAmerica Sacramento

## Method Summary

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

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

### Protocol References:

EPA = US Environmental Protection Agency

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

### Laboratory References:

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

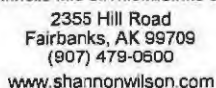
## Sample Summary

Client: Shannon & Wilson, Inc  
Project/Site: 2018 PFAS Phase 2

TestAmerica Job ID: 320-44239-1

| Lab Sample ID | Client Sample ID           | Matrix | Collected      | Received       |
|---------------|----------------------------|--------|----------------|----------------|
| 320-44239-1   | [REDACTED]-2018PFAS-P2Post | Water  | 10/04/18 10:30 | 10/16/18 10:15 |
| 320-44239-2   | [REDACTED]-P2Pre           | Water  | 10/04/18 10:35 | 10/16/18 10:15 |





Laboratory Test America Page 1 of 1  
Attn:

**Analytical Methods** (include preservative if used)

|                                            |                               |
|--------------------------------------------|-------------------------------|
| <b>Turn Around Time:</b>                   |                               |
| <input checked="" type="checkbox"/> Normal | <input type="checkbox"/> Rush |
| Please Specify                             |                               |

Quote No:

J-Flags: ☒ Yes ☐ No

[illegible]

| Project Information                                                                                                                                                     |                               | Sample Receipt                |                | Relinquished By: 1. |             | Relinquished By: 2. |             | Relinquished By: 3. |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|----------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|
| Number: 101965-002                                                                                                                                                      | Total No. of Containers: 4    | Signature: [Signature]        | Time: 1:00     | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ |
| Name: 2018 PFAS Phase 2                                                                                                                                                 | COC Seals/Intact? Y/N/NA Y    | Printed Name: [Signature]     | Date: 12/15/18 | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ |
| Contact: smH                                                                                                                                                            | Received Good Cond./Cold Cold | Company: [Signature]          |                | Company: _____      |             | Company: _____      |             | Company: _____      |             |
| Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                                                                                    | Temp: 3.0c                    | Company: Shannon Wilson, Inc. |                |                     |             |                     |             |                     |             |
| Sampler: smH                                                                                                                                                            | Delivery Method: Gold Streak  |                               |                |                     |             |                     |             |                     |             |
| Notes:                                                                                                                                                                  |                               | Received By: 1.               |                | Received By: 2.     |             | Received By: 3.     |             |                     |             |
| Bill to SWI                                                                                                                                                             |                               | Signature: [Signature]        | Time: 10:15    | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ |                     |             |
|                                                                                                                                                                         |                               | Printed Name: [Signature]     | Date: 10/16/18 | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ |                     |             |
|                                                                                                                                                                         |                               | Company: [Signature]          |                | Company: _____      |             | Company: _____      |             |                     |             |
| Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report<br>Yellow - w/shipment - for consignee files<br>Pink - Shannon & Wilson - lab file |                               |                               |                |                     |             |                     |             |                     |             |

30c

No. 35651







Page 1 of 1  
Laboratory Test America  
Attn:

**Analytical Methods** (include preservative if used)

|                                            |                               |
|--------------------------------------------|-------------------------------|
| <b>Turn Around Time:</b>                   |                               |
| <input checked="" type="checkbox"/> Normal | <input type="checkbox"/> Rush |
| Please Specify                             |                               |

Quote No: \_\_\_\_\_

J-Flags: ☐ Yes ☐ No

[illegible]

| Project Information                                                                                                                                                  |                                    | Sample Receipt            |                | Relinquished By: 1. |             | Relinquished By: 2. |             | Relinquished By: 3. |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------|----------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|
| Number: 101965-002                                                                                                                                                   | Total No. of Containers: 2         | Signature: [Signature]    | Time: 1500     | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ |
| Name: 2018 PFAS Phase 2                                                                                                                                              | COC Seals/Intact? Y/N/NA Y         | Printed Name: [Signature] | Date: 10/15/14 | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ |
| Contact: SMH                                                                                                                                                         | Received Good Cond./Cold Good/Cold | Company: [Signature]      |                | Company: _____      |             | Company: _____      |             | Company: _____      |             |
| Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                                                                                 | Temp: 3.0                          | Shannon Wilson Inc        |                |                     |             |                     |             |                     |             |
| Sampler: SMH                                                                                                                                                         | Delivery Method: Goldstream        |                           |                |                     |             |                     |             |                     |             |
| Notes:                                                                                                                                                               |                                    | Received By: 1.           |                | Received By: 2.     |             | Received By: 3.     |             |                     |             |
| Bill to SWI                                                                                                                                                          |                                    | Signature: [Signature]    | Time: 1015     | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ |                     |             |
|                                                                                                                                                                      |                                    | Printed Name: [Signature] | Date: 10/16/14 | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ |                     |             |
|                                                                                                                                                                      |                                    | Company: [Signature]      |                | Company: _____      |             | Company: _____      |             |                     |             |
| Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report<br>Yellow - w/shipment - for consignee files<br>Pink - Shannon & Wilson - lab @ |                                    | TA Sae                    |                |                     |             |                     |             |                     |             |

No. 35691

# 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

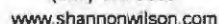
| Sample Identity | Lab No.      | Time | Date Sampled | Analytical Methods (include preservative if used) |  |  |  |  | Total Number of Containers | Remarks/Matrix Composition/Grab? Sample Containers |
|-----------------|--------------|------|--------------|---------------------------------------------------|--|--|--|--|----------------------------|----------------------------------------------------|
| [REDACTED]      | PFAS-P2 Post | 1000 | 10/10/18     | 2                                                 |  |  |  |  | 2                          | GW                                                 |
|                 | AS-P2 Pre    | 1005 | 10/10/18     | 2                                                 |  |  |  |  | 2                          | GW                                                 |
|                 | U-P2 Pre     | 0955 | 10/10/18     | 2                                                 |  |  |  |  | 2                          | GW                                                 |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |              |      |              |                                                   |  |  |  |  |                            |                                                    |

| Project Information                                                                  |  | Sample Receipt                           |  | Relinquished By: 1.                                             |  | Relinquished By: 2.                          |  | Relinquished By: 3.                          |  |
|--------------------------------------------------------------------------------------|--|------------------------------------------|--|-----------------------------------------------------------------|--|----------------------------------------------|--|----------------------------------------------|--|
| Number: <u>101965-002</u>                                                            |  | Total No. of Containers: <u>6</u>        |  | Signature: <u>[Signature]</u> Time: <u>1500</u>                 |  | Signature: _____ Time: _____                 |  | Signature: _____ Time: _____                 |  |
| Name: <u>2018 PFAS Phase 2</u>                                                       |  | COC Seals/Intact? <u>Y/N/NA</u> <u>Y</u> |  | Printed Name: <u>Sheila Hinckley</u> Date: <u>10/14/18</u>      |  | Printed Name: _____ Date: _____              |  | Printed Name: _____ Date: _____              |  |
| Contact: <u>JMH</u>                                                                  |  | Received Good Cond./Cold <u>Cold</u>     |  | Company: <u>Shannon &amp; Wilson Inc</u>                        |  | Company: _____                               |  | Company: _____                               |  |
| Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |  | Temp: <u>2.0C</u>                        |  | Received By: 1. Signature: <u>[Signature]</u> Time: <u>1015</u> |  | Received By: 2. Signature: _____ Time: _____ |  | Received By: 3. Signature: _____ Time: _____ |  |
| Sampler: <u>JMH</u>                                                                  |  | Delivery Method: <u>Goldstreak</u>       |  | Printed Name: <u>Daniel H</u> Date: <u>10/16/18</u>             |  | Printed Name: _____ Date: _____              |  | Printed Name: _____ Date: _____              |  |
| Notes:<br><u>Bill to SWI</u>                                                         |  |                                          |  | Company: <u>TA-Sac</u>                                          |  | 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. 35625





Page 1 of 1  
Laboratory Test America  
Attn:

**Analytical Methods** (include preservative if used)

|                                            |                               |
|--------------------------------------------|-------------------------------|
| <b>Turn Around Time:</b>                   |                               |
| <input checked="" type="checkbox"/> Normal | <input type="checkbox"/> Rush |
| Please Specify                             |                               |

Quote No:

J-Flags: ☐ Yes ☐ No

[illegible]

| Project Information                                                                                                                                                     |                               | Sample Receipt            |                | Relinquished By: 1. |             | Relinquished By: 2. |             | Relinquished By: 3. |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------|----------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|
| Number: 101965-002                                                                                                                                                      | Total No. of Containers: 4    | Signature: [Signature]    | Time: 1500     | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ |
| Name: 2018 PFAS Phase 2                                                                                                                                                 | COC Seals/Intact? Y/N/NA Y    | Printed Name: [Signature] | Date: 12/15/18 | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ |
| Contact: SMH                                                                                                                                                            | Received Good Cond./Cold Cold | Company: [Signature]      |                | Company: _____      |             | Company: _____      |             | Company: _____      |             |
| Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                                                                                    | Temp: 3.0c                    |                           |                |                     |             |                     |             |                     |             |
| Sampler: SMH                                                                                                                                                            | Delivery Method: Coldstreet   |                           |                |                     |             |                     |             |                     |             |
| Notes:                                                                                                                                                                  |                               | Received By: 1.           |                | Received By: 2.     |             | Received By: 3.     |             |                     |             |
| Bill to SWI                                                                                                                                                             |                               | Signature: [Signature]    | Time: 10/1     | Signature: _____    | Time: _____ | Signature: _____    | Time: _____ |                     |             |
|                                                                                                                                                                         |                               | Printed Name: [Signature] | Date: 10/16/18 | Printed Name: _____ | Date: _____ | Printed Name: _____ | Date: _____ |                     |             |
|                                                                                                                                                                         |                               | Company: [Signature]      |                | Company: _____      |             | Company: _____      |             |                     |             |
| Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report<br>Yellow - w/shipment - for consignee files<br>Pink - Shannon & Wilson - lab file |                               |                           |                |                     |             |                     |             |                     |             |

No. 35598

# 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 | Analytical Methods (include preservative if used) |  |  |  |  | Total Number of Containers | Remarks/Matrix Composition/Grab? Sample Containers |
|-----------------|-------------------|------|--------------|---------------------------------------------------|--|--|--|--|----------------------------|----------------------------------------------------|
| * [REDACTED]    | 2018 PFAS-P2 Post | 1126 | 10/11/18     | 2                                                 |  |  |  |  | 2                          | GLW                                                |
|                 | 2018 PFAS-P2 Pre  | 1130 | 10/11/18     | 2                                                 |  |  |  |  | 2                          | GLW                                                |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |                   |      |              |                                                   |  |  |  |  |                            |                                                    |

| Project Information                                                                  |                                      | Sample Receipt                                                  |  | Relinquished By: 1.                          |  | Relinquished By: 2.                          |  | Relinquished By: 3.                          |  |
|--------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------|--|----------------------------------------------|--|----------------------------------------------|--|----------------------------------------------|--|
| Number: <u>101965-002</u>                                                            | Total No. of Containers: <u>4</u>    | Signature: <u>[Signature]</u> Time: <u>1500</u>                 |  | Signature: _____ Time: _____                 |  | Signature: _____ Time: _____                 |  | Signature: _____ Time: _____                 |  |
| Name: <u>2018 PFAS Phase 2</u>                                                       | COC Seals/Intact? <u>Y/N/NA</u>      | Printed Name: <u>Sheila Hinkley</u> Date: <u>10/15/18</u>       |  | Printed Name: _____ Date: _____              |  | Printed Name: _____ Date: _____              |  | Printed Name: _____ Date: _____              |  |
| Contact: <u>SMH</u>                                                                  | Received Good Cond./Cold <u>Cold</u> | Company: <u>Shannon &amp; Wilson, Inc.</u>                      |  | Company: _____                               |  | Company: _____                               |  | Company: _____                               |  |
| Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Temp: <u>3.0C</u>                    | Received By: 1. Signature: <u>[Signature]</u> Time: <u>1015</u> |  | Received By: 2. Signature: _____ Time: _____ |  | Received By: 3. Signature: _____ Time: _____ |  | Received By: 4. Signature: _____ Time: _____ |  |
| Sampler: <u>SMH</u>                                                                  | Delivery Method: <u>Goldstruck</u>   | Printed Name: <u>David Her</u> Date: <u>10/16/18</u>            |  | Printed Name: _____ Date: _____              |  | Printed Name: _____ Date: _____              |  | Printed Name: _____ Date: _____              |  |
| Notes:<br><u>Bill to SWI</u>                                                         |                                      | Company: <u>SWI</u>                                             |  | 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

Labeled 2310 Richardson - 2018 PFAS-P2 Post / 2310 Richardson - 2018 PFAS-P2 Pre No. 35659



# 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 |
|-----------------|----------|------|--------------|---------------------------------------------------|--|--|--|--|----------------------------|----------------------------------------------------|
|                 | P-2 Post | 1237 | 10/15/18     | 2                                                 |  |  |  |  | 2                          | GLW                                                |
|                 | P-2 Pre  | 1240 | 10/15/18     | 2                                                 |  |  |  |  | 2                          | GLW                                                |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |
|                 |          |      |              |                                                   |  |  |  |  |                            |                                                    |

| Project Information                                                                  | Sample Receipt                                   | Relinquished By: 1.                                       | Relinquished By: 2.             | Relinquished By: 3.             |
|--------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|---------------------------------|---------------------------------|
| Number: <u>101965-002</u>                                                            | Total No. of Containers: <u>4</u>                | Signature: <u>[Signature]</u> Time: <u>15:00</u>          | Signature: _____ Time: _____    | Signature: _____ Time: _____    |
| Name: <u>2018 PFAS Phase 2</u>                                                       | COC Seals/Intact? <u>Y/N/NA</u>                  | Printed Name: <u>Sheila Hinkley</u> Date: <u>10/15/18</u> | Printed Name: _____ Date: _____ | Printed Name: _____ Date: _____ |
| Contact: <u>SMH</u>                                                                  | Received Good Cond./Cold <u>Cold</u>             | Company: <u>Shannon &amp; Wilson, Inc.</u>                | Company: _____                  | Company: _____                  |
| Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Temp: <u>3-4</u>                                 |                                                           |                                 |                                 |
| Sampler: <u>SMH</u>                                                                  | Delivery Method: <u>Goldstream</u>               |                                                           |                                 |                                 |
| Notes:                                                                               | Received By: 1.                                  | Received By: 2.                                           | Received By: 3.                 |                                 |
| <u>Bill to SWI</u>                                                                   | Signature: <u>[Signature]</u> Time: <u>10/16</u> | Signature: _____ Time: _____                              | Signature: _____ Time: _____    |                                 |
|                                                                                      | Printed Name: <u>Dan H</u> Date: <u>10/16/18</u> | Printed Name: _____ Date: _____                           | Printed Name: _____ Date: _____ |                                 |
|                                                                                      | Company: <u>TA Sam</u>                           | 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. 35658

## Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-44239-1

Login Number: 44239

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   | GEL PACKS                                                  |
| 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.                  | False  | IDs on containers do not match the COC. Logged in per COC. |
| 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    |                                                            |