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: 320-45444-2
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:*
*1/2/2019 1:33:31 PM*

David Alltucker, Project Manager I
(916)374-4383
david.alltucker@testamericainc.com

# Table of Contents

# Case Narrative

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

TestAmerica Job ID: 320-45444-2

## Job ID: 320-45444-2

### Laboratory: TestAmerica Sacramento

**Narrative**

See subcontract report

# Method Summary

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

TestAmerica Job ID: 320-45444-2

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| Subcontract | PFAS -537mod (12 analyte client list) | None | SC0103 |

**Protocol References:**

None = None

**Laboratory References:**

SC0103 = Eurofins Lancaster Laboratories Env LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

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

TestAmerica Job ID: 320-45444-2

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 320-45444-3 | [redacted]-2018 P2 Pre | Water | 11/14/18 14:23 | 11/20/18 11:00 |
| 320-45444-4 | [redacted]-2018 P2 Post | Water | 11/14/18 14:25 | 11/20/18 11:00 |

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# ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

TestAmerica
4101 Shuffel Street NW
North Canton OH 44720

Report Date: December 05, 2018 17:36

**Project: 2018 PFAS Phase 2**

Account #: 01042
Group Number: 2012018
PO Number: 32007079
State of Sample Origin: AK

Electronic Copy To TestAmerica Attn: David Alltucker

Respectfully Submitted,

Wendy A. Kozma
Principal Specialist Group Leader

(717) 556-7257

To view our laboratory's current scopes of accreditation please go to http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . Historical copies may be requested through your project manager.

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## SAMPLE INFORMATION

| Client Sample Description | Sample Collection Date/Time | ELLE# |
|---|---|---|
| [redacted]2018 P2 Pre (320-45444-3) Water | 11/14/2018 14:23 | 9911673 |
| [redacted]-2018 P2 Post (320-45444-4) Water | 11/14/2018 14:25 | 9911674 |

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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# Analysis Report

**Sample Description:** [redacted]-2018 P2 Pre (320-45444-3) Water

**Project Name:** 2018 PFAS Phase 2

**TestAmerica**
**ELLE Sample #:** WW 9911673
**ELLE Group #:** 2012018
**Matrix:** Water

Submittal Date/Time: 11/24/2018 09:15
Collection Date/Time: 11/14/2018 14:23

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | **ng/l** | **ng/l** | **ng/l** | |
| 14473 | Perfluorobutanesulfonic Acid | 375-73-5 | 0.99 | 0.28 | 0.95 | 1 |
| 14473 | Perfluorodecanesulfonic Acid | 335-77-3 | N.D. | 0.57 | 1.9 | 1 |
| 14473 | Perfluorohexanesulfonic Acid | 355-46-4 | 7.5 | 0.38 | 1.9 | 1 |
| 14473 | Perfluorooctanesulfonic Acid | 1763-23-1 | 0.40 J | 0.38 | 1.9 | 1 |
| 14473 | Pfda-Perfluorodecanoic Acid | 335-76-2 | N.D. | 0.85 | 1.9 | 1 |
| 14473 | Pfdoda-Perfluorododecanoic | 307-55-1 | N.D. | 0.47 | 1.9 | 1 |
| 14473 | Pfhpa-Perfluoroheptanoic Acid | 375-85-9 | 1.8 | 0.38 | 0.95 | 1 |
| 14473 | Pfhxa-Perfluorohexanoic Acid | 307-24-4 | 9.0 | 0.38 | 1.9 | 1 |
| 14473 | Pfna-Perfluorononanoic Acid | 375-95-1 | 0.61 J | 0.38 | 1.9 | 1 |
| 14473 | Pfoa-Perfluorooctanoic Acid | 335-67-1 | 3.2 | 0.28 | 0.95 | 1 |
| 14473 | Pfteda-Perfluorotetradecanoic | 376-06-7 | N.D. | 0.28 | 0.95 | 1 |
| 14473 | Pftrda-Perfluorotridecanoic Ac | 72629-94-8 | N.D. | 0.38 | 0.95 | 1 |
| 14473 | Pfunda-Perfluoroundecanoic Aci | 2058-94-8 | N.D. | 0.38 | 1.9 | 1 |

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for labeled compound used as extraction standards is outside of QC acceptance limits as noted on the QC Summary.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | PFAS in Water by LC/MS/MS | EPA 537 Version 1.1 Modified | 1 | 18330001 | 11/29/2018 05:26 | Devon M Whooley | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18330001 | 11/26/2018 07:50 | Courtney J Fatta | 1 |

*=This limit was used in the evaluation of the final result

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# Analysis Report

**Sample Description:** [redacted]-2018 P2 Post (320-45444-4) Water

**Project Name:** 2018 PFAS Phase 2

**TestAmerica**
**ELLE Sample #:** WW 9911674
**ELLE Group #:** 2012018
**Matrix:** Water

Submittal Date/Time: 11/24/2018 09:15
Collection Date/Time: 11/14/2018 14:25

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **LC/MS/MS Miscellaneous** | **EPA 537 Version 1.1 Modified** | | ng/l | ng/l | ng/l | |
| 14473 | Perfluorobutanesulfonic Acid | 375-73-5 | N.D. | 0.26 | 0.87 | 1 |
| 14473 | Perfluorodecanesulfonic Acid | 335-77-3 | N.D. | 0.52 | 1.7 | 1 |
| 14473 | Perfluorohexanesulfonic Acid | 355-46-4 | N.D. | 0.35 | 1.7 | 1 |
| 14473 | Perfluorooctanesulfonic Acid | 1763-23-1 | N.D. | 0.35 | 1.7 | 1 |
| 14473 | Pfda-Perfluorodecanoic Acid | 335-76-2 | N.D. | 0.78 | 1.7 | 1 |
| 14473 | Pfdoda-Perfluorododecanoic | 307-55-1 | N.D. | 0.43 | 1.7 | 1 |
| 14473 | Pfhpa-Perfluoroheptanoic Acid | 375-85-9 | N.D. | 0.35 | 0.87 | 1 |
| 14473 | Pfhxa-Perfluorohexanoic Acid | 307-24-4 | N.D. | 0.35 | 1.7 | 1 |
| 14473 | Pfna-Perfluorononanoic Acid | 375-95-1 | N.D. | 0.35 | 1.7 | 1 |
| 14473 | Pfoa-Perfluorooctanoic Acid | 335-67-1 | N.D. | 0.26 | 0.87 | 1 |
| 14473 | Pfteda-Perfluorotetradecanoic | 376-06-7 | N.D. | 0.26 | 0.87 | 1 |
| 14473 | Pftrda-Perfluorotridecanoic Ac | 72629-94-8 | N.D. | 0.35 | 0.87 | 1 |
| 14473 | Pfunda-Perfluoroundecanoic Aci | 2058-94-8 | N.D. | 0.35 | 1.7 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 14473 | PFAS in Water by LC/MS/MS | EPA 537 Version 1.1 Modified | 1 | 18330001 | 11/29/2018 05:35 | Devon M Whooley | 1 |
| 14091 | PFAS Water Prep | EPA 537 Version 1.1 Modified | 1 | 18330001 | 11/26/2018 07:50 | Courtney J Fatta | 1 |

*=This limit was used in the evaluation of the final result

# Quality Control Summary

Client Name: TestAmerica
Reported: 12/05/2018 17:36

Group Number: 2012018

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

## Method Blank

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ng/l | ng/l | ng/l |
| Batch number: 18330001 | Sample number(s): 9911673-9911674 | | |
| Perfluorobutanesulfonic Acid | N.D. | 0.30 | 1.0 |
| Perfluorodecanesulfonic Acid | N.D. | 0.60 | 2.0 |
| Perfluorohexanesulfonic Acid | N.D. | 0.40 | 2.0 |
| Perfluorooctanesulfonic Acid | N.D. | 0.40 | 2.0 |
| Pfda-Perfluorodecanoic Acid | N.D. | 0.90 | 2.0 |
| Pfdoda-Perfluorododecanoic | N.D. | 0.50 | 2.0 |
| Pfhpa-Perfluoroheptanoic Acid | N.D. | 0.40 | 1.0 |
| Pfhxa-Perfluorohexanoic Acid | N.D. | 0.40 | 2.0 |
| Pfna-Perfluorononanoic Acid | N.D. | 0.40 | 2.0 |
| Pfoa-Perfluorooctanoic Acid | N.D. | 0.30 | 1.0 |
| Pfteda-Perfluorotetradecanoic | N.D. | 0.30 | 1.0 |
| Pftrda-Perfluorotridecanoic Ac | N.D. | 0.40 | 1.0 |
| Pfunda-Perfluoroundecanoic Aci | N.D. | 0.40 | 2.0 |

## LCS/LCSD

| Analysis Name | LCS Spike Added ng/l | LCS Conc ng/l | LCSD Spike Added ng/l | LCSD Conc ng/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: 18330001 | Sample number(s): 9911673-9911674 | | | | | | | | |
| Perfluorobutanesulfonic Acid | 4.81 | 4.54 | | | 94 | | 73-128 | | |
| Perfluorodecanesulfonic Acid | 5.24 | 4.96 | | | 95 | | 60-135 | | |
| Perfluorohexanesulfonic Acid | 5.14 | 4.90 | | | 95 | | 71-131 | | |
| Perfluorooctanesulfonic Acid | 5.20 | 4.68 | | | 90 | | 67-138 | | |
| Pfda-Perfluorodecanoic Acid | 5.44 | 4.38 | | | 81 | | 69-148 | | |
| Pfdoda-Perfluorododecanoic | 5.44 | 5.23 | | | 96 | | 75-136 | | |
| Pfhpa-Perfluoroheptanoic Acid | 5.44 | 4.97 | | | 91 | | 76-140 | | |
| Pfhxa-Perfluorohexanoic Acid | 5.44 | 5.28 | | | 97 | | 75-135 | | |
| Pfna-Perfluorononanoic Acid | 5.44 | 4.82 | | | 89 | | 72-148 | | |
| Pfoa-Perfluorooctanoic Acid | 5.44 | 4.80 | | | 88 | | 72-138 | | |
| Pfteda-Perfluorotetradecanoic | 5.44 | 5.21 | | | 96 | | 74-135 | | |
| Pftrda-Perfluorotridecanoic Ac | 5.44 | 5.27 | | | 97 | | 61-145 | | |
| Pfunda-Perfluoroundecanoic Aci | 5.44 | 4.85 | | | 89 | | 75-146 | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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# Quality Control Summary

Client Name: TestAmerica
Reported: 12/05/2018 17:36

Group Number: 2012018

## Labeled Isotope Quality Control

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: PFAS in Water by LC/MS/MS
Batch number: 18330001

| | 13C3-PFBS | 13C5-PFHxA | 13C3-PFHxS | 13C4-PFHpA | 13C8-PFOA | 13C8-PFOS |
|---|---|---|---|---|---|---|
| 9911673 | 218* | 84 | 95 | 105 | 97 | 95 |
| 9911674 | 90 | 94 | 93 | 103 | 101 | 97 |
| Blank | 78 | 88 | 84 | 87 | 89 | 87 |
| LCS | 78 | 81 | 77 | 85 | 83 | 82 |
| Limits: | 26-148 | 35-138 | 34-126 | 35-126 | 48-122 | 50-121 |

| | 13C9-PFNA | 13C6-PFDA | 13C7-PFUnDA | 13C2-PFDoDA | 13C2-PFTeDA |
|---|---|---|---|---|---|
| 9911673 | 104 | 100 | 95 | 91 | 73 |
| 9911674 | 101 | 102 | 100 | 95 | 83 |
| Blank | 90 | 87 | 85 | 82 | 79 |
| LCS | 89 | 91 | 83 | 81 | 78 |
| Limits: | 41-144 | 47-125 | 30-128 | 39-130 | 26-119 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

**TestAmerica Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

A-1042
G-2012018
S-991673-74

# Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Alltucker, David R | Carrier Tracking No(s): | COC No: 320-135557.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: david.alltucker@testamericainc.com | State of Origin: Alaska | Page: Page 1 of 1 |
| Company: Eurofins Lancaster Laboratories Env LLC | | Accreditations Required (See note): | | Job #: 320-45444-2 |
| Address: 2425 New Holland Pike, , | Due Date Requested: 12/7/2018 | | | |
| City: Lancaster | TAT Requested (days): | | | |
| State, Zip: PA, 17601 | | | | |
| Phone: 717-656-2300(Tel) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: 2018 PFAS Phase 2 | Project #: 32007079 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUB (PFAS -537mod (12 analyte client list)) PFAS - 537mod (12 analyte client list) | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| [redacted] | 11/14/18 | 14:23 Alaskan | | Water | | | X | 2 | |
| [redacted] | 11/14/18 | 14:25 Alaskan | | Water | | | X | 2 | |

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

| *Possible Hazard Identification* | *Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)* |
|---|---|
| *Unconfirmed* | ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| | 11/23/18 1630 | TAS | | | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: 11/24/18 0915 | Company ELCE |

| Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.3-2.9°C |
|---|---|---|

Shannon & Wilson
1st
320-45444-1/2

A-1042
6-2012018
5-9911673-74

1/2/2019

| Analyte Description | CAS Number |
|---|---|
| Perfluorohexanoic acid (PFHxA) | 307-24-4 |
| Perfluoroheptanoic acid (PFHpA) | 375-85-9 |
| Perfluorooctanoic acid (PFOA) | 335-67-1 |
| Perfluorononanoic acid (PFNA) | 375-95-1 |
| Perfluorodecanoic acid (PFDA) | 335-76-2 |
| Perfluoroundecanoic acid (PFUnA) | 2058-94-8 |
| Perfluorododecanoic acid (PFDoA) | 307-55-1 |
| Perfluorotridecanoic acid (PFTriA) | 72629-94-8 |
| Perfluorotetradecanoic acid (PFTeA) | 376-06-7 |
| Perfluorobutanesulfonic acid (PFBS) | 375-73-5 |
| Perfluorohexanesulfonic acid (PFHxS) | 355-46-4 |
| Perfluorooctanesulfonic acid (PFOS) | 1763-23-1 |
| Perfluorodecanesulfonic acid (PFDS) | 335-77-3 |

eurofins | Lancaster Laboratories Environmental

# Sample Administration Receipt Documentation Log

Doc Log ID: 234129

Group Number(s): 2012018

Client: TestAmerica

## Delivery and Receipt Information

| | | | |
|---|---|---|---|
| Delivery Method: | Fed Ex | Arrival Timestamp: | 11/24/2018 9:15 |
| Number of Packages: | 2 | Number of Projects: | 1 |
| State/Province of Origin: | | | |

## Arrival Condition Summary

| | | | |
|---|---|---|---|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

*Unpacked by Carolyn Cyms (964) at 10:34 on 11/24/2018*

## Samples Chilled Details

*Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|---|---|---|---|---|---|---|---|
| 1 | DT42-01 | 2.9 | DT | Wet | Y | Loose | N |
| 2 | DT42-01 | 0.3 | DT | Wet | Y | Loose | N |



2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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# Explanation of Symbols and Abbreviations



*The following defines common symbols and abbreviations used in reporting technical data:*

| | | | |
|---|---|---|---|
| **BMQL** | Below Minimum Quantitation Level | **mL** | milliliter(s) |
| **C** | degrees Celsius | **MPN** | Most Probable Number |
| **cfu** | colony forming units | **N.D.** | non-detect |
| **CP Units** | cobalt-chloroplatinate units | **ng** | nanogram(s) |
| **F** | degrees Fahrenheit | **NTU** | nephelometric turbidity units |
| **g** | gram(s) | **pg/L** | picogram/liter |
| **IU** | International Units | **RL** | Reporting Limit |
| **kg** | kilogram(s) | **TNTC** | Too Numerous To Count |
| **L** | liter(s) | **µg** | microgram(s) |
| **lb.** | pound(s) | **µL** | microliter(s) |
| **m3** | cubic meter(s) | **umhos/cm** | micromhos/cm |
| **meq** | milliequivalents | **MCL** | Maximum Contamination Limit |
| **mg** | milligram(s) | | |

| | |
|---|---|
| **<** | less than |
| **>** | greater than |
| **ppm** | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. |
| **ppb** | parts per billion |
| **Dry weight basis** | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. |

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

# Data Qualifiers

| Qualifier | Definition |
|---|---|
| C | Result confirmed by reanalysis |
| D1 | Indicates for dual column analyses that the result is reported from column 1 |
| D2 | Indicates for dual column analyses that the result is reported from column 2 |
| E | Concentration exceeds the calibration range |
| K1 | Initial Calibration Blank is above the QC limit and the sample result is ND |
| K2 | Continuing Calibration Blank is above the QC limit and the sample result is ND |
| K3 | Initial Calibration Verification is above the QC limit and the sample result is ND |
| K4 | Continuing Calibration Verification is above the QC limit and the sample result is ND |
| J (or G, I, X) | Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL) |
| P | Concentration difference between the primary and confirmation column >40%. The lower result is reported. |
| P^ | Concentration difference between the primary and confirmation column > 40%. The higher result is reported. |
| U | Analyte was not detected at the value indicated |
| V | Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference. |
| W | The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L. |
| Z | Laboratory Defined - see analysis report |

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

# CHAIN-OF-CUSTODY RECORD



Laboratory Test America
Attn: David

| Turn Around Time: | Quote No: |
|---|---|
| ☒ Normal ☐ Rush | J-Flags: ☐ Yes ☐ No |
| Please Specify | |

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

| Sample Identity | Lab No. | Time | Date Sampled | PFAS EPA 537 12-Analytes | | | | | | | Total Number of Containers | Remarks/Matrix Composition/Grab? Sample Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | | 1423 | 11/14/18 | 2 | | | | | | | 2 | G, W |
| [redacted] | | 1425 | " | 2 | | | | | | | 2 | " |
| | | | | | | | | | | | | |
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| Project Information | | Sample Receipt | |
|---|---|---|---|
| Number: | 101965-005 | Total No. of Containers: | 2 |
| Name: | 2018 PFAS Phase 2 | COC Seals/Intact? Y/N/NA | |
| Contact: | SMH | Received Good Cond./Cold | |
| Ongoing Project? | Yes ☒ No ☐ | Temp: | |
| Sampler: | MDW | Delivery Method: | ~~FedEx~~ |

**Notes:** Goldstreak

Bill to SWI

| Reliquished By: 1. | Reliquished By: 2. | Reliquished By: 3. |
|---|---|---|
| Signature: [signature] Time: 14:45 | Signature: Time: | Signature: Time: |
| Printed Name: G. Cherissa Durgeloo Date: 11/19/18 | Printed Name: Date: | Printed Name: Date: |
| Company: Shannon & Wilson, Inc. | Company: | Company: |
| **Received By: 1.** | **Received By: 2.** | **Received By: 3.** |
| Signature: [signature] Time: 1100 | Signature: Time: | Signature: Time: |
| Printed Name: Edric Chung Date: 11/20/18 | Printed Name: Date: | Printed Name: Date: |
| Company: TA-Site | 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. 35654

# Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-45444-2

**Login Number: 45444**
**List Number: 1**
**Creator: Gooch, Mayce**

**List Source: TestAmerica Sacramento**

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

# Sample Login Acknowledgement

## Job 320-45444-2

**Client Job Description:** 2018 PFAS Phase 2
**Purchase Order #:** 101965-002
**Work Order #:**
**Project Manager:** David R Alltucker
**Job Due Date:** 12/12/2018
**Job TAT:** 15 Days
**Max Deliverable Level:** II
**Earliest Deliverable Due:** 12/12/2018

**Report To:** Shannon & Wilson, Inc
Sheila Hinkley
2355 Hill Rd.
Fairbanks, AK 99709-5244

**Bill To:** Shannon & Wilson, Inc
Fairbanks AP
2355 Hill Rd.
Fairbanks, AK 99709-5244

## Login 320-45444

**Sample Receipt:** 11/20/2018 11:00:00 AM
**Method of Delivery:** Goldstreak
**Number of Coolers:** 2
**Cooler Temperature(s) (C°):** 4.7; 3.1;

| Lab Sample # | Client Sample ID | Date Sampled | Matrix | |
|---|---|---|---|---|
| Method | Method Description / Work Location | | | Rpt Basis / Dry / Wet ** |
| **320-45444-3** | [redacted]**-2018 P2 Pre** | **11/14/2018 2:23:00 PM** | **Water** | |
| SUBCONTRACT | PFAS -537mod (12 analyte client list) / Eurofins Lancaster Laboratories Env LLC | | | Total / Wet |
| **320-45444-4** | [redacted]**-2018 P2 Post** | **11/14/2018 2:25:00 PM** | **Water** | |
| SUBCONTRACT | PFAS -537mod (12 analyte client list) / Eurofins Lancaster Laboratories Env LLC | | | Total / Wet |

* Method on-hold
** Wet/Dry indicates whether the reported results will be corrected for moisture content, and based on sample Wet weight or Dry weight.