



**Off-Base Drinking Water Sample Results,  
Electronic Data Deliverable, Data Validation Report,  
and the Sample Location Figure, SDG 18-0393**

*Naval Air Warfare Center Warminster  
Warminster, Pennsylvania*

August 2019

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","307-24-4","PFHxA",".500000","ng/L","U",".22","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","375-85-9","PFHpA","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","335-67-1","PFOA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","375-95-1","PFNA","1.000000","ng/L","U",".37","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","335-76-2","PFDA","1.000000","ng/L","U",".39","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","2058-94-8","PFUnA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","307-55-1","PFDaA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","376-06-7","PFTeDA","1.500000","ng/L","U",".73","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.50",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","U",".44","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","375-73-5","PFBS",".500000","ng/L","U",".21","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","355-46-4","PFHxS",".380000","ng/L","J",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","1763-23-1","PFOS","4.560000","ng/L","N",".30","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","BDO-2106","13C2-PFHxA",".440000","ng/L","","-99.00","NA","","SIS","111.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","BDO-2110","13C2-PFDA",".440000","ng/L","","-99.00","NA","","SIS","110.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR042PB-FS","SOP 5-369","Initial","CR042PB-FS","BNO","BDO-1839","d5-EtFOSAA","1.760000","ng/L","","-99.00","NA","","SIS","110.00","","-99.00","NA","YES","1.600000","",".250000",".000500",".50",""

"CR043LCS-FS","SOP 5-369","Initial","CR043LCS-FS","BNO","307-24-4","PFHxA","12.790000","ng/L","",".22","MDL","","T","128.00","","2.50","LOQ","YES","10.000000","",".250000",".

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"NAWC-053118-RW-256", "SOP 5-369", "Initial", "J6290-FS1", "BNO", "355-46-4", "PFHxS", "6.150000", "ng/L", "T", ".31", "MDL", "", "T", "", "", "2.31", "LOQ", "YES", "-99.000000", "", ".270000", ".000500", ".93", ""  
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"NAWC-053118-RW-126","SOP 5-369","Initial","J6292-FS1","BNO","72629-94-8","PFTTrDA",".930000","ng/L","UT",".39","MDL","","T","","","2.31","LOQ","YES","-99.000000","",".270000",".000500",".93",""  
"NAWC-053118-RW-126","SOP 5-369","Initial","J6292-FS1","BNO","376-06-7","PFTeDA","1.390000","ng/L","UT",".68","MDL","","T","","","2.31","LOQ","YES","-99.000000","",".270000",".000500","1.39",""  
"NAWC-053118-RW-126","SOP 5-369","Initial","J6292-FS1","BNO","2355-31-9","NMeFOSAA",".930000","ng/L","UT",".39","MDL","","T","","","2.31","LOQ","YES","-99.000000","",".270000",".000500",".93",""  
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"NAWC-053118-RW-126","SOP 5-369","Initial","J6292-FS1","BNO","375-73-5","PFBS","7.760000","ng/L","T",".19","MDL","","T","","","2.31","LOQ","YES","-99.000000","",".270000",".000500",".46",""  
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"WGNA-053118-DUP-38","SOP 5-369","Initial","J6294-FS1","BNO","307-24-4","PFHxA","15.320000","ng/L","T",".20","MDL","","T","","","2.27","LOQ","YES","-99.000000","",".275000",".000500",".45",""  
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"112G08005-WE04","WE04 NAS Willow Grove","WGNA-060718-RW-0488","06/07/2018 12:40","DW","J6637-FS1","NM","SHP-180608-03","2.300000","SOP 5-369","Gen Prep","Initial","06/21/2018 14:56","06/27/2018 20:15","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0393","18-0393","DP-18-0159","DP-18-0159","18-0393","06/08/2018 10:36","07/20/2018 16:36",""

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**TO:** A. FREBOWITZ **DATE:** AUGUST 6, 2018  
**FROM:** TERRI L. SOLOMON **COPIES:** DV FILE  
**SUBJECT:** ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)  
NAS JRB WILLOW GROVE  
SAMPLE DELIVERY GROUPS (SDGs) 18-0393, 18-0360

**SAMPLES:** SDG 18-0393  
15/Drinking Water  
NAWC-053118-RW-126 NAWC-053118-RW-256  
NAWC-053118-RW-265 NAWC-053118-RW-311  
NAWC-060418-RW-038 NAWC-060418-RW-039  
NAWC-060418-RW-230 NAWC-060418-RW-293  
NAWC-060418-RW-309 NAWC-060718-RW-175  
WGNA-053118-DUP-38 WGNA-053118-RW-4850  
WGNA-060718-DUP-39 WGNA-060718-RW-0488  
WGNA-060718-RW-0626

SDG 18-0360  
13/Field Reagent Blank (FRB)  
NAWC-053118-FRB-126 NAWC-053118-FRB-256  
NAWC-053118-FRB-265 NAWC-053118-FRB-311  
NAWC-060418-FRB-038 NAWC-060418-FRB-039  
NAWC-060418-FRB-230 NAWC-060418-FRB-293  
NAWC-060418-FRB-309 NAWC-060718-FRB-175  
WGNA-053118-FRB-4850 WGNA-060718-FRB-0488  
WGNA-060718-FRB-0626

Overview

The sample sets for NAS JRB Willow Grove, SDGs 18-0393 and 18-0360, consisted of fifteen (15) drinking water samples and thirteen (13) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorooctane sulfonic acid (PFOS), N-ethylperfluorooctane sulfonamidoacetate (NMeFOSA), N-methylperfluorooctane sulfonamidoacetate (NEtFOSA), perfluorodecanoic acid (PFDA), perfluorododecanoic acid (PFDoA), perfluorohexanoic acid (PFHxA), perfluorotetradecanoic acid (PFTeDA), perfluorotridecanoic acid (PFTTrDA) and perfluoroundecanoic acid (PFUnA). Two field duplicate pairs, NAWC-053118-RW-126 / WGNA-053118-DUP-38 and NAWC-060718-RW-175 / WGNA-060718-DUP-39 were included in this SDG.

The samples were collected by Tetra Tech on May 31, June 4 and 7, 2018 and analyzed by Battelle Norwell Operations. All sample analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols.

The data contained in this SDG was validated with regard to the following parameters: data completeness, holding times, mass calibration, mass spectral acquisition rate, tune check, instrument sensitivity check, initial/continuing calibrations, ion transition check, laboratory method blanks/FRBs, surrogate spike recoveries (extracted internal standard recoveries), laboratory control sample results, matrix spike / matrix spike duplicate recoveries, injected internal standard areas and recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

**Major**

The following compound was detected in method blank CR042PB affecting SDG 18-0393 at a concentration greater than the limit of quantitation (LOQ).

<u>Compound</u>	<u>Concentration</u>	<u>LOQ</u>
PFOS	4.56 ng/L	2.50 ng/L

The detected results for PFOS in the drinking water samples were qualified (X) because of laboratory preparation blank contamination.

The following compound was detected in a FRB sample at concentration > 1/3 the (LOQ).

<u>Sample</u>	<u>Compound</u>	<u>Concentration</u>
NAWC-060416-FRB-293	PFHxA	1.29 ng/L

The detected result for PFHxA in the associated drinking water sample was qualified (X) because of laboratory preparation blank contamination.

**Minor**

Eleven samples were re-extracted 3-7 days past the hold time due to possible instrument contamination. The original sample results were not included in this SDG. The samples affected were NAWC-053118-RW-256, NAWC-053118-RW-126, WGNA-053118-DUP-38, WGNA-053118-RW-4850, NAWC-053118-RW-311, NAWC-053118-RW-265, NAWC-060418-RW-230, NAWC-060418-RW-309, NAWC-060418-RW-293, NAWC-060418-RW-038 and NAWC-060418-RW-039. The detected and nondetected results reported in the affected samples were qualified as estimated (J) and (UJ) respectively, unless qualified (X) as a result of blank contamination.

The following compound was detected in method blank CR042PB affecting SDG 18-0393 at a concentration below the LOQ.

<u>Compound</u>	<u>Concentration</u>	<u>LOQ</u>
PFHxS	0.38 ng/L	2.50 ng/L

The detected result for PFHxS for sample WGNA-060718-RW-0626 was qualified as nondetected (U).

The surrogate recoveries for perfluoro-n-(1,2-<sup>13</sup>C<sub>2</sub>)hexanoic acid (<sup>13</sup>C-PFHxA) were above the quality control limit for samples WGNA-053118-DUP-38, NAWC-060418-RW-230, WGNA-060718-RW-488 and WGNA-060718-DUP-39. The detected results reported for the affected sample were qualified as biased high (J+) or estimated (J), as a result of conflicting noncompliances, unless qualified (X) as a result of blank contamination.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries were above the quality control limit for PFOS and the MSD percent recovery was below the quality control limit for sample WGNA-053118-4850. The detected results reported in the affected sample were qualified as estimated (J), as a result of conflicting noncompliances unless qualified (X) as a result of blank contamination.

The results for PFOA in the field duplicate pair, NAWC-053118-RW-126/WGNA-053118-DUP-38 were greater than 30% relative percent difference. Detected results in the pair for PFOA were qualified as estimated, (J).

The internal standard recoveries, perfluoro-(1,2-<sup>13</sup>C<sub>2</sub>) octanoic acid (<sup>13</sup>C<sub>2</sub>-PFOA), sodium perfluoro-1-(1,2,3,4-<sup>13</sup>C<sub>4</sub>) octanesulfonate (<sup>13</sup>C<sub>4</sub>-PFOS) and/or N-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d<sub>3</sub>-NMeFOSAA) were below the continuing calibration lower limit in the following samples.

<u>Sample</u>	<u>Internal Standard</u>	<u>Associated Qualification</u>
NAWC-053118-RW-256	<sup>13</sup> C4-PFOS <sup>13</sup> C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
NAWC-053118-RW-126	<sup>13</sup> C4-PFOS d3-NMeFOSAA	detected (J); nondetected (UJ) except PFHxS and PFOS
WGNA-053118-DUP-38	<sup>13</sup> C4-PFOS <sup>13</sup> C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
WGNA-053118-RW-4850	<sup>13</sup> C4-PFOS d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
NAWC-053118-RW-265	<sup>13</sup> C4-PFOS <sup>13</sup> C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
NAWC-060718-RW-175	<sup>13</sup> C4-PFOS <sup>13</sup> C2-PFOA	detected (J); nondetected (UJ); (X) as a result of blank contamination
WGNA-060719-DUP-39	<sup>13</sup> C4-PFOS <sup>13</sup> C2-PFOA	detected (J or J+); nondetected (UJ); (X) as a result of blank contamination
NAWC-053118-RW-311	<sup>13</sup> C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ)
NAWC-060418-RW-293	<sup>13</sup> C2-PFOA	detected (J); nondetected (UJ)
NAWC-060418-RW-038	d3-NMeFOSAA	nondetected (UJ)
WGNA-060718-FRB-0488	d3-NMeFOSAA	nondetected (UJ)

Detected results reported below the LOQ but above the detection limit (DL) were qualified as estimated (J).

**Notes**

The laboratory uses a primary transition for the quantitation of each analyte and a secondary transition for confirmation.

The following samples were analyzed at dilutions.

<u>Sample</u>	<u>Compound</u>	<u>Dilution</u>
NAWC-053118-RW-126	PFHxS	20X
	PFOS	20X
WGNA-053118-DUP-38	PFHxS	20X
	PFOS	20X
WGNA-053118-RW-4850	PFHxS	20X
	PFOS	20X
NAWC-060418-RW-4850	PFHxS	20X
	PFOS	20X
NAWC-060718-RW-175	PFOS	20X
NAWC-060718-DUP-39	PFOS	20X

The laboratory control sample for SDG 18-0393 had a percent recovery for PFTeDA that was above the quality control limit. No validation actions were required as all sample results were nondetects.

Samples NAWC-053118-FRB-256, NAWC-053118-FRB-311, NAWC-060418-FRB-038, NAWC-060418-FRB-039, NAWC-060418-FRB-230, NAWC-060718-FRB-175, WGNA-053118-FRB-4850, WGNA-060718-FRB-0488 had detected results below the LOQ for PFOS. All concentrations of PFOS except NAWC-053118-FRB-311 were greater than 1/3 of the LOQ. Samples NAWC-060418-FRB-230 and WGNA-060718-FRB-0626 had detected results below the LOQ for PFHxS. No validation actions were required as



the method blank associated with the drinking water samples had lab preparation blank contamination at a higher level.

Sample WGNA-060718-FRB-0626 had a detected result above the LOQ for PFOS. No validation actions were required as the method blank associated with the drinking water sample had contamination at a higher level.

The following compound was detected in method blank CQ924PB affecting SDG 18-0360 at a concentration below the LOQ.

<u>Compound</u>	<u>Concentration</u>	<u>LOQ</u>
PFOS	0.46 ng/L	2.50 ng/L

No validation actions were required as FRB samples are not qualified for laboratory blank contamination.

Samples with detections and their associated FRBs are summarized below.

<u>Sample</u>	<u>Associated FRB</u>
NAWC-053118-RW-126	NAWC-053118-FRB-126
NAWC-053118-RW-256	NAWC-053118-FRB-256
NAWC-053118-RW-265	NAWC-053118-FRB-265
NAWC-053118-RW-311	NAWC-053118-FRB-311
NAWC-060418-RW-038	NAWC-060418-FRB-038
NAWC-060418-RW-039	NAWC-060418-FRB-039
NAWC-060418-RW-230	NAWC-060418-FRB-230
NAWC-060418-RW-293	NAWC-060418-FRB-293
NAWC-060418-RW-309	NAWC-060418-FRB-309
NAWC-060718-RW-175	NAWC-060718-FRB-175
WGNA-053118-DUP-38	NAWC-053118-FRB-126
WGNA-053118-RW-4850	WGNA-053118-FRB-4850
WGNA-060718-DUP-39	NAWC-060718-FRB-175
WGNA-060718-RW-0488	WGNA-060718-FRB-0488
WGNA-060718-RW-0626	WGNA-060718-FRB-0626

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

### **Executive Summary**

**Laboratory Performance:** The 14 day extraction hold time was exceeded for several samples. Blank contamination was present affecting several samples. Several surrogate, matrix spike / matrix spike duplicate and internal standard recoveries were outside the quality control limits

**Other Factors Affecting Data Quality:** Results below the RL were estimated. PFOA in the duplicate pair NAWC-053118-RW-126/WGNA-053118-DUP-38 was qualified for field duplicate imprecision > 30% RPD.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009), US EPA National Functional Guidelines for Organic Data Review (January 2017), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories version 5.1" (2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

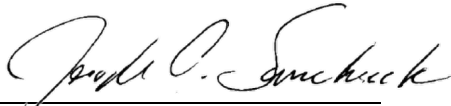
TO: A. FREBOWITZ  
SDGS: 18-0393; 18-0360

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Terri L. Solomon  
Chemist/Data Validator



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Tetra Tech, Inc.  
Joseph A. Samchuck  
Data Validation Manager

Attachments:

Appendix A – Qualified Analytical Results  
Appendix B – Results as Reported by the Laboratory  
Appendix C – Support Documentation

### Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

<b>U</b>	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
<b>J</b>	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
<b>J+</b>	The result is an estimated quantity, but the result may be biased high.
<b>J-</b>	The result is an estimated quantity, but the result may be biased low.
<b>UJ</b>	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
<b>NJ</b>	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
<b>R</b>	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
<b>UR</b>	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
<b>X</b>	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

**Appendix A**

Qualified Analytical Results

**Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's  $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors  $>40\%$  for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient  $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids  $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0393</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-053118-RW-126			NAWC-053118-RW-256			NAWC-053118-RW-265			NAWC-053118-RW-311		
	LAB_ID	J6292-FS1			J6290-FS1			J6299-FS1			J6297-FS1		
	SAMP_DATE	5/31/2018			5/31/2018			5/31/2018			5/31/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.93	UJ	HN	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.93	UJ	HN	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	14.91	J	HG	29.53	J	HN	20.61	J	HN	23.17	J	HN	
PERFLUOROBUTANESULFONIC ACID (PFBS)	7.76	J	HN	9.9	J	HN	6	J	HN	11.88	J	H	
PERFLUORODECANOIC ACID (PFDA)	0.93	UJ	H	0.86	J	HNP	0.89	UJ	HN	0.46	J	HNP	
PERFLUORODODECANOIC ACID (PFDOA)	0.93	UJ	H	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN	
PERFLUOROHEPTANOIC ACID (PFHPA)	7.38	J	H	10.04	J	HN	12.08	J	HN	7.93	J	HN	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	54.57	J	H	6.15	J	HN	15.03	J	HN	4.92	J	H	
PERFLUOROHEXANOIC ACID (PFHXA)	13.79	J	H	15.92	J	HN	17.51	J	HN	9.86	J	HN	
PERFLUORONONANOIC ACID (PFNA)	2.34	J	H	3.48	J	HN	3.29	J	HN	2.66	J	HN	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	90.74	X	AH	31.41	X	AHN	29.13	X	AHN	22.61	X	AH	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.39	UJ	H	1.39	UJ	HN	1.34	UJ	HN	1.29	UJ	HN	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.93	UJ	H	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN	
PERFLUOROUNDECANOIC ACID (PFUNA)	0.93	UJ	H	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN	

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PROJ_NO: 08005-WE04	NSAMPLE NAWC-060418-RW-038			NAWC-060418-RW-039			NAWC-060418-RW-230			NAWC-060418-RW-293		
SDG: 18-0393	LAB_ID J6588-FS1			J6590-FS1			J6582-FS1			J6586-FS1		
FRACTION: PFAS	SAMP_DATE 6/4/2018			6/4/2018			6/4/2018			6/4/2018		
MEDIA: WATER	QC_TYPE NM			NM			NM			NM		
	UNITS NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS 0.0			0.0			0.0			0.0		
	DUP_OF											
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.88	UJ	HN	0.88	UJ	H	0.85	UJ	H	0.85	UJ	H
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.88	UJ	HN	0.88	UJ	H	0.85	UJ	H	0.85	UJ	H
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	20.14	J	H	11.72	J	H	13.2	J	HR	24.5	J	HN
PERFLUOROBUTANESULFONIC ACID (PFBS)	12.89	J	H	6.22	J	H	8.8	J	HR	10.94	J	H
PERFLUORODECANOIC ACID (PFDA)	0.71	J	HP	0.88	UJ	H	0.48	J	HPR	3.2	J	HN
PERFLUORODODECANOIC ACID (PFDOA)	0.88	UJ	H	0.88	UJ	H	0.85	UJ	H	0.85	UJ	HN
PERFLUOROHEPTANOIC ACID (PFHPA)	6.44	J	H	4.12	J	H	5.7	J	HR	10.07	J	HN
PERFLUOROHEXANESULFONIC ACID (PFHXS)	7.56	J	H	2.88	J	H	54.82	J	HR	12.29	J	H
PERFLUOROHEXANOIC ACID (PFHXA)	9.51	J	H	6.78	J	H	13.68	J	HR	12.53	X	BHN
PERFLUORONONANOIC ACID (PFNA)	4.14	J	H	2.48	J	H	2.13	J	HR	7.68	J	HN
PERFLUOROOCCTANESULFONIC ACID (PFOS)	25.88	X	AH	15.34	X	AH	91.3	X	AHR	23.45	X	AH
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.32	UJ	H	1.32	UJ	H	1.27	UJ	H	1.27	UJ	HN
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.88	UJ	H	0.88	UJ	H	0.85	UJ	H	0.85	UJ	HN
PERFLUOROUNDECANOIC ACID (PFUNA)	0.88	UJ	H	0.88	UJ	H	0.85	UJ	H	0.85	UJ	HN

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0393</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-060418-RW-309			NAWC-060718-RW-175			WGNA-053118-DUP-38			WGNA-053118-RW-4850		
	LAB_ID	J6584-FS1			J6639-FS1			J6294-FS1			J6295-FS1		
	SAMP_DATE	6/4/2018			6/7/2018			5/31/2018			5/31/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							NAWC-053118-RW-126					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.86	UJ	H	0.91	U		0.91	UJ	HN	0.91	UJ	HN	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.86	UJ	H	0.91	U		0.91	UJ	HN	0.91	UJ	HN	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	8.92	J	H	12.62	J	N	23.15	J	HNRG	24.06	J	H	
PERFLUOROBUTANESULFONIC ACID (PFBS)	4.96	J	H	6.85	J	N	8.14	J	HNR	34.01	J	DHN	
PERFLUORODECANOIC ACID (PFDA)	0.86	UJ	H	0.91	UJ	N	0.78	J	HNPR	0.91	UJ	H	
PERFLUORODODECANOIC ACID (PFDOA)	0.86	UJ	H	0.91	UJ	N	0.91	UJ	HN	0.91	UJ	H	
PERFLUOROHEPTANOIC ACID (PFHPA)	2.92	J	H	5.68	J	N	9.55	J	HNR	13.59	J	H	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	12.38	J	H	42	J	N	64.47	J	HNR	105.27	J	HN	
PERFLUOROHEXANOIC ACID (PFHXA)	4.87	J	H	11.62	J	N	15.32	J	HNR	35.51	J	H	
PERFLUORONONANOIC ACID (PFNA)	0.98	J	HP	2.01	J	NP	4.78	J	HNR	2.9	J	H	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	9.55	X	AH	56.41	X	AN	151.05	X	AHNR	168.17	X	ADHN	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.29	UJ	H	1.36	UJ	N	1.36	UJ	HN	1.36	UJ	H	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.86	UJ	H	0.91	UJ	N	0.91	UJ	HN	0.91	UJ	H	
PERFLUOROUNDECANOIC ACID (PFUNA)	0.86	UJ	H	0.91	UJ	N	0.91	UJ	HN	0.91	UJ	H	



<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0393</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-060718-DUP-39			WGNA-060718-RW-0488			WGNA-060718-RW-0626		
	LAB_ID	J6641-FS1			J6637-FS1			J6642-FS1		
	SAMP_DATE	6/7/2018			6/7/2018			6/7/2018		
	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	NAWC-060718-RW-175								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.88	U		0.89	U		0.93	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.88	U		0.89	U		0.93	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	14.1	J	NR	34.2	J+	R	2.36			
PERFLUOROBUTANESULFONIC ACID (PFBS)	8.52	J	NR	14.62	J+	R	1.13	J	P	
PERFLUORODECANOIC ACID (PFDA)	0.88	UJ	N	0.89	U		0.93	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.88	UJ	N	0.89	U		0.93	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	6.2	J	NR	14.22	J+	R	0.71	J	P	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	47.89	J	NR	24.41	J+	R	1.04	U	A	
PERFLUOROHEXANOIC ACID (PFHXA)	13.43	J	NR	24.22	J+	R	1.09	J	P	
PERFLUORONONANOIC ACID (PFNA)	2.14	J	NPR	1.92	J	PR	0.93	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	57.72	X	ANR	18.99	X	AR	3.14	X	A	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.32	UJ	N	1.34	U		1.39	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.88	UJ	N	0.89	U		0.93	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.88	UJ	N	0.89	U		0.93	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0360</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-053118-FRB-126			NAWC-053118-FRB-256			NAWC-053118-FRB-265			NAWC-053118-FRB-311		
	LAB_ID	J6293-FS			J6291-FS			J6300-FS			J6298-FS		
	SAMP_DATE	5/31/2018			5/31/2018			5/31/2018			5/31/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.94	U		0.96	U		0.94	U		0.94	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.94	U		0.96	U		0.94	U		0.94	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.47	U		0.48	U		0.47	U		0.47	U		
PERFLUORODECANOIC ACID (PFDA)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.47	U		0.48	U		0.47	U		0.47	U		
PERFLUORONONANOIC ACID (PFNA)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	0.94	U		1.78	J	P	0.94	U		0.31	J	P	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.42	U		1.44	U		1.42	U		1.42	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.94	U		0.96	U		0.94	U		0.94	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.94	U		0.96	U		0.94	U		0.94	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0360</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-060418-FRB-038			NAWC-060418-FRB-039			NAWC-060418-FRB-230			NAWC-060418-FRB-293		
	LAB_ID	J6589-FS			J6591-FS			J6583-FS			J6587-FS		
	SAMP_DATE	6/4/2018			6/4/2018			6/4/2018			6/4/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.94	U		0.94	U		0.96	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.94	U		0.94	U		0.96	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	0.94	U		0.94	U		0.96	U		1	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.47	U		0.47	U		0.48	U		0.5	U		
PERFLUORODECANOIC ACID (PFDA)	0.94	U		0.94	U		0.96	U		1	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.94	U		0.94	U		0.96	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.94	U		0.94	U		0.96	U		1	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.94	U		0.94	U		0.33	J	P	1	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.47	U		0.47	U		0.48	U		1.29	J	P	
PERFLUORONONANOIC ACID (PFNA)	0.94	U		0.94	U		0.96	U		1	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	1.64	J	P	1.37	J	P	2.3	J	P	1	U		
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.42	U		1.42	U		1.44	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.94	U		0.94	U		0.96	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.94	U		0.94	U		0.96	U		1	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0360</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-060418-FRB-309			NAWC-060718-FRB-175			WGNA-053118-FRB-4850			WGNA-060718-FRB-0488		
	LAB_ID	J6585-FS			J6640-FS			J6296-FS			J6638-FS		
	SAMP_DATE	6/4/2018			6/7/2018			5/31/2018			6/7/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		0.98	U		0.94	U		0.98	UJ	N	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		0.98	U		0.94	U		0.98	UJ	N	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	U		0.49	U		0.47	U		0.49	U		
PERFLUORODECANOIC ACID (PFDA)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUORODODECANOIC ACID (PFDOA)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	U		0.49	U		0.47	U		0.49	U		
PERFLUORONONANOIC ACID (PFNA)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	1	U		1.56	J	P	1.81	J	P	2.39	J	P	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.47	U		1.42	U		1.47	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		0.98	U		0.94	U		0.98	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		0.98	U		0.94	U		0.98	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0360</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-060718-FRB-0626		
	LAB_ID	J6643-FS		
	SAMP_DATE	6/7/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)	0.98	U		
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)	0.98	U		
PENTADEC AFLUOROOCTANOIC ACID (PFOA)	0.98	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.49	U		
PERFLUORODECANOIC ACID (PFDA)	0.98	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.98	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.98	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.35	J	P	
PERFLUOROHEXANOIC ACID (PFHXA)	0.49	U		
PERFLUORONONANOIC ACID (PFNA)	0.98	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	2.48			
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.47	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.98	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.98	U		



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-256				
Battelle ID	J6290-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	15.92 <del>T</del> J	0.20	0.46	2.31	
PFHpA	10.04 <del>T</del> J	0.31	0.93	2.31	
PFOA	29.53 <del>T</del> J	0.35	0.93	2.31	
PFNA	3.48 <del>T</del> J	0.34	0.93	2.31	
PFDA	0.86 <del>JT</del> J	0.36	0.93	2.31	
PFUnA	0.93 <del>UT</del> UJ	0.35	0.93	2.31	
PFDaA	0.93 <del>UT</del> UJ	0.39	0.93	2.31	
PFTTrDA	0.93 <del>UT</del> UJ	0.39	0.93	2.31	
PFTeDA	1.39 <del>UT</del> UJ	0.68	1.39	2.31	
NMeFOSAA	0.93 <del>UT</del> UJ	0.39	0.93	2.31	
NEtFOSAA	0.93 <del>UT</del> UJ	0.41	0.93	2.31	
PFBS	9.90 <del>T</del> J	0.19	0.46	2.31	
PFHxS	6.15 <del>T</del> J	0.31	0.93	2.31	
PFOS	31.41 <del>BT</del> X	0.28	0.93	2.31	

**Surrogate Recoveries (%)**

13C2-PFHxA	121
13C2-PFDA	110
d5-EtFOSAA	108

*Denise L. Schumitz*

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-126				
Battelle ID	J6292-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	13.79 <del>T</del> J	0.20	0.46	2.31	
PFHpA	7.38 <del>T</del> J	0.31	0.93	2.31	
PFOA	14.91 <del>T</del> J	0.35	0.93	2.31	
PFNA	2.34 <del>T</del> J	0.34	0.93	2.31	
PFDA	0.93 <del>UT</del> UJ	0.36	0.93	2.31	
PFUnA	0.93 <del>UT</del> UJ	0.35	0.93	2.31	
PFDaA	0.93 <del>UT</del> UJ	0.39	0.93	2.31	
PFTTrDA	0.93 <del>UT</del> UJ	0.39	0.93	2.31	
PFTeDA	1.39 <del>UT</del> UJ	0.68	1.39	2.31	
NMeFOSAA	0.93 <del>UT</del> UJ	0.39	0.93	2.31	
NEtFOSAA	0.93 <del>UT</del> UJ	0.41	0.93	2.31	
PFBS	7.76 <del>T</del> J	0.19	0.46	2.31	
PFHxS	54.57 <del>TD</del> J	6.30	18.52	46.30	
PFOS	90.74 <del>TD</del> X	5.56	18.52	46.30	

**Surrogate Recoveries (%)**

13C2-PFHxA	129
13C2-PFDA	112
d5-EtFOSAA	102

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	WGNA-053118-DUP-38				
Battelle ID	J6294-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	15.32 <del>T</del> J	0.20	0.45	2.27	
PFHpA	9.55 <del>T</del> J	0.31	0.91	2.27	
PFOA	23.15 <del>T</del> J	0.35	0.91	2.27	
PFNA	4.78 <del>T</del> J	0.34	0.91	2.27	
PFDA	0.78 <del>J</del> J	0.35	0.91	2.27	
PFUnA	0.91 <del>UT</del> UJ	0.35	0.91	2.27	
PFDoA	0.91 <del>UT</del> UJ	0.38	0.91	2.27	
PFTTrDA	0.91 <del>UT</del> UJ	0.38	0.91	2.27	
PFTeDA	1.36 <del>UT</del> UJ	0.66	1.36	2.27	
NMeFOSAA	0.91 <del>UT</del> UJ	0.38	0.91	2.27	
NEtFOSAA	0.91 <del>UT</del> UJ	0.40	0.91	2.27	
PFBS	8.14 <del>T</del> J	0.19	0.45	2.27	
PFHxS	64.47 <del>TD</del> J	6.18	18.18	45.45	
PFOS	151.05 <del>TD</del> X	5.45	18.18	45.45	

**Surrogate Recoveries (%)**

13C2-PFHxA	132 N
13C2-PFDA	108
d5-EtFOSAA	114

*Mari L. Salomon*  
 07/31/2018





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-053118-RW-4850

Battelle ID J6295-FS1  
 Sample Type SA  
 Collection Date 05/31/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.275  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L		MDL	LOD	LOQ
PFHxA	35.51 <del>T</del> J		0.20	0.45	2.27
PFHpA	13.59 <del>T</del> J		0.31	0.91	2.27
PFOA	24.06 <del>T</del> J		0.35	0.91	2.27
PFNA	2.90 <del>T</del> J		0.34	0.91	2.27
PFDA	0.91 <del>UT</del> UJ		0.35	0.91	2.27
PFUnA	0.91 <del>UT</del> UJ		0.35	0.91	2.27
PFDaA	0.91 <del>UT</del> UJ		0.38	0.91	2.27
PFTTrDA	0.91 <del>UT</del> UJ		0.38	0.91	2.27
PFTeDA	1.36 <del>UT</del> UJ		0.66	1.36	2.27
NMeFOSAA	0.91 <del>UT</del> UJ		0.38	0.91	2.27
NEtFOSAA	0.91 <del>UT</del> UJ		0.40	0.91	2.27
PFBS	34.01 <del>T</del> J		0.19	0.45	2.27
PFHxS	105.27 <del>TD</del> J		6.18	18.18	45.45
PFOS	168.17 <del>TD</del> X		5.45	18.18	45.45

**Surrogate Recoveries (%)**

13C2-PFHxA	130
13C2-PFDA	116
d5-EtFOSAA	100

*Mari L. Selman*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-311				
Battelle ID	J6297-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.290				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	9.86 <del>T</del> J	0.19	0.43	2.16	
PFHpA	7.93 <del>T</del> J	0.29	0.86	2.16	
PFOA	23.17 <del>T</del> J	0.33	0.86	2.16	
PFNA	2.66 <del>T</del> J	0.32	0.86	2.16	
PFDA	0.46 <del>JT</del> J	0.34	0.86	2.16	
PFUnA	0.86 <del>UT</del> UJ	0.33	0.86	2.16	
PFDaA	0.86 <del>UT</del> UJ	0.36	0.86	2.16	
PFTTrDA	0.86 <del>UT</del> UJ	0.36	0.86	2.16	
PFTeDA	1.29 <del>UT</del> UJ	0.63	1.29	2.16	
NMeFOSAA	0.86 <del>UT</del> UJ	0.36	0.86	2.16	
NEtFOSAA	0.86 <del>UT</del> UJ	0.38	0.86	2.16	
PFBS	11.88 <del>T</del> J	0.18	0.43	2.16	
PFHxS	4.92 <del>T</del> J	0.29	0.86	2.16	
PFOS	22.61 <del>BT</del> X	0.26	0.86	2.16	

**Surrogate Recoveries (%)**

13C2-PFHxA	130
13C2-PFDA	118
d5-EtFOSAA	99

*Wesley L. Selman*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-265				
Battelle ID	J6299-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	17.51 <del>T</del> J	0.20	0.45	2.23	
PFHpA	12.08 <del>T</del> J	0.30	0.89	2.23	
PFOA	20.61 <del>T</del> J	0.34	0.89	2.23	
PFNA	3.29 <del>T</del> J	0.33	0.89	2.23	
PFDA	0.89 <del>UT</del> UJ	0.35	0.89	2.23	
PFUnA	0.89 <del>UT</del> UJ	0.34	0.89	2.23	
PFDoA	0.89 <del>UT</del> UJ	0.38	0.89	2.23	
PFTTrDA	0.89 <del>UT</del> UJ	0.38	0.89	2.23	
PFTeDA	1.34 <del>UT</del> UJ	0.65	1.34	2.23	
NMeFOSAA	0.89 <del>UT</del> UJ	0.38	0.89	2.23	
NEtFOSAA	0.89 <del>UT</del> UJ	0.39	0.89	2.23	
PFBS	6.00 <del>T</del> J	0.19	0.45	2.23	
PFHxS	15.03 <del>T</del> J	0.30	0.89	2.23	
PFOS	29.13 <del>BT</del> X	0.27	0.89	2.23	

**Surrogate Recoveries (%)**

13C2-PFHxA	130
13C2-PFDA	116
d5-EtFOSAA	104

*Denise L. Schumitz*

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-230

Battelle ID J6582-FS1  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.295  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	13.68 <del>T</del> J	0.19	0.42	2.12
PFHpA	5.70 <del>T</del> J	0.29	0.85	2.12
PFOA	13.20 <del>T</del> J	0.32	0.85	2.12
PFNA	2.13 <del>T</del> J	0.31	0.85	2.12
PFDA	0.48 <del>T</del> J	0.33	0.85	2.12
PFUnA	0.85 <del>UT</del> UJ	0.32	0.85	2.12
PFDoA	0.85 <del>UT</del> UJ	0.36	0.85	2.12
PFTTrDA	0.85 <del>UT</del> UJ	0.36	0.85	2.12
PFTeDA	1.27 <del>UT</del> UJ	0.62	1.27	2.12
NMeFOSAA	0.85 <del>UT</del> UJ	0.36	0.85	2.12
NEtFOSAA	0.85 <del>UT</del> UJ	0.37	0.85	2.12
PFBS	8.80 <del>T</del> J	0.18	0.42	2.12
PFHxS	54.82 <del>T</del> J	5.76	16.95	42.37
PFOS	91.30 <del>T</del> X	5.08	16.95	42.37

**Surrogate Recoveries (%)**

13C2-PFHxA	133 N
13C2-PFDA	110
d5-EtFOSAA	108

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-309

Battelle ID J6584-FS1  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.290  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	4.87 <del>T</del> J	0.19	0.43	2.16
PFHpA	2.92 <del>T</del> J	0.29	0.86	2.16
PFOA	8.92 <del>T</del> J	0.33	0.86	2.16
PFNA	0.98 <del>T</del> J	0.32	0.86	2.16
PFDA	0.86 <del>UT</del> UJ	0.34	0.86	2.16
PFUnA	0.86 <del>UT</del> UJ	0.33	0.86	2.16
PFDaA	0.86 <del>UT</del> UJ	0.36	0.86	2.16
PFTTrDA	0.86 <del>UT</del> UJ	0.36	0.86	2.16
PFTeDA	1.29 <del>UT</del> UJ	0.63	1.29	2.16
NMeFOSAA	0.86 <del>UT</del> UJ	0.36	0.86	2.16
NEtFOSAA	0.86 <del>UT</del> UJ	0.38	0.86	2.16
PFBS	4.96 <del>T</del> J	0.18	0.43	2.16
PFHxS	12.38 <del>T</del> J	0.29	0.86	2.16
PFOS	9.55 <del>BT</del> X	0.26	0.86	2.16

#### Surrogate Recoveries (%)

13C2-PFHxA	126
13C2-PFDA	112
d5-EtFOSAA	84

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-293

Battelle ID J6586-FS1  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.295  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	12.53 <del>T</del> X	0.19	0.42	2.12
PFHpA	10.07 <del>T</del> J	0.29	0.85	2.12
PFOA	24.50 <del>T</del> J	0.32	0.85	2.12
PFNA	7.68 <del>T</del> J	0.31	0.85	2.12
PFDA	3.20 <del>T</del> J	0.33	0.85	2.12
PFUnA	0.85 <del>UT</del> UJ	0.32	0.85	2.12
PFDoA	0.85 <del>UT</del> UJ	0.36	0.85	2.12
PFTTrDA	0.85 <del>UT</del> UJ	0.36	0.85	2.12
PFTeDA	1.27 <del>UT</del> UJ	0.62	1.27	2.12
NMeFOSAA	0.85 <del>UT</del> UJ	0.36	0.85	2.12
NEtFOSAA	0.85 <del>UT</del> UJ	0.37	0.85	2.12
PFBS	10.94 <del>T</del> J	0.18	0.42	2.12
PFHxS	12.29 <del>T</del> J	0.29	0.85	2.12
PFOS	23.45 <del>BT</del> X	0.25	0.85	2.12

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	102
d5-EtFOSAA	83

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-038

Battelle ID J6588-FS1  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	9.51 <del>T</del> J	0.19	0.44	2.19
PFHpA	6.44 <del>T</del> J	0.30	0.88	2.19
PFOA	20.14 <del>T</del> J	0.33	0.88	2.19
PFNA	4.14 <del>T</del> J	0.32	0.88	2.19
PFDA	0.71 <del>J</del> J	0.34	0.88	2.19
PFUnA	0.88 <del>UT</del> UJ	0.33	0.88	2.19
PFDoA	0.88 <del>UT</del> UJ	0.37	0.88	2.19
PFTTrDA	0.88 <del>UT</del> UJ	0.37	0.88	2.19
PFTeDA	1.32 <del>UT</del> UJ	0.64	1.32	2.19
NMeFOSAA	0.88 <del>UT</del> UJ	0.37	0.88	2.19
NEtFOSAA	0.88 <del>UT</del> UJ	0.39	0.88	2.19
PFBS	12.89 <del>T</del> J	0.18	0.44	2.19
PFHxS	7.56 <del>T</del> J	0.30	0.88	2.19
PFOS	25.88 <del>BT</del> X	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	124
13C2-PFDA	104
d5-EtFOSAA	117

*Wesley L. Selman*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-039

Battelle ID	J6590-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	6.78 <del>T</del> J	0.19	0.44	2.19	
PFHpA	4.12 <del>T</del> J	0.30	0.88	2.19	
PFOA	11.72 <del>T</del> J	0.33	0.88	2.19	
PFNA	2.48 <del>T</del> J	0.32	0.88	2.19	
PFDA	0.88 <del>UT</del> UJ	0.34	0.88	2.19	
PFUnA	0.88 <del>UT</del> UJ	0.33	0.88	2.19	
PFDoA	0.88 <del>UT</del> UJ	0.37	0.88	2.19	
PFTTrDA	0.88 <del>UT</del> UJ	0.37	0.88	2.19	
PFTeDA	1.32 <del>UT</del> UJ	0.64	1.32	2.19	
NMeFOSAA	0.88 <del>UT</del> UJ	0.37	0.88	2.19	
NEtFOSAA	0.88 <del>UT</del> UJ	0.39	0.88	2.19	
PFBS	6.22 <del>T</del> J	0.18	0.44	2.19	
PFHxS	2.88 <del>BT</del> J	0.30	0.88	2.19	
PFOS	15.34 <del>BT</del> X	0.26	0.88	2.19	

**Surrogate Recoveries (%)**

13C2-PFHxA	129
13C2-PFDA	115
d5-EtFOSAA	99

*Wendy L. Seaman*  
 07/31/2018





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-RW-0488

Battelle ID J6637-FS1  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.280  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L		MDL	LOD	LOQ
PFHxA	24.22	J+	0.20	0.45	2.23
PFHpA	14.22	J+	0.30	0.89	2.23
PFOA	34.20	J+	0.34	0.89	2.23
PFNA	1.92	J	0.33	0.89	2.23
PFDA	0.89	U	0.35	0.89	2.23
PFUnA	0.89	U	0.34	0.89	2.23
PFDaA	0.89	U	0.38	0.89	2.23
PFTTrDA	0.89	U	0.38	0.89	2.23
PFTeDA	1.34	U	0.65	1.34	2.23
NMeFOSAA	0.89	U	0.38	0.89	2.23
NEtFOSAA	0.89	U	0.39	0.89	2.23
PFBS	14.62	J+	0.19	0.45	2.23
PFHxS	24.41	J+	0.30	0.89	2.23
PFOS	18.99	B- X	0.27	0.89	2.23

**Surrogate Recoveries (%)**

13C2-PFHxA	133	N
13C2-PFDA	106	
d5-EtFOSAA	103	

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060718-RW-175					
Battelle ID	J6639-FS1					
Sample Type	SA					
Collection Date	06/07/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	DW					
Sample Size	0.275					
Size Unit-Basis	L					
Units	ng/L		MDL	LOD	LOQ	
PFHxA	11.62	J	0.20	0.45	2.27	
PFHpA	5.68	J	0.31	0.91	2.27	
PFOA	12.62	J	0.35	0.91	2.27	
PFNA	2.01	J	0.34	0.91	2.27	
PFDA	0.91	U	UJ	0.35	0.91	2.27
PFUnA	0.91	U	UJ	0.35	0.91	2.27
PFDaA	0.91	U	UJ	0.38	0.91	2.27
PFTTrDA	0.91	U	UJ	0.38	0.91	2.27
PFTeDA	1.36	U	UJ	0.66	1.36	2.27
NMeFOSAA	0.91	U	0.38	0.91	2.27	
NEtFOSAA	0.91	U	0.40	0.91	2.27	
PFBS	6.85	J	0.19	0.45	2.27	
PFHxS	42.00	J	0.31	0.91	2.27	
PFOS	56.41	D	X	5.45	18.18	45.45

**Surrogate Recoveries (%)**

13C2-PFHxA	126
13C2-PFDA	117
d5-EtFOSAA	99

*Wesley L. Salomon*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-DUP-39

Battelle ID J6641-FS1  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L		MDL	LOD	LOQ
PFHxA	13.43	J	0.19	0.44	2.19
PFHpA	6.20	J	0.30	0.88	2.19
PFOA	14.10	J	0.33	0.88	2.19
PFNA	2.14	J	0.32	0.88	2.19
PFDA	0.88	U	0.34	0.88	2.19
PFUnA	0.88	U	0.33	0.88	2.19
PFDoA	0.88	U	0.37	0.88	2.19
PFTTrDA	0.88	U	0.37	0.88	2.19
PFTeDA	1.32	U	0.64	1.32	2.19
NMeFOSAA	0.88	U	0.37	0.88	2.19
NEtFOSAA	0.88	U	0.39	0.88	2.19
PFBS	8.52	J	0.18	0.44	2.19
PFHxS	47.89	J	0.30	0.88	2.19
PFOS	57.72	X	5.26	17.54	43.86

**Surrogate Recoveries (%)**

13C2-PFHxA	145	N
13C2-PFDA	124	
d5-EtFOSAA	92	

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-RW-0626

Battelle ID J6642-FS1  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.270  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	1.09 J	0.20	0.46	2.31
PFHpA	0.71 J	0.31	0.93	2.31
PFOA	2.36	0.35	0.93	2.31
PFNA	0.93 U	0.34	0.93	2.31
PFDA	0.93 U	0.36	0.93	2.31
PFUnA	0.93 U	0.35	0.93	2.31
PFDaA	0.93 U	0.39	0.93	2.31
PFTTrDA	0.93 U	0.39	0.93	2.31
PFTeDA	1.39 U	0.68	1.39	2.31
NMeFOSAA	0.93 U	0.39	0.93	2.31
NEtFOSAA	0.93 U	0.41	0.93	2.31
PFBS	1.13 J	0.19	0.46	2.31
PFHxS	1.04 <del>J</del> U	0.31	0.93	2.31
PFOS	3.14 <del>B</del> X	0.28	0.93	2.31

**Surrogate Recoveries (%)**

13C2-PFHxA	128
13C2-PFDA	124
d5-EtFOSAA	117

*Wendy Selman*

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-256				
Battelle ID	J6291-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.48 U	0.21	0.48	2.40	
PFHpA	0.96 U	0.33	0.96	2.40	
PFOA	0.96 U	0.37	0.96	2.40	
PFNA	0.96 U	0.36	0.96	2.40	
PFDA	0.96 U	0.38	0.96	2.40	
PFUnA	0.96 U	0.37	0.96	2.40	
PFDaA	0.96 U	0.40	0.96	2.40	
PFTTrDA	0.96 U	0.40	0.96	2.40	
PFTeDA	1.44 U	0.70	1.44	2.40	
NMeFOSAA	0.96 U	0.40	0.96	2.40	
NEtFOSAA	0.96 U	0.42	0.96	2.40	
PFBS	0.48 U	0.20	0.48	2.40	
PFHxS	0.96 U	0.33	0.96	2.40	
PFOS	1.78 J	0.29	0.96	2.40	

**Surrogate Recoveries (%)**

13C2-PFHxA	113
13C2-PFDA	107
d5-EtFOSAA	98

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-126				
Battelle ID	J6293-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	0.94 U	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	106
13C2-PFDA	101
d5-EtFOSAA	97

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-053118-FRB-4850

Battelle ID J6296-FS  
 Sample Type SA  
 Collection Date 05/31/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.265  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDaA	0.94 U	0.40	0.94	2.36
PFTTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.81 J	0.28	0.94	2.36

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	91
d5-EtFOSAA	100

*Wendy L. Selman*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-311				
Battelle ID	J6298-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	0.31 J	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	99
d5-EtFOSAA	91

*Denise L. Schumitz*  
 07/31/2018





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-265				
Battelle ID	J6300-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	0.94 U	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	102
d5-EtFOSAA	92

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-FRB-230

Battelle ID J6583-FS

Sample Type SA

Collection Date 06/04/2018

Extraction Date 06/14/2018

Analysis Date 06/15/2018

Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA

Matrix DW

Sample Size 0.260

Size Unit-Basis L

Units ng/L

MDL

LOD

LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.48 U	0.21	0.48	2.40
PFHpA	0.96 U	0.33	0.96	2.40
PFOA	0.96 U	0.37	0.96	2.40
PFNA	0.96 U	0.36	0.96	2.40
PFDA	0.96 U	0.38	0.96	2.40
PFUnA	0.96 U	0.37	0.96	2.40
PFDaA	0.96 U	0.40	0.96	2.40
PFTTrDA	0.96 U	0.40	0.96	2.40
PFTeDA	1.44 U	0.70	1.44	2.40
NMeFOSAA	0.96 U	0.40	0.96	2.40
NEtFOSAA	0.96 U	0.42	0.96	2.40
PFBS	0.48 U	0.20	0.48	2.40
PFHxS	0.33 J	0.33	0.96	2.40
PFOS	2.30 J	0.29	0.96	2.40

**Surrogate Recoveries (%)**

13C2-PFHxA 105

13C2-PFDA 97

d5-EtFOSAA 99

*Denise L. Schumitz*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-FRB-309

Battelle ID J6585-FS  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	99
d5-EtFOSAA	111

*Steve L. Selman*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-FRB-293

Battelle ID J6587-FS  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	1.29 J	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	98
13C2-PFDA	102
d5-EtFOSAA	109

*Mari L. Selman*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-038				
Battelle ID	J6589-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDaA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	1.64 J	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	101
d5-EtFOSAA	110

*Denise L. Schumitz*

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-FRB-039

Battelle ID J6591-FS  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.265  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDaA	0.94 U	0.40	0.94	2.36
PFTTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.37 J	0.28	0.94	2.36

**Surrogate Recoveries (%)**

13C2-PFHxA	105
13C2-PFDA	93
d5-EtFOSAA	119

*Maria L. Salomon*  
 07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-FRB-0488

Battelle ID J6638-FS  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.49 U	0.22	0.49	2.45
PFHpA	0.98 U	0.33	0.98	2.45
PFOA	0.98 U	0.37	0.98	2.45
PFNA	0.98 U	0.36	0.98	2.45
PFDA	0.98 U	0.38	0.98	2.45
PFUnA	0.98 U	0.37	0.98	2.45
PFDaA	0.98 U	0.41	0.98	2.45
PFTTrDA	0.98 U	0.41	0.98	2.45
PFTeDA	1.47 U	0.72	1.47	2.45
NMeFOSAA	0.98 U UJ	0.41	0.98	2.45
NEtFOSAA	0.98 U UJ	0.43	0.98	2.45
PFBS	0.49 U	0.21	0.49	2.45
PFHxS	0.98 U	0.33	0.98	2.45
PFOS	2.39 J	0.29	0.98	2.45

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	94
d5-EtFOSAA	99

07/31/2018



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060718-FRB-175				
Battelle ID	J6640-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.255				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.49 U	0.22	0.49	2.45	
PFHpA	0.98 U	0.33	0.98	2.45	
PFOA	0.98 U	0.37	0.98	2.45	
PFNA	0.98 U	0.36	0.98	2.45	
PFDA	0.98 U	0.38	0.98	2.45	
PFUnA	0.98 U	0.37	0.98	2.45	
PFDaA	0.98 U	0.41	0.98	2.45	
PFTTrDA	0.98 U	0.41	0.98	2.45	
PFTeDA	1.47 U	0.72	1.47	2.45	
NMeFOSAA	0.98 U	0.41	0.98	2.45	
NEtFOSAA	0.98 U	0.43	0.98	2.45	
PFBS	0.49 U	0.21	0.49	2.45	
PFHxS	0.98 U	0.33	0.98	2.45	
PFOS	1.56 J	0.29	0.98	2.45	

**Surrogate Recoveries (%)**

13C2-PFHxA	102
13C2-PFDA	92
d5-EtFOSAA	107

*Wesley L. Selman*  
 07/31/2018





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-FRB-0626

Battelle ID J6643-FS  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.49 U	0.22	0.49	2.45
PFHpA	0.98 U	0.33	0.98	2.45
PFOA	0.98 U	0.37	0.98	2.45
PFNA	0.98 U	0.36	0.98	2.45
PFDA	0.98 U	0.38	0.98	2.45
PFUnA	0.98 U	0.37	0.98	2.45
PFDaA	0.98 U	0.41	0.98	2.45
PFTTrDA	0.98 U	0.41	0.98	2.45
PFTeDA	1.47 U	0.72	1.47	2.45
NMeFOSAA	0.98 U	0.41	0.98	2.45
NEtFOSAA	0.98 U	0.43	0.98	2.45
PFBS	0.49 U	0.21	0.49	2.45
PFHxS	0.35 J	0.33	0.98	2.45
PFOS	2.48 B	0.29	0.98	2.45

**Surrogate Recoveries (%)**

13C2-PFHxA	112
13C2-PFDA	101
d5-EtFOSAA	94

*Denise L. Schumitz*  
 07/31/2018

**Appendix B**

Results as Reported by the Laboratory



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-256				
Battelle ID	J6290-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	15.92 T	0.20	0.46	2.31	
PFHpA	10.04 T	0.31	0.93	2.31	
PFOA	29.53 T	0.35	0.93	2.31	
PFNA	3.48 T	0.34	0.93	2.31	
PFDA	0.86 JT	0.36	0.93	2.31	
PFUnA	0.93 UT	0.35	0.93	2.31	
PFDaA	0.93 UT	0.39	0.93	2.31	
PFTTrDA	0.93 UT	0.39	0.93	2.31	
PFTeDA	1.39 UT	0.68	1.39	2.31	
NMeFOSAA	0.93 UT	0.39	0.93	2.31	
NEtFOSAA	0.93 UT	0.41	0.93	2.31	
PFBS	9.90 T	0.19	0.46	2.31	
PFHxS	6.15 T	0.31	0.93	2.31	
PFOS	31.41 BT	0.28	0.93	2.31	

**Surrogate Recoveries (%)**

13C2-PFHxA	121
13C2-PFDA	110
d5-EtFOSAA	108



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-126				
Battelle ID	J6292-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	13.79 T	0.20	0.46	2.31	
PFHpA	7.38 T	0.31	0.93	2.31	
PFOA	14.91 T	0.35	0.93	2.31	
PFNA	2.34 T	0.34	0.93	2.31	
PFDA	0.93 UT	0.36	0.93	2.31	
PFUnA	0.93 UT	0.35	0.93	2.31	
PFDaA	0.93 UT	0.39	0.93	2.31	
PFTTrDA	0.93 UT	0.39	0.93	2.31	
PFTeDA	1.39 UT	0.68	1.39	2.31	
NMeFOSAA	0.93 UT	0.39	0.93	2.31	
NEtFOSAA	0.93 UT	0.41	0.93	2.31	
PFBS	7.76 T	0.19	0.46	2.31	
PFHxS	54.57 TD	6.30	18.52	46.30	
PFOS	90.74 TD	5.56	18.52	46.30	

**Surrogate Recoveries (%)**

13C2-PFHxA	129
13C2-PFDA	112
d5-EtFOSAA	102



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	WGNA-053118-DUP-38			
Battelle ID	J6294-FS1			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	15.32 T	0.20	0.45	2.27
PFHpA	9.55 T	0.31	0.91	2.27
PFOA	23.15 T	0.35	0.91	2.27
PFNA	4.78 T	0.34	0.91	2.27
PFDA	0.78 JT	0.35	0.91	2.27
PFUnA	0.91 UT	0.35	0.91	2.27
PFDaA	0.91 UT	0.38	0.91	2.27
PFTTrDA	0.91 UT	0.38	0.91	2.27
PFTeDA	1.36 UT	0.66	1.36	2.27
NMeFOSAA	0.91 UT	0.38	0.91	2.27
NEtFOSAA	0.91 UT	0.40	0.91	2.27
PFBS	8.14 T	0.19	0.45	2.27
PFHxS	64.47 TD	6.18	18.18	45.45
PFOS	151.05 TD	5.45	18.18	45.45

**Surrogate Recoveries (%)**

13C2-PFHxA	132 N
13C2-PFDA	108
d5-EtFOSAA	114



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-053118-RW-4850

Battelle ID	J6295-FS1			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	35.51 T	0.20	0.45	2.27
PFHpA	13.59 T	0.31	0.91	2.27
PFOA	24.06 T	0.35	0.91	2.27
PFNA	2.90 T	0.34	0.91	2.27
PFDA	0.91 UT	0.35	0.91	2.27
PFUnA	0.91 UT	0.35	0.91	2.27
PFDaA	0.91 UT	0.38	0.91	2.27
PFTTrDA	0.91 UT	0.38	0.91	2.27
PFTeDA	1.36 UT	0.66	1.36	2.27
NMeFOSAA	0.91 UT	0.38	0.91	2.27
NEtFOSAA	0.91 UT	0.40	0.91	2.27
PFBS	34.01 T	0.19	0.45	2.27
PFHxS	105.27 TD	6.18	18.18	45.45
PFOS	168.17 TD	5.45	18.18	45.45

**Surrogate Recoveries (%)**

13C2-PFHxA	130
13C2-PFDA	116
d5-EtFOSAA	100



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-311				
Battelle ID	J6297-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.290				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	9.86 T	0.19	0.43	2.16	
PFHpA	7.93 T	0.29	0.86	2.16	
PFOA	23.17 T	0.33	0.86	2.16	
PFNA	2.66 T	0.32	0.86	2.16	
PFDA	0.46 JT	0.34	0.86	2.16	
PFUnA	0.86 UT	0.33	0.86	2.16	
PFDaA	0.86 UT	0.36	0.86	2.16	
PFTTrDA	0.86 UT	0.36	0.86	2.16	
PFTeDA	1.29 UT	0.63	1.29	2.16	
NMeFOSAA	0.86 UT	0.36	0.86	2.16	
NEtFOSAA	0.86 UT	0.38	0.86	2.16	
PFBS	11.88 T	0.18	0.43	2.16	
PFHxS	4.92 T	0.29	0.86	2.16	
PFOS	22.61 BT	0.26	0.86	2.16	

**Surrogate Recoveries (%)**

13C2-PFHxA	130
13C2-PFDA	118
d5-EtFOSAA	99



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-RW-265				
Battelle ID	J6299-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	17.51 T	0.20	0.45	2.23	
PFHpA	12.08 T	0.30	0.89	2.23	
PFOA	20.61 T	0.34	0.89	2.23	
PFNA	3.29 T	0.33	0.89	2.23	
PFDA	0.89 UT	0.35	0.89	2.23	
PFUnA	0.89 UT	0.34	0.89	2.23	
PFDaA	0.89 UT	0.38	0.89	2.23	
PFTTrDA	0.89 UT	0.38	0.89	2.23	
PFTeDA	1.34 UT	0.65	1.34	2.23	
NMeFOSAA	0.89 UT	0.38	0.89	2.23	
NEtFOSAA	0.89 UT	0.39	0.89	2.23	
PFBS	6.00 T	0.19	0.45	2.23	
PFHxS	15.03 T	0.30	0.89	2.23	
PFOS	29.13 BT	0.27	0.89	2.23	

**Surrogate Recoveries (%)**

13C2-PFHxA	130
13C2-PFDA	116
d5-EtFOSAA	104





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-RW-230				
Battelle ID	J6582-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.295				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	13.68 T	0.19	0.42	2.12	
PFHpA	5.70 T	0.29	0.85	2.12	
PFOA	13.20 T	0.32	0.85	2.12	
PFNA	2.13 T	0.31	0.85	2.12	
PFDA	0.48 JT	0.33	0.85	2.12	
PFUnA	0.85 UT	0.32	0.85	2.12	
PFDaA	0.85 UT	0.36	0.85	2.12	
PFTTrDA	0.85 UT	0.36	0.85	2.12	
PFTeDA	1.27 UT	0.62	1.27	2.12	
NMeFOSAA	0.85 UT	0.36	0.85	2.12	
NEtFOSAA	0.85 UT	0.37	0.85	2.12	
PFBS	8.80 T	0.18	0.42	2.12	
PFHxS	54.82 TD	5.76	16.95	42.37	
PFOS	91.30 TD	5.08	16.95	42.37	

**Surrogate Recoveries (%)**

13C2-PFHxA	133 N
13C2-PFDA	110
d5-EtFOSAA	108



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-309

Battelle ID J6584-FS1

Sample Type SA

Collection Date 06/04/2018

Extraction Date 06/21/2018

Analysis Date 06/27/2018

Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA

Matrix DW

Sample Size 0.290

Size Unit-Basis L

Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	4.87 T	0.19	0.43	2.16
PFHpA	2.92 T	0.29	0.86	2.16
PFOA	8.92 T	0.33	0.86	2.16
PFNA	0.98 JT	0.32	0.86	2.16
PFDA	0.86 UT	0.34	0.86	2.16
PFUnA	0.86 UT	0.33	0.86	2.16
PFDaA	0.86 UT	0.36	0.86	2.16
PFTTrDA	0.86 UT	0.36	0.86	2.16
PFTeDA	1.29 UT	0.63	1.29	2.16
NMeFOSAA	0.86 UT	0.36	0.86	2.16
NEtFOSAA	0.86 UT	0.38	0.86	2.16
PFBS	4.96 T	0.18	0.43	2.16
PFHxS	12.38 T	0.29	0.86	2.16
PFOS	9.55 BT	0.26	0.86	2.16

**Surrogate Recoveries (%)**

13C2-PFHxA 126

13C2-PFDA 112

d5-EtFOSAA 84



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-RW-293				
Battelle ID	J6586-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.295				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	12.53 T	0.19	0.42	2.12	
PFHpA	10.07 T	0.29	0.85	2.12	
PFOA	24.50 T	0.32	0.85	2.12	
PFNA	7.68 T	0.31	0.85	2.12	
PFDA	3.20 T	0.33	0.85	2.12	
PFUnA	0.85 UT	0.32	0.85	2.12	
PFDaA	0.85 UT	0.36	0.85	2.12	
PFTTrDA	0.85 UT	0.36	0.85	2.12	
PFTeDA	1.27 UT	0.62	1.27	2.12	
NMeFOSAA	0.85 UT	0.36	0.85	2.12	
NEtFOSAA	0.85 UT	0.37	0.85	2.12	
PFBS	10.94 T	0.18	0.42	2.12	
PFHxS	12.29 T	0.29	0.85	2.12	
PFOS	23.45 BT	0.25	0.85	2.12	

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	102
d5-EtFOSAA	83



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-RW-038				
Battelle ID	J6588-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	9.51 T	0.19	0.44	2.19	
PFHpA	6.44 T	0.30	0.88	2.19	
PFOA	20.14 T	0.33	0.88	2.19	
PFNA	4.14 T	0.32	0.88	2.19	
PFDA	0.71 JT	0.34	0.88	2.19	
PFUnA	0.88 UT	0.33	0.88	2.19	
PFDaA	0.88 UT	0.37	0.88	2.19	
PFTTrDA	0.88 UT	0.37	0.88	2.19	
PFTeDA	1.32 UT	0.64	1.32	2.19	
NMeFOSAA	0.88 UT	0.37	0.88	2.19	
NEtFOSAA	0.88 UT	0.39	0.88	2.19	
PFBS	12.89 T	0.18	0.44	2.19	
PFHxS	7.56 T	0.30	0.88	2.19	
PFOS	25.88 BT	0.26	0.88	2.19	

**Surrogate Recoveries (%)**

13C2-PFHxA	124
13C2-PFDA	104
d5-EtFOSAA	117



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID NAWC-060418-RW-039

Battelle ID J6590-FS1  
 Sample Type SA  
 Collection Date 06/04/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	6.78 T	0.19	0.44	2.19
PFHpA	4.12 T	0.30	0.88	2.19
PFOA	11.72 T	0.33	0.88	2.19
PFNA	2.48 T	0.32	0.88	2.19
PFDA	0.88 UT	0.34	0.88	2.19
PFUnA	0.88 UT	0.33	0.88	2.19
PFDaA	0.88 UT	0.37	0.88	2.19
PFTrDA	0.88 UT	0.37	0.88	2.19
PFTeDA	1.32 UT	0.64	1.32	2.19
NMeFOSAA	0.88 UT	0.37	0.88	2.19
NEtFOSAA	0.88 UT	0.39	0.88	2.19
PFBS	6.22 T	0.18	0.44	2.19
PFHxS	2.88 BT	0.30	0.88	2.19
PFOS	15.34 BT	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	129
13C2-PFDA	115
d5-EtFOSAA	99



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-RW-0488

Battelle ID J6637-FS1  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.280  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	24.22	0.20	0.45	2.23
PFHpA	14.22	0.30	0.89	2.23
PFOA	34.20	0.34	0.89	2.23
PFNA	1.92 J	0.33	0.89	2.23
PFDA	0.89 U	0.35	0.89	2.23
PFUnA	0.89 U	0.34	0.89	2.23
PFDaA	0.89 U	0.38	0.89	2.23
PFTTrDA	0.89 U	0.38	0.89	2.23
PFTeDA	1.34 U	0.65	1.34	2.23
NMeFOSAA	0.89 U	0.38	0.89	2.23
NEtFOSAA	0.89 U	0.39	0.89	2.23
PFBS	14.62	0.19	0.45	2.23
PFHxS	24.41	0.30	0.89	2.23
PFOS	18.99 B	0.27	0.89	2.23

**Surrogate Recoveries (%)**

13C2-PFHxA	133 N
13C2-PFDA	106
d5-EtFOSAA	103



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060718-RW-175				
Battelle ID	J6639-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	11.62	0.20	0.45	2.27	
PFHpA	5.68	0.31	0.91	2.27	
PFOA	12.62	0.35	0.91	2.27	
PFNA	2.01 J	0.34	0.91	2.27	
PFDA	0.91 U	0.35	0.91	2.27	
PFUnA	0.91 U	0.35	0.91	2.27	
PFDaA	0.91 U	0.38	0.91	2.27	
PFTTrDA	0.91 U	0.38	0.91	2.27	
PFTeDA	1.36 U	0.66	1.36	2.27	
NMeFOSAA	0.91 U	0.38	0.91	2.27	
NEtFOSAA	0.91 U	0.40	0.91	2.27	
PFBS	6.85	0.19	0.45	2.27	
PFHxS	42.00	0.31	0.91	2.27	
PFOS	56.41 D	5.45	18.18	45.45	

**Surrogate Recoveries (%)**

13C2-PFHxA	126
13C2-PFDA	117
d5-EtFOSAA	99



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	WGNA-060718-DUP-39				
Battelle ID	J6641-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	13.43	0.19	0.44	2.19	
PFHpA	6.20	0.30	0.88	2.19	
PFOA	14.10	0.33	0.88	2.19	
PFNA	2.14 J	0.32	0.88	2.19	
PFDA	0.88 U	0.34	0.88	2.19	
PFUnA	0.88 U	0.33	0.88	2.19	
PFDaA	0.88 U	0.37	0.88	2.19	
PFTTrDA	0.88 U	0.37	0.88	2.19	
PFTeDA	1.32 U	0.64	1.32	2.19	
NMeFOSAA	0.88 U	0.37	0.88	2.19	
NEtFOSAA	0.88 U	0.39	0.88	2.19	
PFBS	8.52	0.18	0.44	2.19	
PFHxS	47.89	0.30	0.88	2.19	
PFOS	57.72 D	5.26	17.54	43.86	

**Surrogate Recoveries (%)**

13C2-PFHxA	145 N
13C2-PFDA	124
d5-EtFOSAA	92





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-RW-0626

Battelle ID	J6642-FS1			
Sample Type	SA			
Collection Date	06/07/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	1.09 J	0.20	0.46	2.31
PFHpA	0.71 J	0.31	0.93	2.31
PFOA	2.36	0.35	0.93	2.31
PFNA	0.93 U	0.34	0.93	2.31
PFDA	0.93 U	0.36	0.93	2.31
PFUnA	0.93 U	0.35	0.93	2.31
PFDoA	0.93 U	0.39	0.93	2.31
PFTTrDA	0.93 U	0.39	0.93	2.31
PFTeDA	1.39 U	0.68	1.39	2.31
NMeFOSAA	0.93 U	0.39	0.93	2.31
NEtFOSAA	0.93 U	0.41	0.93	2.31
PFBS	1.13 J	0.19	0.46	2.31
PFHxS	1.04 J	0.31	0.93	2.31
PFOS	3.14 B	0.28	0.93	2.31

**Surrogate Recoveries (%)**

13C2-PFHxA	128
13C2-PFDA	124
d5-EtFOSAA	117



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-256				
Battelle ID	J6291-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.48 U	0.21	0.48	2.40	
PFHpA	0.96 U	0.33	0.96	2.40	
PFOA	0.96 U	0.37	0.96	2.40	
PFNA	0.96 U	0.36	0.96	2.40	
PFDA	0.96 U	0.38	0.96	2.40	
PFUnA	0.96 U	0.37	0.96	2.40	
PFDaA	0.96 U	0.40	0.96	2.40	
PFTTrDA	0.96 U	0.40	0.96	2.40	
PFTeDA	1.44 U	0.70	1.44	2.40	
NMeFOSAA	0.96 U	0.40	0.96	2.40	
NEtFOSAA	0.96 U	0.42	0.96	2.40	
PFBS	0.48 U	0.20	0.48	2.40	
PFHxS	0.96 U	0.33	0.96	2.40	
PFOS	1.78 J	0.29	0.96	2.40	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	113				
13C2-PFDA	107				
d5-EtFOSAA	98				



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-126				
Battelle ID	J6293-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	0.94 U	0.28	0.94	2.36	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	106				
13C2-PFDA	101				
d5-EtFOSAA	97				



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-053118-FRB-4850

Battelle ID J6296-FS

Sample Type SA

Collection Date 05/31/2018

Extraction Date 06/14/2018

Analysis Date 06/15/2018

Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA

Matrix DW

Sample Size 0.265

Size Unit-Basis L

Units ng/L

MDL

LOD

LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.81 J	0.28	0.94	2.36

**Surrogate Recoveries (%)**

13C2-PFHxA 103

13C2-PFDA 91

d5-EtFOSAA 100



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-311				
Battelle ID	J6298-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	0.31 J	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	99
d5-EtFOSAA	91



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-053118-FRB-265				
Battelle ID	J6300-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	0.94 U	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	102
d5-EtFOSAA	92



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-230				
Battelle ID	J6583-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.48 U	0.21	0.48	2.40	
PFHpA	0.96 U	0.33	0.96	2.40	
PFOA	0.96 U	0.37	0.96	2.40	
PFNA	0.96 U	0.36	0.96	2.40	
PFDA	0.96 U	0.38	0.96	2.40	
PFUnA	0.96 U	0.37	0.96	2.40	
PFDaA	0.96 U	0.40	0.96	2.40	
PFTTrDA	0.96 U	0.40	0.96	2.40	
PFTeDA	1.44 U	0.70	1.44	2.40	
NMeFOSAA	0.96 U	0.40	0.96	2.40	
NEtFOSAA	0.96 U	0.42	0.96	2.40	
PFBS	0.48 U	0.20	0.48	2.40	
PFHxS	0.33 J	0.33	0.96	2.40	
PFOS	2.30 J	0.29	0.96	2.40	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	105				
13C2-PFDA	97				
d5-EtFOSAA	99				



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-309				
Battelle ID	J6585-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	99
d5-EtFOSAA	111





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-293			
Battelle ID	J6587-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	1.29 J	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50
<b>Surrogate Recoveries (%)</b>				
13C2-PFHxA	98			
13C2-PFDA	102			
d5-EtFOSAA	109			



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-038				
Battelle ID	J6589-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	1.64 J	0.28	0.94	2.36	

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	101
d5-EtFOSAA	110



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-039				
Battelle ID	J6591-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.47 U	0.21	0.47	2.36	
PFHpA	0.94 U	0.32	0.94	2.36	
PFOA	0.94 U	0.36	0.94	2.36	
PFNA	0.94 U	0.35	0.94	2.36	
PFDA	0.94 U	0.37	0.94	2.36	
PFUnA	0.94 U	0.36	0.94	2.36	
PFDoA	0.94 U	0.40	0.94	2.36	
PFTTrDA	0.94 U	0.40	0.94	2.36	
PFTeDA	1.42 U	0.69	1.42	2.36	
NMeFOSAA	0.94 U	0.40	0.94	2.36	
NEtFOSAA	0.94 U	0.42	0.94	2.36	
PFBS	0.47 U	0.20	0.47	2.36	
PFHxS	0.94 U	0.32	0.94	2.36	
PFOS	1.37 J	0.28	0.94	2.36	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	105				
13C2-PFDA	93				
d5-EtFOSAA	119				



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-FRB-0488

Battelle ID J6638-FS  
 Sample Type SA  
 Collection Date 06/07/2018  
 Extraction Date 06/14/2018  
 Analysis Date 06/15/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.49 U	0.22	0.49	2.45
PFHpA	0.98 U	0.33	0.98	2.45
PFOA	0.98 U	0.37	0.98	2.45
PFNA	0.98 U	0.36	0.98	2.45
PFDA	0.98 U	0.38	0.98	2.45
PFUnA	0.98 U	0.37	0.98	2.45
PFDaA	0.98 U	0.41	0.98	2.45
PFTTrDA	0.98 U	0.41	0.98	2.45
PFTeDA	1.47 U	0.72	1.47	2.45
NMeFOSAA	0.98 U	0.41	0.98	2.45
NEtFOSAA	0.98 U	0.43	0.98	2.45
PFBS	0.49 U	0.21	0.49	2.45
PFHxS	0.98 U	0.33	0.98	2.45
PFOS	2.39 J	0.29	0.98	2.45

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	94
d5-EtFOSAA	99



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	NAWC-060718-FRB-175				
Battelle ID	J6640-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.255				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.49 U	0.22	0.49	2.45	
PFHpA	0.98 U	0.33	0.98	2.45	
PFOA	0.98 U	0.37	0.98	2.45	
PFNA	0.98 U	0.36	0.98	2.45	
PFDA	0.98 U	0.38	0.98	2.45	
PFUnA	0.98 U	0.37	0.98	2.45	
PFDaA	0.98 U	0.41	0.98	2.45	
PFTTrDA	0.98 U	0.41	0.98	2.45	
PFTeDA	1.47 U	0.72	1.47	2.45	
NMeFOSAA	0.98 U	0.41	0.98	2.45	
NEtFOSAA	0.98 U	0.43	0.98	2.45	
PFBS	0.49 U	0.21	0.49	2.45	
PFHxS	0.98 U	0.33	0.98	2.45	
PFOS	1.56 J	0.29	0.98	2.45	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	102				
13C2-PFDA	92				
d5-EtFOSAA	107				



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-060718-FRB-0626

Battelle ID J6643-FS

Sample Type SA

Collection Date 06/07/2018

Extraction Date 06/14/2018

Analysis Date 06/15/2018

Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA

Matrix DW

Sample Size 0.255

Size Unit-Basis L

Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.49 U	0.22	0.49	2.45
PFHpA	0.98 U	0.33	0.98	2.45
PFOA	0.98 U	0.37	0.98	2.45
PFNA	0.98 U	0.36	0.98	2.45
PFDA	0.98 U	0.38	0.98	2.45
PFUnA	0.98 U	0.37	0.98	2.45
PFDaA	0.98 U	0.41	0.98	2.45
PFTTrDA	0.98 U	0.41	0.98	2.45
PFTeDA	1.47 U	0.72	1.47	2.45
NMeFOSAA	0.98 U	0.41	0.98	2.45
NEtFOSAA	0.98 U	0.43	0.98	2.45
PFBS	0.49 U	0.21	0.49	2.45
PFHxS	0.35 J	0.33	0.98	2.45
PFOS	2.48 B	0.29	0.98	2.45

**Surrogate Recoveries (%)**

13C2-PFHxA 112

13C2-PFDA 101

d5-EtFOSAA 94

**Appendix C**

Support Documentation

ANALYTE	ORIGINAL 060718-	DUPLICATE 060718-	RL	RPD	RPD > 30%	ORIGINAL	DUPLICATE SAMPLE	DIFFERENCE >2XRL
	RW-175	DUP-39				SAMPLE CONC >2xRL	CONC >2xRL	
PENTADEC AFLUOROOCTANOIC ACID (PFOA)	12.62	14.1	2.27	11.078	FALSE	TRUE	TRUE	FALSE
PERFLUOROBUTANESULFONIC ACID (PFBS)	6.85	8.52	2.27	21.731	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEPTANOIC ACID (PFHPA)	5.68	6.2	2.27	8.754	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEXANESULFONIC ACID (PFHXS)	42	47.89	2.27	13.105	FALSE	TRUE	TRUE	TRUE
PERFLUOROHEXANOIC ACID (PFHXA)	11.62	13.43	2.27	14.451	FALSE	TRUE	TRUE	FALSE
PERFLUORONONANOIC ACID (PFNA)	2.01	2.14	2.27	6.265	FALSE	FALSE	FALSE	FALSE
PERFLUOROOC T ANESULFONIC ACID (PFOS)	56.41	57.72	45.45	2.296	FALSE	FALSE	FALSE	FALSE

ANALYTE	ORIGINAL 053118-	DUPLICATE 053118-	RL	RPD	RPD > 30%	ORIGINAL	DUPLICATE SAMPLE	DIFFERENCE >2XRL
	RW-126	DUP-38				SAMPLE CONC >2xRL	CONC >2xRL	
PENTADEC AFLUOROOCTANOIC ACID (PFOA)	14.91	23.15	2.31	43.300	TRUE	TRUE	TRUE	TRUE
PERFLUOROBUTANESULFONIC ACID (PFBS)	7.76	8.14	2.31	4.780	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEPTANOIC ACID (PFHPA)	7.38	9.55	2.31	25.635	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEXANESULFONIC ACID (PFHXS)	54.57	64.47	46.3	16.633	FALSE	FALSE	FALSE	FALSE
PERFLUOROHEXANOIC ACID (PFHXA)	13.79	15.32	2.31	10.512	FALSE	TRUE	TRUE	FALSE
PERFLUORONONANOIC ACID (PFNA)	2.34	4.78	2.31	68.539	TRUE	FALSE	TRUE	FALSE
PERFLUOROOC T ANESULFONIC ACID (PFOS)	90.74	151.05	46.3	49.886	FALSE	FALSE	TRUE	FALSE
PERFLUORODECANOIC ACID (PFDA)	0.93	0.78	2.31	17.544	FALSE	FALSE	FALSE	FALSE



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The Business of Innovation

## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days		Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster	
Project Name: WE04 Project No.: 112G08005-WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/> Time Zone: Eastern		Preservative: Trizma Analysis: PFAS EPA 537 14 analytes		COC #  Page# 1 of 1	
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		
NAWC-053118-RW-256 J6290	5/31/2018	8:10	G	DW	2	X	
NAWC-053118-FRB-256 91	5/31/2018	8:05	G	DW	2	X	Field Reagent Blank
NAWC-053118-RW-126 92	5/31/2018	8:40	G	DW	2	X	
NAWC-053118-FRB-126 93	5/31/2018	8:35	G	DW	2	X	Field Reagent Blank
WGNA-053118-DUP-38 94	5/31/2018	7:00	G	DW	2	X	DUPLICATE
WGNA-053118-RW-4850 95	5/31/2018	9:40	G	DW	6	X	MS/MSD
WGNA-053118-FRB-4850 96	5/31/2018	9:35	G	DW	2	X	Field Reagent Blank
NAWC-053118-RW-311 97	5/31/2018	12:10	G	DW	2	X	
NAWC-053118-FRB-311 98	5/31/2018	12:05	G	DW	2	X	Field Reagent Blank
NAWC-053118-RW-265 99	5/31/2018	16:10	G	DW	2	X	
NAWC-053118-FRB-265 J6300	5/31/2018	16:05	G	DW	2	X	Field Reagent Blank
Receipt Temperature:(°C) 1.6		Samples Intact: Yes - No		Samples on Ice: Yes - No		Receipt Comments:	
Relinquished by (Print/Sign): Mary Kay Bond	Company: Tetra Tech	Date/Time: 05/31/2018 18:00		Received by (Print/Sign): Matt Schumitz Mb	Company: Battelle	Date/Time: 6-1-18 1030	
Relinquished by (Print/Sign):	Company:	Date/Time:		Received by (Print/Sign):	Company:	Date/Time:	
Relinquished by (Print/Sign):	Company:	Date/Time:		Received by (Print/Sign):	Company:	Date/Time:	
Comments: FedEx Tracking # 772365765386							

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## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		<b>Project Manager: Jonathan Thorn</b> <b>Sampler Information (print name): Mary Kay Bond</b> Phone: 610-382-1169 Email: mary.bond@tetrattech.com		<b>Sampling Site: WE04</b>		<b>Site Information: NAS JRB Willow Grove/WGNA Warminster</b>	
<b>Project Name: WE04</b>		Turnaround Time (TAT) Requested: 21 days		Preservative: <b>Trizma</b>		<b>COC #</b>	
<b>Project No.: 112G08005-WE04</b>		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>		Analysis: <b>PEAS EPA 537</b> <b>14 analytes</b>		<b>Page# 1 of 1</b>	
<b>Time Zone: Eastern</b>							
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		
NAWC-060418-RW-230 <i>J6582</i>	6/4/2018	8:10	G	DW	2	<input checked="" type="checkbox"/>	
NAWC-060418-FRB-230 <i>J6583</i>	6/4/2018	8:05	G	DW	2	<input checked="" type="checkbox"/>	Field Reagent Blank
NAWC-060418-RW-309 <i>J6584</i>	6/4/2018	8:40	G	DW	2	<input checked="" type="checkbox"/>	
NAWC-060418-FRB-309 <i>J6585</i>	6/4/2018	8:35	G	DW	2	<input checked="" type="checkbox"/>	Field Reagent Blank
NAWC-060418-RW-293 <i>J6586</i>	6/4/2018	9:40	G	DW	2	<input checked="" type="checkbox"/>	
NAWC-060418-FRB-293 <i>J6587</i>	6/4/2018	9:35	G	DW	2	<input checked="" type="checkbox"/>	Field Reagent Blank
NAWC-060418-RW-038 <i>J6588</i>	6/4/2018	9:55	G	DW	2	<input checked="" type="checkbox"/>	
NAWC-060418-FRB-038 <i>J6589</i>	6/4/2018	9:50	G	DW	2	<input checked="" type="checkbox"/>	Field Reagent Blank
NAWC-060418-RW-039 <i>J6590</i>	6/4/2018	10:10	G	DW	2	<input checked="" type="checkbox"/>	
NAWC-060418-FRB-039 <i>J6591</i>	6/4/2018	10:05	G	DW	2	<input checked="" type="checkbox"/>	Field Reagent Blank
<b>Receipt Temperature:(°C)</b> <i>0.9</i>		<b>Samples Intact:</b> <input checked="" type="checkbox"/> - No		<b>Samples on Ice:</b> <input checked="" type="checkbox"/> - No		<b>Receipt Comments:</b>	
Relinquished by (Print/Sign): <i>[Signature]</i>	Company: Tetra Tech	Date/Time: 06/04/2018 16:00	Received by (Print/Sign): <i>Matt Schumite</i>	Company: Battelle	Date/Time: 6-5-18 1100		
Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:		
Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:		
Comments: FedEx Tracking # 7723 7412 3139							

# Battelle

The Business of Innovation

## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetratech.com Turnaround Time (TAT) Requested: 21 days		Sampling Site: WE04 Site Information: NAS JRB Willow Grove/WGNA Warminster						
Project Name: WE04 Project No.: 112G08005-WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/> Time Zone: Eastern		Preservative: Trizma Analysis: PFAS EPA 537 14 analytes						
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.			COC #	
								Page# 1 of 1		
WGNA-060718-RW-0488		6/7/2018	12:40	G	DW	2	X		JL637	
WGNA-060718-FRB-0488		6/7/2018	12:35	G	DW	2	X		JL638 Field Reagent Blank	
NAWC-060718-RW-175		6/7/2018	13:10	G	DW	2	X		JL639	
NAWC-060718-FRB-175		6/7/2018	13:05	G	DW	2	X		JL640 Field Reagent Blank	
WGNA-060718-DUP-39		6/7/2018	7:00	G	DW	2	X		JL641 DUPLICATE	
WGNA-060718-RW-0626		6/7/2018	14:10	G	DW	2	X		JL642	
WGNA-060718-FRB-0626		6/7/2018	14:05	G	DW	2	X		JL643 Field Reagent Blank	
Receipt Temperature: (°C) 0.6°C Therm. 2		Samples Intact: Yes - No			Samples on Ice: YES No			Receipt Comments:		
Relinquished by (Print/Sign):		Company: Tetra Tech		Date/Time: 06/07/2018 16:00		Received by (Print/Sign): Jonathan Thorn		Company: Battelle		Date/Time: 6/8/2018 10:36
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:
Comments: FedEx Tracking # 7724 1753 4658										

① Ice melt = 0.6°C  
 temp blank = 23°C  
 JWS 6/8/2018

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0159
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/31/2018	6/1/2018	1.6
6/4/2018	6/5/2018	0.9
6/7/2018	6/8/2018	2.3

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	Related FRB samples are in SDG 18-0360, this SDG is a re-extraction of SDG 18-0348.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	<p>Samples analyzed on the Sciex 5500.</p> <p>All ion ratios pass the criteria of <math>\leq 50\%</math> RPD for analytes detected above the LOQ with the exception of:  NAWC-060418-RW-309 (J6584-FS1) – PFOA  NAWC-060418-RW-293 (J6586-FS1) – PFOA and PFHpA  WGNA-060718-RW-0488 (J6637-FS1) – PFOA and PFHpA  WGNA-060718-RW-0626 (J6642-FS1) - PFOA</p> <p>The results for PFHxS and PFOS may have been impacted by water samples extracted prior to these samples on the same manifold. The manifold, including</p>

	<p>all valves, were cleaned between batches, however, the water samples extracted prior to these appear to be heavily impacted by AFFF (samples required 1:1,000,000-fold dilutions). The samples in question were not part of the WE04 project.</p> <p>This SDG is a re-extract of SDG 18-0348, several samples are "T" qualified as they were extracted beyond the 14-day holding time.</p>	
Holding Times	Extraction Date(s)	Analysis Date(s)
	6/21/2018	6/27-28 and 7/18/2018
Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.	
≤ 1/3 the MRL	<p>One exceedance noted.</p> <p>PFOS was detected in the blank at 4.56 ng/L.</p>	
Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.	
Sample results > 10x the concentration of the PB	<p>Eleven exceedances noted.</p> <p>PFOS was detected in 10 samples and PFHxS in one sample at a value less than 10 times the amount detected in the PB, results are "B" qualified.</p>	
Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.	
70-130% of true value	<p>One exceedance noted.</p> <p>PFTeDA recovered at 180%. Sample was re-run to verify the recovery. As this analyte is over-recovered and not detected in any field samples, no additional corrective action was taken.</p>	
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.	
70-130% of true value, RPD ≤ 30%	<p>Three exceedances noted for recoveries.</p> <p>PFOS and PFBS were detected in the background for the MS and MSD at levels above the target fortification level leading to over-recoveries.</p>	
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.	
70-130% of true value	<p>Four exceedances noted.</p> <p>Four samples have 13C2-PFHxA recovered above MQO criteria. These extracts were re-run and the results were verified.</p>	

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICAL high and low points RPD $\leq$ 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	<p>Thirty-five secondary criteria exceedances noted.</p> <p>The following analyte/method exceedances were noted for the area as compared to the most recent CCV. All passed versus the average of the calibration. Any samples not reported from a given method versus a given internal standard, are crossed off on the IS area reports.</p> <p>13C4-PFOS / Method 18-0393_DW = 9  13C2-PFOA / Method 18-0393_DW = 8  D3-MeFOSAA / Method 18-0393_DW = 10  13C4-PFOS / Method 18-0393_R = 3  13C2-PFOA / Method 18-0393_R = 1  13C4-PFOS / Method 18-0393_B = 2  13C4-PFOS / Method 18-0393_MSD = 1  13C2-PFOA / Method 18-0393_MSD = 1</p>
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R <sup>2</sup> >0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.
Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
Low point 50-150% of true value	No comments.



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project Number: 100117920-WE04  
 Preparation Batch: 18-0393  
 Data Set: DP-18-0159  
 Test Code: Master\_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	1	PFOS was detected in the PB above the LOQ and in "N" qualified. The extract was re-run and the results were verified.
PB Measurement Quality Objective	11	Ten samples are "B" qualified for PFOS and one sample for PHxS as a result of the PB detections. The results for the PB were verified and no further action will be taken.
Laboratory Control Sample	1	PFTeDA over recovered. Sample was re-run to verify the recovery. As this was over recovered, and not detected in any field sample, no additional corrective action was taken.
Matrix Spike / Matrix Spike Duplicate Recovery	3	PFOS in the MS/MSD and PFBS in the MSD are all outside of MQO criteria. The background sample had elevated amounts of each of these analytes that necessitated a dilution. As the LCS passes for these analytes, no further
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	4	Four samples have 13C2-PFHxA recovered above MQO criteria. These extracts were re-run and the results were verified. No further action will be taken.
Instrument Calibration	NA	NA
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

## BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

**Project Title:** Naval Air Station Joint Reserve Base Wi      **Data Set Number:** DP-18-0159  
**Project Number:** 100117920-WE04      **Prep Batch Number:** 18-0393  
**Entered By:** Robert Lizotte Jr      **Entered On:** 07/18/2018  
**Test Code (Matrix Type):** Master\_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).  
 -BL 7/18/18

PFOS was detected and "N" qualified in the PB. PFHxS was detected and "J" qualified in the PB. The extract was re-run and the results were verified. This also led to some authentic samples and the LCS being "B" qualified for PFOS and one sample for PFHxS. No further action will be taken.  
 -BL 7/18/18

PFTeDA exhibited a high recovery in the LCS. Prep records and integrations were verified. Recoveries were acceptable in the ICC and CCV. It was not detected in any of the authentic samples.  
 -BL 7/18/18

PFOS in the MS/MSD and PFBS in the MSD are all outside of MQO criteria. The background sample had elevated amounts of each of these analytes that necessitated a dilution. As the LCS passes for these analytes, no further action is necessary.  
 -BL 7/19/18

Four samples have 13C2-PFHxA recovered above MQO criteria. These extracts were re-run and the results were verified. No further action will be taken.  
 -BL 7/18/18

JX67 is not being used for PFOA, PFNA, PFOS and PFDA in 18-0393\_DW and 18-0393\_R. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX73 is not being used for PFTeDA in 18-0393\_DW. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX74 is not being used for PFTeDA in 18-0393\_DW and 18-0393\_R. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX75 is not being used for PFNA, PFTeDA and NMeFOSAA in 18-0393\_DW and 18-0393\_R. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX67 is not being used for PFTeDA in 18-0393\_B. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX74 is not being used for PFBS in 18-0393\_B. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX75 is not being used for PFBS in 18-0393\_B. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX74 is not being used for NEtFOSAA in 18-0393\_R. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

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**Task Leader Approval:**

**Supervisor Approval:**                      Signature on page 2

**PM Approval:**

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**BATTELLE**

It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title:** Naval Air Station Joint Reserve Base Wi      **Data Set Number:** DP-18-0159  
**Project Number:** 100117920-WE04      **Prep Batch Number:** 18-0393  
**Entered By:** Robert Lizotte Jr      **Entered On:** 07/18/2018  
**Test Code (Matrix Type):** Master\_371(L)

JX75 is not being used for NEtFOSAA in 18-0393\_R. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/18/18

JX67 is not being used for PFBS, PFHxA, and PFOA in 18-0393\_MSD. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/19/18

JX68 is not being used for PFBS and PFOA in 18-0393\_MSD. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/19/18

JX75 is not being used for PFBS in 18-0393\_MSD. There is no impact on the data once these points are removed from the calibration.  
 -BL 7/19/18

Some samples are "T" qualified as these samples were re-extracted outside of holding time because of QC issues with batch 18-0348.  
 -BL 7/18/18

Samples CR042PB, J6290, J9292, J6294, J6295, J6295MS, J6295MSD, J6297, J6299 and J6588 do not meet the secondary criteria for the internal standard d3-MeFOSAA and as a result have an N qualifier on the IS area report associated with the method 18-0393\_DW. DMS 7/18/18

Samples J6290, J6294, J6295MSD, J6297, J6299, J6586, J6639 and J6641 do not meet the secondary criteria for the internal standard 13C2-PFOA and as a result have an N qualifier on the IS area report associated with the method 18-0393\_DW. DMS 7/18/18

Samples J6290, J6292, J6294, J6295, J6295MS, J6295MSD, J6299, J6639, and J6641 do not meet the secondary criteria for the internal standard 13C4-PFOS and as a result have an N qualifier on the IS area report associated with the method 18-0393\_DW. DMS 7/18/18

Sample extracts J6294-D(3), J6295-D(3), and J6295MS-D(3) do not meet the secondary criteria for the internal standard 13C4-PFOS and as a result have an N qualifier on the IS area report associated with the method 18-0393\_R.  
 DMS 7/18/18

Sample extract J6295MS-D(3) does not meet the secondary criteria for the internal standard 13C2-PFOA and as a result has an N qualifier on the IS area report associated with the method 18-0393\_R.  
 DMS 7/18/18

Sample extracts J6639-D(3) and J6641-D(3) do not meet secondary criteria for the internal standard 13C4-PFOS and are N qualified on the IS area report associated with method 18-0393\_B. BL 7/19/2018

Sample extract J6295MSD-D(5) does not meet the secondary criteria for the internal standard 13C4-PFOS or 13C2-PFOA and as a result has an N qualifier on the IS area report associated with the method 18-0393\_MSD.  
 -BL 7/19/18

Ion Ratio criteria of 50% RPD met for all analytes detected above the LOQ with the following exceptions:  
 J6584 - PFOA , J6586 - PFOA, PFHpA, J6637 - PFOA, PFHpA, and J6642 - PFOA  
 -BL 7/19/2018

**Task Leader Approval:****Supervisor Approval:****PM Approval:**


Digitally signed by Jonathan  
 Thorn

Date: 2018.07.19 13:50:27 -04'00'



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0393  
 Data Set: DP-18-0159

	CR042PB-FS (Procedural Blank)	CR043LCS-FS (Laboratory Control Sample)	J6295MS-FS1 (WGNA-053118-RW-4850)	J6295MSD-FS1 (WGNA-053118-RW-4850)	J6290-FS1 (NAWC-053118-RW-256)	J6292-FS1 (NAWC-053118-RW-126)	J6294-FS1 (WGNA-053118-DUP-38)	J6295-FS1 (WGNA-053118-RW-4850)
PFHxA	-	L	L	L	L	L	L	L
PFHpA	-	L	L	L	L	L	L	L
PFOA	-	L	L	L	L	L	L	L
PFNA	-	L	L	L	L	L	L	L
PFDA	-	L	L	L	L	-	L	-
PFUnA	-	L	L	L	-	-	-	-
PFDoA	-	L	L	L	-	-	-	-
PFTTrDA	-	L	L	L	-	-	-	-
PFTeDA	-	L	L	L	-	-	-	-
NMeFOSAA	-	L	L	L	-	-	-	-
NEtFOSAA	-	L	L	L	-	-	-	-
PFBS	-	L	L	L	L	L	L	L
PFHxS	L/Br	L	L	L	L/Br	L/Br	L/Br	L/Br
PFOS	L/Br	L	L	L	L/Br	L/Br	L/Br	L/Br

"L": Linear  
 "Br": branched  
 "L/Br": Linear/Branched  
 "-": Not detected



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0393  
 Data Set: DP-18-0159

	J6297-FS1 (NAWC-053118-RW-311)	J6299-FS1 (NAWC-053118-RW-265)	J6582-FS1 (NAWC-060418-RW-230)	J6584-FS1 (NAWC-060418-RW-309)	J6586-FS1 (NAWC-060418-RW-293)	J6588-FS1 (NAWC-060418-RW-038)	J6590-FS1 (NAWC-060418-RW-039)	J6637-FS1 (WGNA-060718-RW-0488)
PFHxA	L	L	L	L	L	L	L	L
PFHpA	L	L	L	L	L	L	L	L
PFOA	L	L	L	L	L	L	L	L
PFNA	L	L	L	L	L	L	L	L
PFDA	L	-	L	-	L	L	-	-
PFUnA	-	-	-	-	-	-	-	-
PFDoA	-	-	-	-	-	-	-	-
PFTTrDA	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-
PFBS	L	L	L	L	L	L	L	L
PFHxS	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br
PFOS	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br

"L" :Linear  
 "Br": branched  
 "L/Br": Linear/Branched  
 "-": Not detected



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0393  
 Data Set: DP-18-0159

	J6639-FS1 (NAWC-060718-RW-175)	J6641-FS1 (WGNA-060718-DUP-39)	J6642-FS1 (WGNA-060718-RW-0626)
PFHxA	L	L	L
PFHpA	L	L	L
PFOA	L	L	L
PFNA	L	L	-
PFDA	-	-	-
PFUnA	-	-	-
PFDoA	-	-	-
PFTTrDA	-	-	-
PFTeDA	-	-	-
NMeFOSAA	-	-	-
NEtFOSAA	-	-	-
PFBS	L	L	L
PFHxS	L/Br	L/Br	L/Br
PFOS	L/Br	L/Br	L/Br

"L" :Linear  
 "Br" : branched  
 "L/Br" : Linear/Branched  
 "-": Not detected



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	Procedural Blank			
Battelle ID	CR042PB-FS			
Sample Type	PB			
Collection Date	06/21/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	0.38 J	0.34	1.00	2.50
PFOS	4.56 N	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	111
13C2-PFDA	110
d5-EtFOSAA	110



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	Laboratory Control Sample					
Battelle ID	CR043LCS-FS					
Sample Type	LCS					
Collection Date	06/21/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	12.79	10.00	128		70	130
PFHpA	12.37	10.00	124		70	130
PFOA	11.59	10.00	116		70	130
PFNA	11.43	10.00	114		70	130
PFDA	11.89	10.00	119		70	130
PFUnA	10.99	10.00	110		70	130
PFDoA	10.78	10.00	108		70	130
PFTTrDA	12.23	10.00	122		70	130
PFTeDA	17.99	10.00	180	N	70	130
NMeFOSAA	12.09	10.00	121		70	130
NEtFOSAA	12.99	10.00	130		70	130
PFBS	10.49	8.85	119		70	130
PFHxS	10.95	9.45	116		70	130
PFOS	12.05 B	9.55	126		70	130

**Surrogate Recoveries (%)**

13C2-PFHxA	113
13C2-PFDA	102
d5-EtFOSAA	99



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04      WGNA-053118-RW-4850      WGNA-053118-RW-4850

Battelle ID	J6295-FS1	J6295MS-FS1				Control Limits	
Sample Type	SA	MS				Lower	Upper
Collection Date	05/31/2018	05/31/2018	Target	Recovery	Qual		
Extraction Date	06/21/2018	06/21/2018					
Analysis Date	06/27/2018	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS	Sciex 5500 LC/MS/MS					
% Moisture	NA	NA					
Matrix	DW	DW					
Sample Size	0.275	0.260					
Size Unit-Basis	L	L					
Units	ng/L	ng/L					
PFHxA	35.51 T	62.75 TD	28.85	94		70	130
PFHpA	13.59 T	47.33 T	28.85	117		70	130
PFOA	24.06 T	55.78 TD	28.85	110		70	130
PFNA	2.90 T	29.92 T	28.85	94		70	130
PFDA	0.91 UT	34.15 T	28.85	115		70	130
PFUnA	0.91 UT	31.05 T	28.85	104		70	130
PFDoA	0.91 UT	31.88 T	28.85	107		70	130
PFTDA	0.91 UT	33.75 T	28.85	114		70	130
PFTeDA	1.36 UT	30.71 JTD	28.85	102		70	130
NMeFOSAA	0.91 UT	36.43 T	28.85	123		70	130
NEtFOSAA	0.91 UT	37.23 T	28.85	126		70	130
PFBS	34.01 T	54.55 TD	25.53	80		70	130
PFHxS	105.27 TD	138.79 TD	27.26	123		70	130
PFOS	168.17 TD	211.14 TD	27.55	156	N	70	130
<b>Surrogate Recoveries (%)</b>							
13C2-PFHxA	130	125					
13C2-PFDA	116	106					
d5-EtFOSAA	100	101					



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04 WGNA-053118-RW-4850

Battelle ID	Sample Type	Collection Date	Extraction Date	Analysis Date	Analytical Instrument	% Moisture	Matrix	Sample Size	Size Unit-Basis	Control Limits		RPD	
										Lower	Upper	RPD	Qual
J6295MSD-FS1	MSD	05/31/2018	06/21/2018	06/27/2018	Sciex 5500 LC/MS/MS	NA	DW	0.275	L				
Units		ng/L	Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit			
PFHxA		63.53 TD	27.27	103		70	130	9.1		≤ 30			
PFHpA		49.04 T	27.27	130		70	130	10.5		≤ 30			
PFOA		55.35 TD	27.27	115		70	130	4.4		≤ 30			
PFNA		30.41 T	27.27	101		70	130	7.2		≤ 30			
PFDA		34.39 T	27.27	123		70	130	6.7		≤ 30			
PFUnA		33.88 T	27.27	121		70	130	15.1		≤ 30			
PFDoA		33.81 T	27.27	121		70	130	12.3		≤ 30			
PFTrDA		35.28 T	27.27	126		70	130	10.0		≤ 30			
PFTeDA		29.96 JTD	27.27	105		70	130	2.9		≤ 30			
NMeFOSAA		34.95 T	27.27	125		70	130	1.6		≤ 30			
NEtFOSAA		36.03 T	27.27	129		70	130	2.4		≤ 30			
PFBS		49.80 TD	24.14	65	N	70	130	20.7		≤ 30			
PFHxS		135.13 TD	25.77	116		70	130	5.9		≤ 30			
PFOS		204.66 TD	26.05	140	N	70	130	10.8		≤ 30			

**Surrogate Recoveries (%)**

13C2-PFHxA	122
13C2-PFDA	113
d5-EtFOSAA	94



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	-
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	-
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	-
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	-
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	-
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	-
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	-
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	-
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	6.0

PASS

Average 200,337.84 Lower 100,168.92 Upper 300,506.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	100,168.92	300,506.76		143,772.94	287,545.89	
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	100,168.92	300,506.76		143,772.94	287,545.89	
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	100,168.92	300,506.76		143,772.94	287,545.89	
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	100,168.92	300,506.76		143,772.94	287,545.89	
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	100,168.92	300,506.76		143,772.94	287,545.89	
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	100,168.92	300,506.76		143,772.94	287,545.89	
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	100,168.92	300,506.76		143,772.94	287,545.89	
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	100,168.92	300,506.76		143,772.94	287,545.89	
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	100,168.92	300,506.76		143,772.94	287,545.89	
JV66 ICC	ICC	6/27/18 10:26	13C4-PFOS	198,955.94	100,168.92	300,506.76		143,772.94	287,545.89	
JX72 CCV	CCV	6/27/18 17:25	13C4-PFOS	214,888.55	100,168.92	300,506.76		143,772.94	287,545.89	
CR042PB-FS(0)	Procedural Blank	6/27/18 17:43	13C4-PFOS	168,451.57	100,168.92	300,506.76		143,772.94	287,545.89	
CR043LCS-FS(0)	Laboratory Control Sample	6/27/18 17:52	13C4-PFOS	163,651.91	100,168.92	300,506.76		143,772.94	287,545.89	
J6290-FS1(0)	NAWC-053118-RW-256	6/27/18 18:01	13C4-PFOS	136,011.07	100,168.92	300,506.76		143,772.94	287,545.89	N
J6292-FS1(0)	NAWC-053118-RW-126	6/27/18 18:10	13C4-PFOS	142,669.67	100,168.92	300,506.76		143,772.94	287,545.89	N
J6294-FS1(0)	WGNA-053118-DUP-38	6/27/18 18:19	13C4-PFOS	127,945.09	100,168.92	300,506.76		143,772.94	287,545.89	N
J6295-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:28	13C4-PFOS	137,677.46	100,168.92	300,506.76		143,772.94	287,545.89	N
J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:37	13C4-PFOS	124,539.06	100,168.92	300,506.76		143,772.94	287,545.89	N
J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:46	13C4-PFOS	124,224.64	100,168.92	300,506.76		143,772.94	287,545.89	N
J6297-FS1(0)	NAWC-053118-RW-311	6/27/18 18:55	13C4-PFOS	149,287.72	100,168.92	300,506.76		143,772.94	287,545.89	
J6299-FS1(0)	NAWC-053118-RW-265	6/27/18 19:04	13C4-PFOS	138,195.62	100,168.92	300,506.76		143,772.94	287,545.89	N
JX71 CCV	CCV	6/27/18 19:13	13C4-PFOS	190,337.10	100,168.92	300,506.76		143,772.94	287,545.89	
J6582-FS1(0)	NAWC-060418-RW-230	6/27/18 19:30	13C4-PFOS	138,781.19	100,168.92	300,506.76		133,235.97	266,471.94	
J6584-FS1(0)	NAWC-060418-RW-309	6/27/18 19:39	13C4-PFOS	150,004.32	100,168.92	300,506.76		133,235.97	266,471.94	
J6586-FS1(0)	NAWC-060418-RW-293	6/27/18 19:48	13C4-PFOS	135,035.63	100,168.92	300,506.76		133,235.97	266,471.94	
J6588-FS1(0)	NAWC-060418-RW-038	6/27/18 19:57	13C4-PFOS	138,807.47	100,168.92	300,506.76		133,235.97	266,471.94	
J6590-FS1(0)	NAWC-060418-RW-039	6/27/18 20:06	13C4-PFOS	145,607.19	100,168.92	300,506.76		133,235.97	266,471.94	
J6637-FS1(0)	WGNA-060718-RW-0488	6/27/18 20:15	13C4-PFOS	150,364.15	100,168.92	300,506.76		133,235.97	266,471.94	
J6639-FS1(0)	NAWC-060718-RW-175	6/27/18 20:24	13C4-PFOS	133,062.41	100,168.92	300,506.76		133,235.97	266,471.94	N
J6641-FS1(0)	WGNA-060718-DUP-39	6/27/18 20:33	13C4-PFOS	122,286.87	100,168.92	300,506.76		133,235.97	266,471.94	N
J6642-FS1(0)	WGNA-060718-RW-0626	6/27/18 20:42	13C4-PFOS	139,191.84	100,168.92	300,506.76		133,235.97	266,471.94	
JX72 CCV	CCV	6/27/18 20:51	13C4-PFOS	201,048.50	100,168.92	300,506.76		133,235.97	266,471.94	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	-
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	-
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	-
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	-
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	-
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	-
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	-
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	-
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	9.1

PASS

Average 67,318.56 Lower 33,659.28 Upper 100,977.84

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	33,659.28	100,977.84		48,146.03	96,292.06	
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	33,659.28	100,977.84		48,146.03	96,292.06	
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	33,659.28	100,977.84		48,146.03	96,292.06	
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	33,659.28	100,977.84		48,146.03	96,292.06	
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	33,659.28	100,977.84		48,146.03	96,292.06	
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	33,659.28	100,977.84		48,146.03	96,292.06	
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	33,659.28	100,977.84		48,146.03	96,292.06	
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	33,659.28	100,977.84		48,146.03	96,292.06	
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	33,659.28	100,977.84		48,146.03	96,292.06	
JV66 ICC	ICC	6/27/18 10:26	13C2-PFOA	64,713.81	33,659.28	100,977.84		48,146.03	96,292.06	
JX72 CCV	CCV	6/27/18 17:25	13C2-PFOA	70,508.79	33,659.28	100,977.84		48,146.03	96,292.06	
CR042PB-FS(0)	Procedural Blank	6/27/18 17:43	13C2-PFOA	56,669.88	33,659.28	100,977.84		48,146.03	96,292.06	
CR043LCS-FS(0)	Laboratory Control Sample	6/27/18 17:52	13C2-PFOA	56,758.23	33,659.28	100,977.84		48,146.03	96,292.06	
J6290-FS1(0)	NAWC-053118-RW-256	6/27/18 18:01	13C2-PFOA	43,847.75	33,659.28	100,977.84		48,146.03	96,292.06	N
J6292-FS1(0)	NAWC-053118-RW-126	6/27/18 18:10	13C2-PFOA	48,611.82	33,659.28	100,977.84		48,146.03	96,292.06	
J6294-FS1(0)	WGNA-053118-DUP-38	6/27/18 18:19	13C2-PFOA	42,236.16	33,659.28	100,977.84		48,146.03	96,292.06	N
J6295-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:28	13C2-PFOA	48,600.75	33,659.28	100,977.84		48,146.03	96,292.06	
J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:37	13C2-PFOA	50,792.79	33,659.28	100,977.84		48,146.03	96,292.06	
J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:46	13C2-PFOA	47,281.19	33,659.28	100,977.84		48,146.03	96,292.06	N
J6297-FS1(0)	NAWC-053118-RW-311	6/27/18 18:55	13C2-PFOA	46,905.95	33,659.28	100,977.84		48,146.03	96,292.06	N
J6299-FS1(0)	NAWC-053118-RW-265	6/27/18 19:04	13C2-PFOA	44,479.76	33,659.28	100,977.84		48,146.03	96,292.06	N
JX71 CCV	CCV	6/27/18 19:13	13C2-PFOA	66,623.51	33,659.28	100,977.84		48,146.03	96,292.06	
J6582-FS1(0)	NAWC-060418-RW-230	6/27/18 19:30	13C2-PFOA	48,006.14	33,659.28	100,977.84		46,636.46	93,272.91	
J6584-FS1(0)	NAWC-060418-RW-309	6/27/18 19:39	13C2-PFOA	47,779.98	33,659.28	100,977.84		46,636.46	93,272.91	
J6586-FS1(0)	NAWC-060418-RW-293	6/27/18 19:48	13C2-PFOA	43,594.25	33,659.28	100,977.84		46,636.46	93,272.91	N
J6588-FS1(0)	NAWC-060418-RW-038	6/27/18 19:57	13C2-PFOA	46,820.27	33,659.28	100,977.84		46,636.46	93,272.91	
J6590-FS1(0)	NAWC-060418-RW-039	6/27/18 20:06	13C2-PFOA	47,987.79	33,659.28	100,977.84		46,636.46	93,272.91	
J6637-FS1(0)	WGNA-060718-RW-0488	6/27/18 20:15	13C2-PFOA	52,381.00	33,659.28	100,977.84		46,636.46	93,272.91	
J6639-FS1(0)	NAWC-060718-RW-175	6/27/18 20:24	13C2-PFOA	43,641.07	33,659.28	100,977.84		46,636.46	93,272.91	N
J6641-FS1(0)	WGNA-060718-DUP-39	6/27/18 20:33	13C2-PFOA	43,341.02	33,659.28	100,977.84		46,636.46	93,272.91	N
J6642-FS1(0)	WGNA-060718-RW-0626	6/27/18 20:42	13C2-PFOA	47,014.72	33,659.28	100,977.84		46,636.46	93,272.91	
JX72 CCV	CCV	6/27/18 20:51	13C2-PFOA	65,665.05	33,659.28	100,977.84		46,636.46	93,272.91	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	-
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	-
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	-
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	-
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	-
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	-
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	-
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	-
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	9.9

PASS

Average 21,151.13 Lower 10,575.57 Upper 31,726.70

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	10,575.57	31,726.70		14,821.77	29,643.54	
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	10,575.57	31,726.70		14,821.77	29,643.54	
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	10,575.57	31,726.70		14,821.77	29,643.54	
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	10,575.57	31,726.70		14,821.77	29,643.54	
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	10,575.57	31,726.70		14,821.77	29,643.54	
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	10,575.57	31,726.70		14,821.77	29,643.54	
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	10,575.57	31,726.70		14,821.77	29,643.54	
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	10,575.57	31,726.70		14,821.77	29,643.54	
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	10,575.57	31,726.70		14,821.77	29,643.54	
JV66 ICC	ICC	6/27/18 10:26	d3-MeFOSAA	18,742.21	10,575.57	31,726.70		14,821.77	29,643.54	
JX72 CCV	CCV	6/27/18 17:25	d3-MeFOSAA	20,926.54	10,575.57	31,726.70		14,821.77	29,643.54	
CR042PB-FS(0)	Procedural Blank	6/27/18 17:43	d3-MeFOSAA	14,638.07	10,575.57	31,726.70		14,821.77	29,643.54	N
CR043LCS-FS(0)	Laboratory Control Sample	6/27/18 17:52	d3-MeFOSAA	15,219.88	10,575.57	31,726.70		14,821.77	29,643.54	
J6290-FS1(0)	NAWC-053118-RW-256	6/27/18 18:01	d3-MeFOSAA	12,497.12	10,575.57	31,726.70		14,821.77	29,643.54	N
J6292-FS1(0)	NAWC-053118-RW-126	6/27/18 18:10	d3-MeFOSAA	14,485.85	10,575.57	31,726.70		14,821.77	29,643.54	N
J6294-FS1(0)	WGNA-053118-DUP-38	6/27/18 18:19	d3-MeFOSAA	11,947.45	10,575.57	31,726.70		14,821.77	29,643.54	N
J6295-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:28	d3-MeFOSAA	14,718.39	10,575.57	31,726.70		14,821.77	29,643.54	N
J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:37	d3-MeFOSAA	13,192.52	10,575.57	31,726.70		14,821.77	29,643.54	N
J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:46	d3-MeFOSAA	13,531.64	10,575.57	31,726.70		14,821.77	29,643.54	N
J6297-FS1(0)	NAWC-053118-RW-311	6/27/18 18:55	d3-MeFOSAA	13,887.26	10,575.57	31,726.70		14,821.77	29,643.54	N
J6299-FS1(0)	NAWC-053118-RW-265	6/27/18 19:04	d3-MeFOSAA	13,348.81	10,575.57	31,726.70		14,821.77	29,643.54	N
JX71 CCV	CCV	6/27/18 19:13	d3-MeFOSAA	17,642.91	10,575.57	31,726.70		14,821.77	29,643.54	
J6582-FS1(0)	NAWC-060418-RW-230	6/27/18 19:30	d3-MeFOSAA	12,788.96	10,575.57	31,726.70		12,350.04	24,700.07	
J6584-FS1(0)	NAWC-060418-RW-309	6/27/18 19:39	d3-MeFOSAA	15,503.24	10,575.57	31,726.70		12,350.04	24,700.07	
J6586-FS1(0)	NAWC-060418-RW-293	6/27/18 19:48	d3-MeFOSAA	13,153.56	10,575.57	31,726.70		12,350.04	24,700.07	
J6588-FS1(0)	NAWC-060418-RW-038	6/27/18 19:57	d3-MeFOSAA	12,137.89	10,575.57	31,726.70		12,350.04	24,700.07	N
J6590-FS1(0)	NAWC-060418-RW-039	6/27/18 20:06	d3-MeFOSAA	14,068.96	10,575.57	31,726.70		12,350.04	24,700.07	
J6637-FS1(0)	WGNA-060718-RW-0488	6/27/18 20:15	d3-MeFOSAA	14,094.62	10,575.57	31,726.70		12,350.04	24,700.07	
J6639-FS1(0)	NAWC-060718-RW-175	6/27/18 20:24	d3-MeFOSAA	13,207.48	10,575.57	31,726.70		12,350.04	24,700.07	
J6641-FS1(0)	WGNA-060718-DUP-39	6/27/18 20:33	d3-MeFOSAA	13,373.82	10,575.57	31,726.70		12,350.04	24,700.07	
J6642-FS1(0)	WGNA-060718-RW-0626	6/27/18 20:42	d3-MeFOSAA	13,447.96	10,575.57	31,726.70		12,350.04	24,700.07	
JX72 CCV	CCV	6/27/18 20:51	d3-MeFOSAA	18,270.99	10,575.57	31,726.70		12,350.04	24,700.07	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	-
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	-
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	-
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	-
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	-
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	-
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	-
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	-
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	6

PASS

Average      Lower      Upper  
 200,337.84    100,168.92    300,506.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	100,168.92	300,506.76		145,238.08	290,476.16	
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	100,168.92	300,506.76		145,238.08	290,476.16	
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	100,168.92	300,506.76		145,238.08	290,476.16	
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	100,168.92	300,506.76		145,238.08	290,476.16	
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	100,168.92	300,506.76		145,238.08	290,476.16	
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	100,168.92	300,506.76		145,238.08	290,476.16	
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	100,168.92	300,506.76		145,238.08	290,476.16	
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	100,168.92	300,506.76		145,238.08	290,476.16	
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	100,168.92	300,506.76		145,238.08	290,476.16	
JV66 ICC	ICC	6/27/18 10:26	13C4-PFOS	198,955.94	100,168.92	300,506.76		145,238.08	290,476.16	
JX71 CCV	CCV	6/28/18 14:28	13C4-PFOS	196,378.01	100,168.92	300,506.76		145,238.08	290,476.16	
J6292-FS1-D(3)	NAWC-053118-RW-126	6/28/18 14:46	13C4-PFOS	161,568.59	100,168.92	300,506.76		137,464.61	274,929.21	
J6294-FS1-D(3)	WGNA-053118-DUP-38	6/28/18 14:55	13C4-PFOS	129,976.44	100,168.92	300,506.76		137,464.61	274,929.21	N
J6295-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:04	13C4-PFOS	122,746.22	100,168.92	300,506.76		137,464.61	274,929.21	N
J6295MS-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:13	13C4-PFOS	129,713.86	100,168.92	300,506.76		137,464.61	274,929.21	N
J6582-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:22	13C4-PFOS	142,907.77	100,168.92	300,506.76		137,464.61	274,929.21	
JX73 CCV	CCV	6/28/18 15:40	13C4-PFOS	193,894.34	100,168.92	300,506.76		137,464.61	274,929.21	

DILUTIONS

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	-
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	-
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	-
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	-
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	-
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	-
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	-
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	-
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	9.1

PASS

Average 67,318.56 Lower 33,659.28 Upper 100,977.84

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	33,659.28	100,977.84		48,146.03	96,292.06	
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	33,659.28	100,977.84		48,146.03	96,292.06	
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	33,659.28	100,977.84		48,146.03	96,292.06	
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	33,659.28	100,977.84		48,146.03	96,292.06	
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	33,659.28	100,977.84		48,146.03	96,292.06	
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	33,659.28	100,977.84		48,146.03	96,292.06	
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	33,659.28	100,977.84		48,146.03	96,292.06	
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	33,659.28	100,977.84		48,146.03	96,292.06	
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	33,659.28	100,977.84		48,146.03	96,292.06	
JV66 ICC	ICC	6/27/18 10:26	13C2-PFOA	64,713.81	33,659.28	100,977.84		48,146.03	96,292.06	
JX71 CCV	CCV	6/28/18 14:28	13C2-PFOA	64,982.84	33,659.28	100,977.84		48,146.03	96,292.06	
<del>J6292 FS1-D(3)</del>	<del>NAWC-053118-RW-126</del>	<del>6/28/18 14:46</del>	<del>13C2-PFOA</del>	<del>53,976.33</del>	<del>33,659.28</del>	<del>100,977.84</del>		<del>45,487.99</del>	<del>90,975.98</del>	
<del>J6294 FS1-D(3)</del>	<del>WGNA-053118-DUP-38</del>	<del>6/28/18 14:55</del>	<del>13C2-PFOA</del>	<del>43,675.58</del>	<del>33,659.28</del>	<del>100,977.84</del>		<del>45,487.99</del>	<del>90,975.98</del>	<del>N</del>
<del>J6295 FS1-D(3)</del>	<del>WGNA-053118-RW-4850</del>	<del>6/28/18 15:04</del>	<del>13C2-PFOA</del>	<del>40,130.81</del>	<del>33,659.28</del>	<del>100,977.84</del>		<del>45,487.99</del>	<del>90,975.98</del>	<del>N</del>
J6295MS-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:13	13C2-PFOA	43,375.06	33,659.28	100,977.84		45,487.99	90,975.98	N
<del>J6582 FS1-D(3)</del>	<del>WGNA-053118-RW-4850</del>	<del>6/28/18 15:22</del>	<del>13C2-PFOA</del>	<del>47,578.22</del>	<del>33,659.28</del>	<del>100,977.84</del>		<del>45,487.99</del>	<del>90,975.98</del>	
JX73 CCV	CCV	6/28/18 15:40	13C2-PFOA	66,751.01	33,659.28	100,977.84		45,487.99	90,975.98	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/29/18 8:28	13C4-PFOS	201,122.78	-
JX68	L2	6/29/18 8:37	13C4-PFOS	196,122.87	-
JX69	L3	6/29/18 8:46	13C4-PFOS	205,723.20	-
JX70	L4	6/29/18 8:55	13C4-PFOS	200,379.40	-
JX71	L5	6/29/18 9:04	13C4-PFOS	207,015.16	-
JX72	L6	6/29/18 9:12	13C4-PFOS	197,254.03	-
JX73	L7	6/29/18 9:21	13C4-PFOS	193,742.68	-
JX74	L8	6/29/18 9:30	13C4-PFOS	195,684.38	-
JX75	L9	6/29/18 9:39	13C4-PFOS	172,414.04	15.4

PASS

Average 196,606.50  
 Lower 98,303.25  
 Upper 294,909.75

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/29/18 8:28	13C4-PFOS	201,122.78	98,303.25	294,909.75		144,910.61	289,821.22	
JX68	L2	6/29/18 8:37	13C4-PFOS	196,122.87	98,303.25	294,909.75		144,910.61	289,821.22	
JX69	L3	6/29/18 8:46	13C4-PFOS	205,723.20	98,303.25	294,909.75		144,910.61	289,821.22	
JX70	L4	6/29/18 8:55	13C4-PFOS	200,379.40	98,303.25	294,909.75		144,910.61	289,821.22	
JX71	L5	6/29/18 9:04	13C4-PFOS	207,015.16	98,303.25	294,909.75		144,910.61	289,821.22	
JX72	L6	6/29/18 9:12	13C4-PFOS	197,254.03	98,303.25	294,909.75		144,910.61	289,821.22	
JX73	L7	6/29/18 9:21	13C4-PFOS	193,742.68	98,303.25	294,909.75		144,910.61	289,821.22	
JX74	L8	6/29/18 9:30	13C4-PFOS	195,684.38	98,303.25	294,909.75		144,910.61	289,821.22	
JX75	L9	6/29/18 9:39	13C4-PFOS	172,414.04	98,303.25	294,909.75		144,910.61	289,821.22	
JX66 ICC	ICC	6/29/18 9:48	13C4-PFOS	172,285.75	98,303.25	294,909.75		144,910.61	289,821.22	
J6295MSD-FS1-D(3)	WGNA-053118-RW-4850	6/29/18 10:51	13C4-PFOS	71,125.49	98,303.25	294,909.75	N	144,910.61	289,821.22	N
J6639-FS1-D(3)	NAWC-060718-RW-175	6/29/18 11:00	13C4-PFOS	113,133.67	98,303.25	294,909.75		144,910.61	289,821.22	N
J6641-FS1-D(3)	WGNA-060718-DUP-39	6/29/18 11:09	13C4-PFOS	141,761.47	98,303.25	294,909.75		144,910.61	289,821.22	N
JX72	L6	6/29/18 11:18	13C4-PFOS	202,599.43	98,303.25	294,909.75		144,910.61	289,821.22	

## DILUTIONS

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	7/18/18 22:20	13C4-PFOS	205,525.81	-
JX68	L2	7/18/18 22:29	13C4-PFOS	205,126.96	-
JX69	L3	7/18/18 22:38	13C4-PFOS	198,356.65	-
JX70	L4	7/18/18 22:47	13C4-PFOS	160,453.20	-
JX71	L5	7/18/18 22:55	13C4-PFOS	211,007.26	-
JX72	L6	7/18/18 23:04	13C4-PFOS	186,143.71	-
JX73	L7	7/18/18 23:13	13C4-PFOS	172,932.23	-
JX74	L8	7/18/18 23:22	13C4-PFOS	187,745.70	-
JX75	L9	7/18/18 23:31	13C4-PFOS	191,982.13	6.8

PASS

Average      Lower      Upper  
 191,030.41    95,515.21    286,545.62

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	7/18/18 22:20	13C4-PFOS	205,525.81	95,515.21	286,545.62		147,705.08	295,410.16	
JX68	L2	7/18/18 22:29	13C4-PFOS	205,126.96	95,515.21	286,545.62		147,705.08	295,410.16	
JX69	L3	7/18/18 22:38	13C4-PFOS	198,356.65	95,515.21	286,545.62		147,705.08	295,410.16	
JX70	L4	7/18/18 22:47	13C4-PFOS	160,453.20	95,515.21	286,545.62		147,705.08	295,410.16	
JX71	L5	7/18/18 22:55	13C4-PFOS	211,007.26	95,515.21	286,545.62		147,705.08	295,410.16	
JX72	L6	7/18/18 23:04	13C4-PFOS	186,143.71	95,515.21	286,545.62		147,705.08	295,410.16	
JX73	L7	7/18/18 23:13	13C4-PFOS	172,932.23	95,515.21	286,545.62		147,705.08	295,410.16	
JX74	L8	7/18/18 23:22	13C4-PFOS	187,745.70	95,515.21	286,545.62		147,705.08	295,410.16	
JX75	L9	7/18/18 23:31	13C4-PFOS	191,982.13	95,515.21	286,545.62		147,705.08	295,410.16	
JX66 ICC	ICC	7/18/18 23:40	13C4-PFOS	183,658.67	95,515.21	286,545.62		147,705.08	295,410.16	
J6295MSD-FS1-D(5)	WGNA-053118-RW-4850	7/18/18 23:58	13C4-PFOS	135,434.54	95,515.21	286,545.62		147,705.08	295,410.16	N
JX72	L6	7/19/18 0:07	13C4-PFOS	205,213.94	95,515.21	286,545.62		147,705.08	295,410.16	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	7/18/18 22:20	13C2-PFOA	55,220.63	-
JX68	L2	7/18/18 22:29	13C2-PFOA	54,593.58	-
JX69	L3	7/18/18 22:38	13C2-PFOA	55,877.16	-
JX70	L4	7/18/18 22:47	13C2-PFOA	42,185.64	-
JX71	L5	7/18/18 22:55	13C2-PFOA	59,529.17	-
JX72	L6	7/18/18 23:04	13C2-PFOA	52,320.10	-
JX73	L7	7/18/18 23:13	13C2-PFOA	50,493.82	-
JX74	L8	7/18/18 23:22	13C2-PFOA	57,138.71	-
JX75	L9	7/18/18 23:31	13C2-PFOA	65,104.44	16.4

PASS

Average      Lower      Upper  
 54,718.14    27,359.07    82,077.21

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	7/18/18 22:20	13C2-PFOA	55,220.63	27,359.07	82,077.21		41,670.42	83,340.84	
JX68	L2	7/18/18 22:29	13C2-PFOA	54,593.58	27,359.07	82,077.21		41,670.42	83,340.84	
JX69	L3	7/18/18 22:38	13C2-PFOA	55,877.16	27,359.07	82,077.21		41,670.42	83,340.84	
JX70	L4	7/18/18 22:47	13C2-PFOA	42,185.64	27,359.07	82,077.21		41,670.42	83,340.84	
JX71	L5	7/18/18 22:55	13C2-PFOA	59,529.17	27,359.07	82,077.21		41,670.42	83,340.84	
JX72	L6	7/18/18 23:04	13C2-PFOA	52,320.10	27,359.07	82,077.21		41,670.42	83,340.84	
JX73	L7	7/18/18 23:13	13C2-PFOA	50,493.82	27,359.07	82,077.21		41,670.42	83,340.84	
JX74	L8	7/18/18 23:22	13C2-PFOA	57,138.71	27,359.07	82,077.21		41,670.42	83,340.84	
JX75	L9	7/18/18 23:31	13C2-PFOA	65,104.44	27,359.07	82,077.21		41,670.42	83,340.84	
JX66 ICC	ICC	7/18/18 23:40	13C2-PFOA	52,223.56	27,359.07	82,077.21		41,670.42	83,340.84	
J6295MSD-FS1-D(5)	WGNA-053118-RW-4850	7/18/18 23:58	13C2-PFOA	38,188.92	27,359.07	82,077.21		41,670.42	83,340.84	N
JX72	L6	7/19/18 0:07	13C2-PFOA	60,406.66	27,359.07	82,077.21		41,670.42	83,340.84	



IS ASSOCIATION

Sample Name	CR042PB-FS(0)	Injection Vial	11
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T17:43:39	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFNA_1	463.0 / 419.0	2.88	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	56669.88	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	56669.88	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.50	0.96	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.78	1.40	0.8 – 1.5

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.50	0.96	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.78	1.40	0.8 – 1.5

Sample Name	JX73	Injection Vial	9
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/29/2018 9:21:55 AM	Data File	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_B
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.50	1.04	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.78	1.12	0.8 – 1.5

## Summary Asymmetry Report

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	7/18/2018 11:13:52 PM	Data File	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_MSD
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.52	1.10	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.80	1.12	0.8 – 1.5

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	30	>10
PFBS_2	298.9 / 99.0	1.50	35	>10
PFHxA_1	313.0 / 269.0	1.78	26	>10
PFHxA_2	313.0 / 119.0	1.78	29	>10
PFHpA_1	363.0 / 319.0	2.14	32	>10
PFHpA_2	363.0 / 169.0	2.14	31	>10
PFHxS_1	399.0 / 80.0	2.15	32	>10
PFHxS_2	399.0 / 99.0	2.15	35	>10
PFOA_1	413.0 / 369.0	2.51	35	>10
PFOA_2	413.0 / 169.0	2.51	33	>10
PFNA_1	463.0 / 419.0	2.89	32	>10
PFNA_2	463.0 / 219.0	2.89	25	>10
PFOS_1	499.0 / 80.0	2.88	36	>10
PFOS_2	499.0 / 99.0	2.88	35	>10
PFDA_1	513.0 / 469.0	3.23	27	>10
PFDA_2	513.0 / 219.0	3.23	33	>10
PFUnA_1	563.0 / 519.0	3.55	35	>10
PFUnA_2	563.0 / 269.0	3.55	27	>10
PFDaA_1	613.0 / 569.0	3.84	35	>10
PFDaA_2	613.0 / 319.0	3.84	32	>10
PFTrDA_1	663.0 / 619.0	4.09	31	>10
PFTrDA_2	663.0 / 169.0	4.09	26	>10
PFTeDA_1	713.0 / 669.0	4.31	43	>10
PFTeDA_2	713.0 / 169.0	4.31	37	>10
NMeFOSAA_1	570.0 / 419.0	3.38	35	>10
NMeFOSAA_2	570.0 / 512.0	3.38	46	>10
NEtFOSAA_1	584.0 / 419.0	3.54	31	>10
NEtFOSAA_2	584.0 / 483.0	3.54	35	>10
13C2-PFHxA	315.0 / 270.0	1.77	32	>10
13C2-PFDA	515.0 / 470.0	3.23	35	>10
d5-EtFOSAA	589.0 / 419.0	3.53	30	>10

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	30	>10
PFBS_2	298.9 / 99.0	1.50	35	>10
PFHxA_1	313.0 / 269.0	1.78	26	>10
PFHxA_2	313.0 / 119.0	1.78	29	>10
PFHpA_1	363.0 / 319.0	2.14	32	>10
PFHpA_2	363.0 / 169.0	2.14	31	>10
PFHxS_1	399.0 / 80.0	2.15	32	>10
PFHxS_2	399.0 / 99.0	2.15	35	>10
PFOA_1	413.0 / 369.0	2.51	35	>10
PFOA_2	413.0 / 169.0	2.51	33	>10
PFNA_1	463.0 / 419.0	2.89	32	>10
PFNA_2	463.0 / 219.0	2.89	25	>10
PFOS_1	499.0 / 80.0	2.88	36	>10
PFOS_2	499.0 / 99.0	2.88	35	>10
PFDA_1	513.0 / 469.0	3.23	27	>10
PFDA_2	513.0 / 219.0	3.23	33	>10
PFUnA_1	563.0 / 519.0	3.55	35	>10
PFUnA_2	563.0 / 269.0	3.55	27	>10
PFDaA_1	613.0 / 569.0	3.84	35	>10
PFDaA_2	613.0 / 319.0	3.84	32	>10
PFTrDA_1	663.0 / 619.0	4.09	31	>10
PFTrDA_2	663.0 / 169.0	4.09	26	>10
PFTeDA_1	713.0 / 669.0	4.31	43	>10
PFTeDA_2	713.0 / 169.0	4.31	37	>10
NMeFOSAA_1	570.0 / 419.0	3.38	35	>10
NMeFOSAA_2	570.0 / 512.0	3.38	46	>10
NEtFOSAA_1	584.0 / 419.0	3.54	31	>10
NEtFOSAA_2	584.0 / 483.0	3.54	35	>10
13C2-PFHxA	315.0 / 270.0	1.77	32	>10
13C2-PFDA	515.0 / 470.0	3.23	35	>10
d5-EtFOSAA	589.0 / 419.0	3.53	30	>10

Sample Name	JX73	Injection Vial	9
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/29/2018 9:21:55 AM	Data File	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_B
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	27	>10
PFBS_2	298.9 / 99.0	1.50	31	>10
PFHxA_1	313.0 / 269.0	1.78	24	>10
PFHxA_2	313.0 / 119.0	1.78	26	>10
PFHxS_1	399.0 / 80.0	2.16	39	>10
PFHxS_2	399.0 / 99.0	2.16	39	>10
PFOA_1	413.0 / 369.0	2.52	40	>10
PFOA_2	413.0 / 169.0	2.52	27	>10
PFOS_1	499.0 / 80.0	2.90	38	>10
PFOS_2	499.0 / 99.0	2.90	36	>10
PFTeDA_1	713.0 / 669.0	4.32	43	>10
PFTeDA_2	713.0 / 169.0	4.32	43	>10



Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	7/18/2018 11:13:52 PM	Data File	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_MSD
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.52	26	>10
PFBS_2	298.9 / 99.0	1.52	28	>10
PFHxA_1	313.0 / 269.0	1.80	25	>10
PFHxA_2	313.0 / 119.0	1.80	26	>10
PFHxS_1	399.0 / 80.0	2.18	40	>10
PFHxS_2	399.0 / 99.0	2.18	34	>10
PFOA_1	413.0 / 369.0	2.54	36	>10
PFOA_2	413.0 / 169.0	2.54	34	>10
PFOS_1	499.0 / 80.0	2.92	42	>10
PFOS_2	499.0 / 99.0	2.92	36	>10
PFTeDA_1	713.0 / 669.0	4.35	63	>10
PFTeDA_2	713.0 / 169.0	4.35	53	>10

# BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
<b>PFHxA</b>	307-24-4	0.22	0.5	2.5	2.5
<b>PFHpA</b>	375-85-9	0.34	1.0	2.5	2.5
<b>PFOA</b>	335-67-1	0.38	1.0	2.5	2.5
<b>PFNA</b>	375-95-1	0.37	1.0	2.5	2.5
<b>PFDA</b>	335-76-2	0.39	1.0	2.5	2.5
<b>PFUnA</b>	2058-94-8	0.38	1.0	2.5	2.5
<b>PFDoA</b>	307-55-1	0.42	1.0	2.5	2.5
<b>PFTrDA</b>	72629-94-8	0.42	1.0	2.5	2.5
<b>PFTeDA</b>	376-06-7	0.73	1.5	2.5	2.5
<b>NMeFOSAA</b>	2355-31-9	0.42	1.0	2.5	2.5
<b>NEtFOSAA</b>	2991-50-6	0.44	1.0	2.5	2.5
<b>PFBS</b>	375-73-5	0.21	0.5	2.5	2.5
<b>PFHxS</b>	3871-99-6	0.34	1.0	2.5	2.5
<b>PFOS</b>	1763-23-1	0.30	1.0	2.5	2.5

*Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation*

## Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
<b>PFHxA</b>	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
<b>PFHpA</b>	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
<b>PFOA</b>	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
<b>PFNA</b>	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
<b>PFDA</b>	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
<b>PFUnA</b>	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
<b>PFDoA</b>	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
<b>PFTTrDA</b>	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
<b>PFTeDA</b>	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
<b>NMeFOSAA</b>	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
<b>NEtFOSAA</b>	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
<b>PFBS</b>	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
<b>PFHxS</b>	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
<b>PFOS</b>	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
<b><sup>13</sup>C<sub>2</sub>-PFHxA</b>	NA	SIS	315.0 / 270.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFDA</b>	NA	SIS	515.0 / 470.0	NA
<b>d<sub>5</sub>-EtFOSAA</b>	NA	SIS	589.0 / 419.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFOA</b>	NA	IS	415.0 / 270.0	NA
<b><sup>13</sup>C<sub>4</sub>-PFOS</b>	NA	IS	503.0 / 80.0	NA
<b>d<sub>3</sub>-MeFOSAA</b>	NA	IS	573.0 / 419.0	NA



## Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF <sup>1</sup>	Sample Size (L)	Sample Equivalent (ng/L) <sup>2</sup>
25	1	1	0.250	0.1
50	1	1	0.250	0.2
100	1	1	0.250	0.4
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
5,000	1	1	0.250	20.0
10,000	1	1	0.250	40.0

<sup>1</sup> - base level dilution as part of the extraction procedure

<sup>2</sup> - calculated equivalent of a sample based on the ICAL concentration



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# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Mass calibration and tune check

## QTRAP 5500 Preventive Maintenance Checklist

<b>Preventive Maintenance Date:</b>	22-Feb-2017
<b>Request ID:</b>	3683
<b>Company Name:</b>	Battelle Memorial Institute
<b>Instrument ID:</b>	X60666
<b>Instrument Model:</b>	QTRAP 5500
<b>Instrument Serial Number:</b>	AU23051004

**PASS**       **FAIL**

**Any failure will lead to an automatic Service Call being open to investigate fault.**

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Performed By:**           Kaustubh Dhayagude                **Date:**           22-Feb-2017          

**Approved By :** \_\_\_\_\_      **Date:** \_\_\_\_\_

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

**PRE PM PPG PERFORMANCE EVALUATION:**

- Consult Customer concerning the unit overall performance.
- Check Logbook for Services recently performed.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading ( x 10 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 <sup>-5</sup> Torr

- Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
  - No degradation or Sensitivity drop
- Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
  - No degradation or Sensitivity drop

**Pre PM PPG Test:** Perform each of the following tests. Optimize ion source position only. The specifications listed for these Pre PM tests are guidelines only, not required to be met.

- Perform Q1 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 175.133	1.64 e6	Read Only	0.8095	Read Only
Q1 500.380	2.40 e7	Read Only	0.8592	Read Only
Q1 906.673	2.86 e7	Read Only	0.9633	Read Only

- Perform Q3 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 175.133	1.26 e6	Read Only	0.6252	Read Only
Q3 500.380	2.19 e7	Read Only	0.7275	Read Only
Q3 906.673	3.02 e7	Read Only	0.7662	Read Only

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: : 19.51% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	7.43 e7	Read Only	0.9981	Read Only
MS/MS 195.1	1.45 e7	Read Only	0.6582	Read Only

Perform Q1 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	1.43 e7	Read Only	0.7330	Read Only

Perform Q3 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.22 e7	Read Only	0.8138	Read Only

Perform Product Ion scan using NEG PPG 3e-5M. Record 10mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

**PREVENTIVE MAINTENANCE CHECKLIST:**

- Check Cooling Fans for Turbo Pumps while MS is ON.
- Check QJet and QPS tuning voltage for reference.
- Record AC input Voltage while MS is OFF: \_\_\_\_\_ (200-240VAC).  
If Out-of-Range, notify customer.
- Clean Interface
- Curtain Plate
  - Orifice Plate
  - QJet
  - Q0 Rods.
- Replace Roughing Pump Oil.
- Inspect Oil Exhaust Filter, if Applicable.  N/A
- Clean and inspect built-in divert valve if used.  N/A
- Check Multiplier Voltage, optimize if necessary.
- Replace four Air Filters at the bottom of the mass spectrometer.
- Pump down overnight if possible.  N/A
- Perform Maintenance on Turbo V source.
- Replace Electrode, if necessary.  N/A
- Check Turbo heaters resistances.
- Check if Temperature is reached at 500C with TIS Probe installed.
- Check if Temperature is reached at 500C with APCI Probe installed.  N/A



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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

**POST PM PPG PERFORMANCE TESTS:**

- Set-up Sample for Infusion.
- Check spray and adjust sprayer's position of the TIS source.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading ( x 10 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 <sup>-5</sup> Torr

- Perform Q1 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2 <sup>e6</sup>	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 <sup>e6</sup>	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 <sup>e7</sup>	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 <sup>e7</sup>	0.7656	0.6 to 0.8

- Perform Q3 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2 <sup>e6</sup>	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0 <sup>e6</sup>	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4 <sup>e7</sup>	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8 <sup>e7</sup>	0.7118	0.6 to 0.8

- Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.

Transmission Efficiency: 16.93% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.74 e7	N/A	0.7667	Read Only
MS/MS 195.1	9.72 e6	N/A	0.6751	Read Only

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform Q1 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width Value	Width Specs
			Value	Spec		
Q1 933.636	10	10	1.31 e7	$\geq 1.0^{e7}$	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	$\geq 4.0^{e7}$	0.6740	0.6 to 0.8

Perform Q3 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width Value	Width Specs
			Value	Spec		
Q3 933.636	10	10	1.70 e7	$\geq 8.0^{e6}$	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	$\geq 4.0^{e7}$	0.7292	0.6 to 0.8

Perform Product Ion scan using NEG PPG 3e-5M.

Mass	Scan Rate	Mca	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.33 e6	Read Only	0.6387	Read Only

Perform ER POS 118.087 and 922.01 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	8.08 e6	$\geq 7.2^{e6}$	0.1302	<0.35
ER 922.010	0.05	3.89 e7	$\geq 2.8^{e6}$	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	$\geq 2.4^{e7}$	0.3740	<0.65
ER 922.010	0.05	2.37 e8	$\geq 6.8^{e7}$	0.5407	<0.65

Perform ER NEG 431.982 and 601.978 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	1.05 e8	$\geq 4.4^{e7}$	0.1840	<0.35
ER 601.978	0.05	7.74 e7	$\geq 5.6^{e7}$	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	$\geq 1.2^{e8}$	0.4382	<0.65
ER 601.978	0.05	2.55 e8	$\geq 1.6^{e8}$	0.6205	<0.65

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

- Perform EPI POS 397.2 using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Q0 Trapping OFF		Q0 Trapping ON	
		Intensity	Spec	Intensity	Spec
EPI 397.2	10000	> 3.5 e6	≥2.0 e6	> 4.0 e7	≥6.4 e6

- Perform MS3 POS full scan Fragmentation ON & OFF using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
<input type="checkbox"/> 236 OR <input checked="" type="checkbox"/> 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10 <sup>e6</sup>

**REVIEW:**

- Attach all spectrums printouts to this procedure.
- If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
- Empty tuning cache folder, if necessary.  N/A
- Update Service Work Order status
- Fill and replace PM Label.

**END OF PREVENTIVE MAINTENANCE CHECKLIST****Document history:**

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE IDENTIFICATION PAGE**

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-  
WE04

**18-0393**

**WE04 PFAS Analysis**

**DW**

<b>Sample ID</b>	<b>Description</b>
CR042PB-FS	Procedural Blank
CR043LCS-FS	Laboratory Control Sample
J6290-FS1	NAWC-053118-RW-256
J6292-FS1	NAWC-053118-RW-126
J6294-FS1	WGNA-053118-DUP-38
J6295-FS1	WGNA-053118-RW-4850
J6295MS-FS1	Matrix Spike of WGNA-053118-RW-4850
J6295MSD-FS1	Matrix Spike Duplicate of WGNA-053118-RW-4850
J6297-FS1	NAWC-053118-RW-311
J6299-FS1	NAWC-053118-RW-265
J6582-FS1	NAWC-060418-RW-230
J6584-FS1	NAWC-060418-RW-309
J6586-FS1	NAWC-060418-RW-293
J6588-FS1	NAWC-060418-RW-038
J6590-FS1	NAWC-060418-RW-039
J6637-FS1	WGNA-060718-RW-0488
J6639-FS1	NAWC-060718-RW-175
J6641-FS1	WGNA-060718-DUP-39
J6642-FS1	WGNA-060718-RW-0626

Samples Assigned By:

Stephanie Schultz

Date :

June 21, 2018

Comments:

It can be done

## BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-WE04

**18-0393**

**WE04 PFAS Analysis**

**DW**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR042PB-FS	Procedural Blank	250.0	NA	--	06/21/18 SAS
CR043LCS-FS	Laboratory Control Sample	250.0	NA	--	06/21/18 SAS
J6290-FS1	NAWC-053118-RW-256	270.0	2	C	06/21/18 LMG
J6292-FS1	NAWC-053118-RW-126	270.0	2	C	06/21/18 LMG
J6294-FS1	WGNA-053118-DUP-38	275.0	2	C	06/21/18 LMG
J6295-FS1	WGNA-053118-RW-4850	275.0	2	C	06/21/18 LMG
J6295MS-FS1	Matrix Spike	260.0	4	C	06/21/18 LMG
J6295MSD-FS1	Matrix Spike Duplicate	275.0	6	C	06/21/18 LMG
J6297-FS1	NAWC-053118-RW-311	290.0	2	C	06/21/18 LMG
J6299-FS1	NAWC-053118-RW-265	280.0	2	C	06/21/18 LMG
J6582-FS1	NAWC-060418-RW-230	295.0	2	C	06/21/18 LMG
J6584-FS1	NAWC-060418-RW-309	290.0	2	C	06/21/18 LMG
J6586-FS1	NAWC-060418-RW-293	295.0	2	C	06/21/18 LMG
J6588-FS1	NAWC-060418-RW-038	285.0	2	C	06/21/18 LMG
J6590-FS1	NAWC-060418-RW-039	285.0	2	C	06/21/18 LMG
J6637-FS1	WGNA-060718-RW-0488	280.0	2	C	06/21/18 LMG
J6639-FS1	NAWC-060718-RW-175	275.0	2	C	06/21/18 LMG
J6641-FS1	WGNA-060718-DUP-39	285.0	2	C	06/21/18 LMG
J6642-FS1	WGNA-060718-RW-0626	270.0	2	C	06/21/18 LMG

**Comments:**

Sample ID:	Comments:
CR042PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CR043LCS-FS	1.24g Trizma(170526-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

June 21, 2018

\* - "C" = Sample is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0393****WE04 PFAS Analysis****DW**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR042PB-FS	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
CR043LCS-FS	JV41	LCS/MS	1	50	06/21/18 SAS	LMG	NA
CR043LCS-FS	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6290-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6292-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6294-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6295-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6295MS-FS1	JV41	LCS/MS	1	150	06/21/18 SAS	LMG	NA
J6295MS-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6295MSD-FS1	JV41	LCS/MS	1	150	06/21/18 SAS	LMG	NA
J6295MSD-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6297-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6299-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6582-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6584-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6586-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6588-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6590-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6637-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6639-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6641-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6642-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0393****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CR042PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
CR043LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6290-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6292-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6292-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6294-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6294-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6295-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6295-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6295MS-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6295MS-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6295MSD-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6295MSD-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/29/18 SAS	JCT
J6295MSD-FS1-D(5)	952	48	JV59	50.375	1	1000	21.053	07/18/18 DMS	MDS
J6297-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6299-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6582-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6582-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6584-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG

\* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0393****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
J6586-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6588-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6590-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6637-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6639-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6639-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/29/18 SAS	JCT
J6641-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6641-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/29/18 SAS	JCT
J6642-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	B814659662
JV59	Pipette	I0793912B

\* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.





It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0393****WE04 PFAS Analysis****DW**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR042PB-FS	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
CR043LCS-FS	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6290-FS1	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6292-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6292-FS1	2	--	6/28/2018 9:08:00 AM	J6292-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6292-FS1-D	3	--	6/28/2018 9:08:00 AM	J6292-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6294-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6294-FS1	2	--	6/28/2018 9:08:00 AM	J6294-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6294-FS1-D	3	--	6/28/2018 9:08:00 AM	J6294-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6295-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6295-FS1	2	--	6/28/2018 9:08:00 AM	J6295-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6295-FS1-D	3	--	6/28/2018 9:08:00 AM	J6295-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6295MS-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6295MS-FS1	2	--	6/28/2018 9:08:00 AM	J6295MS-FS1	0	1000	950	1.053	1.053	06/28/18 SAS

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] \* [Aliquot Weight (mg)]

Dilution Factor = [Sample Volume (uL) / Aliquot Volume (uL)] \* Prior Dilution Factor

\* - "C" = Extract is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0393****WE04 PFAS Analysis****DW**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6295MS-FS1-D	3	--	6/28/2018 9:08:00 AM	J6295MS-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6295MSD-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6295MSD-FS1	2	C	6/29/2018 9:24:00 AM	J6295MSD-FS1	0	1000	950	1.053	1.053	06/29/18 SAS
J6295MSD-FS1-D	3	--	6/29/2018 9:24:00 AM	J6295MSD-FS1	0	1000	50	20.000	20.000	06/29/18 SAS
J6295MSD-FS1	4	--	7/18/2018 3:12:00 PM	J6295MSD-FS1	2	1000	950	1.053	1.108	07/18/18 DMS
J6295MSD-FS1-D	5	--	7/18/2018 3:12:00 PM	J6295MSD-FS1	2	1000	50	20.000	21.053	07/18/18 DMS
J6297-FS1	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6299-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6582-FS1	0	C	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6582-FS1	2	--	6/28/2018 9:08:00 AM	J6582-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6582-FS1-D	3	--	6/28/2018 9:08:00 AM	J6582-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6584-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6586-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6588-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] \* [Aliquot Weight (mg)]

Dilution Factor = [Sample Volume (uL) / Aliquot Volume (uL)] \* Prior Dilution Factor

\* - "C" = Extract is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0393****WE04 PFAS Analysis****DW**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6590-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6637-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6639-FS1	0	C	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6639-FS1	2	--	6/29/2018 9:24:00 AM	J6639-FS1	0	1000	950	1.053	1.053	06/29/18 SAS
J6639-FS1-D	3	--	6/29/2018 9:24:00 AM	J6639-FS1	0	1000	50	20.000	20.000	06/29/18 SAS
J6641-FS1	0	C	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6641-FS1	2	--	6/29/2018 9:24:00 AM	J6641-FS1	0	1000	950	1.053	1.053	06/29/18 SAS
J6641-FS1-D	3	--	6/29/2018 9:24:00 AM	J6641-FS1	0	1000	50	20.000	20.000	06/29/18 SAS
J6642-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] \* [Aliquot Weight (mg)]

Dilution Factor = [Sample Volume (uL) / Aliquot Volume (uL)] \* Prior Dilution Factor

\* - "C" = Extract is Consumed

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/27/2018 8:56:44 AM	5-0371.dam	06252018_5-371.wiff
2	JX67	L1	6/27/2018 9:05:43 AM	5-0371.dam	06252018_5-371.wiff
3	JX68	L2	6/27/2018 9:14:41 AM	5-0371.dam	06252018_5-371.wiff
4	JX69	L3	6/27/2018 9:23:38 AM	5-0371.dam	06252018_5-371.wiff
5	JX70	L4	6/27/2018 9:32:34 AM	5-0371.dam	06252018_5-371.wiff
6	JX71	L5	6/27/2018 9:41:29 AM	5-0371.dam	06252018_5-371.wiff
7	JX72	L6	6/27/2018 9:50:24 AM	5-0371.dam	06252018_5-371.wiff
8	JX73	L7	6/27/2018 9:59:20 AM	5-0371.dam	06252018_5-371.wiff
9	JX74	L8	6/27/2018 10:08:14 AM	5-0371.dam	06252018_5-371.wiff
10	JX75	L9	6/27/2018 10:17:08 AM	5-0371.dam	06252018_5-371.wiff
11	JV66 ICC	ICC	6/27/2018 10:26:04 AM	5-0371.dam	06252018_5-371.wiff
1	MeOH		6/27/2018 1:33:35 PM	5-0371.dam	06252018_5-371.wiff
54	JX72 CCV	CCV	6/27/2018 5:25:48 PM	5-0371.dam	06252018_5-371.wiff
10	MeOH	Solvent	6/27/2018 5:34:42 PM	5-0371.dam	06252018_5-371.wiff
11	CR042PB-FS(0)	Procedural Blank	6/27/2018 5:43:39 PM	5-0371.dam	06252018_5-371.wiff
12	CR043LCS-FS(0)	Laboratory Control Sample	6/27/2018 5:52:35 PM	5-0371.dam	06252018_5-371.wiff
13	J6290-FS1(0)	NAWC-053118-RW-256	6/27/2018 6:01:33 PM	5-0371.dam	06252018_5-371.wiff
14	J6292-FS1(0)	NAWC-053118-RW-126	6/27/2018 6:10:29 PM	5-0371.dam	06252018_5-371.wiff
15	J6294-FS1(0)	WGNA-053118-DUP-38	6/27/2018 6:19:26 PM	5-0371.dam	06252018_5-371.wiff
16	J6295-FS1(0)	WGNA-053118-RW-4850	6/27/2018 6:28:22 PM	5-0371.dam	06252018_5-371.wiff
17	J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/2018 6:37:18 PM	5-0371.dam	06252018_5-371.wiff
18	J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/2018 6:46:14 PM	5-0371.dam	06252018_5-371.wiff
19	J6297-FS1(0)	NAWC-053118-RW-311	6/27/2018 6:55:10 PM	5-0371.dam	06252018_5-371.wiff
20	J6299-FS1(0)	NAWC-053118-RW-265	6/27/2018 7:04:07 PM	5-0371.dam	06252018_5-371.wiff
21	JX71 CCV	CCV	6/27/2018 7:13:03 PM	5-0371.dam	06252018_5-371.wiff
54	MeOH	Solvent	6/27/2018 7:21:58 PM	5-0371.dam	06252018_5-371.wiff
22	J6582-FS1(0)	NAWC-060418-RW-	6/27/2018 7:30:53	5-0371.dam	06252018_5-371.wiff

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		230	PM		
23	J6584-FS1(0)	NAWC-060418-RW-309	6/27/2018 7:39:50 PM	5-0371.dam	06252018_5-371.wiff
24	J6586-FS1(0)	NAWC-060418-RW-293	6/27/2018 7:48:46 PM	5-0371.dam	06252018_5-371.wiff
25	J6588-FS1(0)	NAWC-060418-RW-038	6/27/2018 7:57:42 PM	5-0371.dam	06252018_5-371.wiff
26	J6590-FS1(0)	NAWC-060418-RW-039	6/27/2018 8:06:41 PM	5-0371.dam	06252018_5-371.wiff
27	J6637-FS1(0)	WGNA-060718-RW-0488	6/27/2018 8:15:38 PM	5-0371.dam	06252018_5-371.wiff
28	J6639-FS1(0)	NAWC-060718-RW-175	6/27/2018 8:24:34 PM	5-0371.dam	06252018_5-371.wiff
29	J6641-FS1(0)	WGNA-060718-DUP-39	6/27/2018 8:33:30 PM	5-0371.dam	06252018_5-371.wiff
30	J6642-FS1(0)	WGNA-060718-RW-0626	6/27/2018 8:42:27 PM	5-0371.dam	06252018_5-371.wiff
31	JX72 CCV	CCV	6/27/2018 8:51:24 PM	5-0371.dam	06252018_5-371.wiff

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH	Solvent	6/27/2018 8:56:44 AM	5-0371.dam	06252018_5-371.wiff
2	JX67	L1	6/27/2018 9:05:43 AM	5-0371.dam	06252018_5-371.wiff
3	JX68	L2	6/27/2018 9:14:41 AM	5-0371.dam	06252018_5-371.wiff
4	JX69	L3	6/27/2018 9:23:38 AM	5-0371.dam	06252018_5-371.wiff
5	JX70	L4	6/27/2018 9:32:34 AM	5-0371.dam	06252018_5-371.wiff
6	JX71	L5	6/27/2018 9:41:29 AM	5-0371.dam	06252018_5-371.wiff
7	JX72	L6	6/27/2018 9:50:24 AM	5-0371.dam	06252018_5-371.wiff
8	JX73	L7	6/27/2018 9:59:20 AM	5-0371.dam	06252018_5-371.wiff
9	JX74	L8	6/27/2018 10:08:14 AM	5-0371.dam	06252018_5-371.wiff
10	JX75	L9	6/27/2018 10:17:08 AM	5-0371.dam	06252018_5-371.wiff
11	JV66 ICC	ICC	6/27/2018 10:26:04 AM	5-0371.dam	06252018_5-371.wiff
2	JX73 CCV	CCV	6/28/2018 12:23:52 PM	5-0371.dam	06282018_05-0371.wiff
1	MeOH	Solvent	6/28/2018 12:50:39 PM	5-0371.dam	06282018_05-0371.wiff
5	CR042PB-FS(0)	Procedural Blank	6/28/2018 12:59:35 PM	5-0371.dam	06282018_05-0371.wiff
6	J6294-FS1(2)	WGNA-053118-DUP-38	6/28/2018 1:08:29 PM	5-0371.dam	06282018_05-0371.wiff
7	J6582-FS1(2)	NAWC-060418-RW-230	6/28/2018 1:17:26 PM	5-0371.dam	06282018_05-0371.wiff
8	J6637-FS1(0)	WGNA-060718-RW-0488	6/28/2018 1:26:21 PM	5-0371.dam	06282018_05-0371.wiff
9	J6641-FS1(0)	WGNA-060718-DUP-39	6/28/2018 1:35:18 PM	5-0371.dam	06282018_05-0371.wiff
10	JX72 CCV	CCV	6/28/2018 1:44:13 PM	5-0371.dam	06282018_05-0371.wiff
14	JX71 CCV	CCV	6/28/2018 2:28:49 PM	5-0371.dam	06282018_05-0371.wiff
15	MeOH	Solvent	6/28/2018 2:37:45 PM	5-0371.dam	06282018_05-0371.wiff
16	J6292-FS1-D(3)	NAWC-053118-RW-126	6/28/2018 2:46:40 PM	5-0371.dam	06282018_05-0371.wiff
17	J6294-FS1-D(3)	WGNA-053118-DUP-38	6/28/2018 2:55:35 PM	5-0371.dam	06282018_05-0371.wiff
18	J6295-FS1-D(3)	WGNA-053118-RW-4850	6/28/2018 3:04:30 PM	5-0371.dam	06282018_05-0371.wiff
19	J6295MS-FS1-D(3)	WGNA-053118-RW-4850	6/28/2018 3:13:24 PM	5-0371.dam	06282018_05-0371.wiff
20	J6582-FS1-D(3)	WGNA-053118-RW-4850	6/28/2018 3:22:20 PM	5-0371.dam	06282018_05-0371.wiff
22	JX73 CCV	CCV	6/28/2018 3:40:09	5-0371.dam	06282018_05-0371.wiff

1 - Data not used, these were only run to confirm the original data. BL 7/19/2018

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
			PM		

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MEOH	Solvent	6/29/2018 8:19:25 AM	5-0371.dam	5500-06292018_371.wiff
3	JX67	L1	6/29/2018 8:28:19 AM	5-0371.dam	5500-06292018_371.wiff
4	JX68	L2	6/29/2018 8:37:15 AM	5-0371.dam	5500-06292018_371.wiff
5	JX69	L3	6/29/2018 8:46:11 AM	5-0371.dam	5500-06292018_371.wiff
6	JX70	L4	6/29/2018 8:55:07 AM	5-0371.dam	5500-06292018_371.wiff
7	JX71	L5	6/29/2018 9:04:02 AM	5-0371.dam	5500-06292018_371.wiff
8	JX72	L6	6/29/2018 9:12:59 AM	5-0371.dam	5500-06292018_371.wiff
9	JX73	L7	6/29/2018 9:21:55 AM	5-0371.dam	5500-06292018_371.wiff
10	JX74	L8	6/29/2018 9:30:50 AM	5-0371.dam	5500-06292018_371.wiff
11	JX75	L9	6/29/2018 9:39:45 AM	5-0371.dam	5500-06292018_371.wiff
12	JX66 ICC	ICC	6/29/2018 9:48:41 AM	5-0371.dam	5500-06292018_371.wiff
1	MEOH	Solvent	6/29/2018 9:57:37 AM	5-0371.dam	5500-06292018_371.wiff
<del>15</del>	<del>J6295MSD-FS1-D(3)</del>	<del>WGNA-053118-RW-4850</del>	<del>6/29/2018 10:51:59 AM</del>	<del>5-0371.dam</del>	<del>5500-06292018_371.wiff</del>
16	J6639-FS1-D(3)	NAWC-060718-RW-175	6/29/2018 11:00:55 AM	5-0371.dam	5500-06292018_371.wiff
17	J6641-FS1-D(3)	WGNA-060718-DUP-39	6/29/2018 11:09:51 AM	5-0371.dam	5500-06292018_371.wiff
8	JX72	CCV	6/29/2018 11:18:47 AM	5-0371.dam	5500-06292018_371.wiff

1 - New dilution needed as this extract did not pass IS MQO. BL 7/19/2018



Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		7/18/2018 10:11:16 PM	5-0371.dam	07182019_5-0371.wiff
2	JX67	L1	7/18/2018 10:20:13 PM	5-0371.dam	07182019_5-0371.wiff
3	JX68	L2	7/18/2018 10:29:10 PM	5-0371.dam	07182019_5-0371.wiff
4	JX69	L3	7/18/2018 10:38:06 PM	5-0371.dam	07182019_5-0371.wiff
5	JX70	L4	7/18/2018 10:47:03 PM	5-0371.dam	07182019_5-0371.wiff
6	JX71	L5	7/18/2018 10:55:59 PM	5-0371.dam	07182019_5-0371.wiff
7	JX72	L6	7/18/2018 11:04:55 PM	5-0371.dam	07182019_5-0371.wiff
8	JX73	L7	7/18/2018 11:13:52 PM	5-0371.dam	07182019_5-0371.wiff
9	JX74	L8	7/18/2018 11:22:48 PM	5-0371.dam	07182019_5-0371.wiff
10	JX75	L9	7/18/2018 11:31:46 PM	5-0371.dam	07182019_5-0371.wiff
11	JX66 ICC	ICC	7/18/2018 11:40:44 PM	5-0371.dam	07182019_5-0371.wiff
12	MeOH	Solvent	7/18/2018 11:49:41 PM	5-0371.dam	07182019_5-0371.wiff
13	J6295MSD-FS1-D(5)	WGNA-053118-RW- 4850	7/18/2018 11:58:39 PM	5-0371.dam	07182019_5-0371.wiff
14	JX72 CCV	CCV	7/19/2018 12:07:35 AM	5-0371.dam	07182019_5-0371.wiff



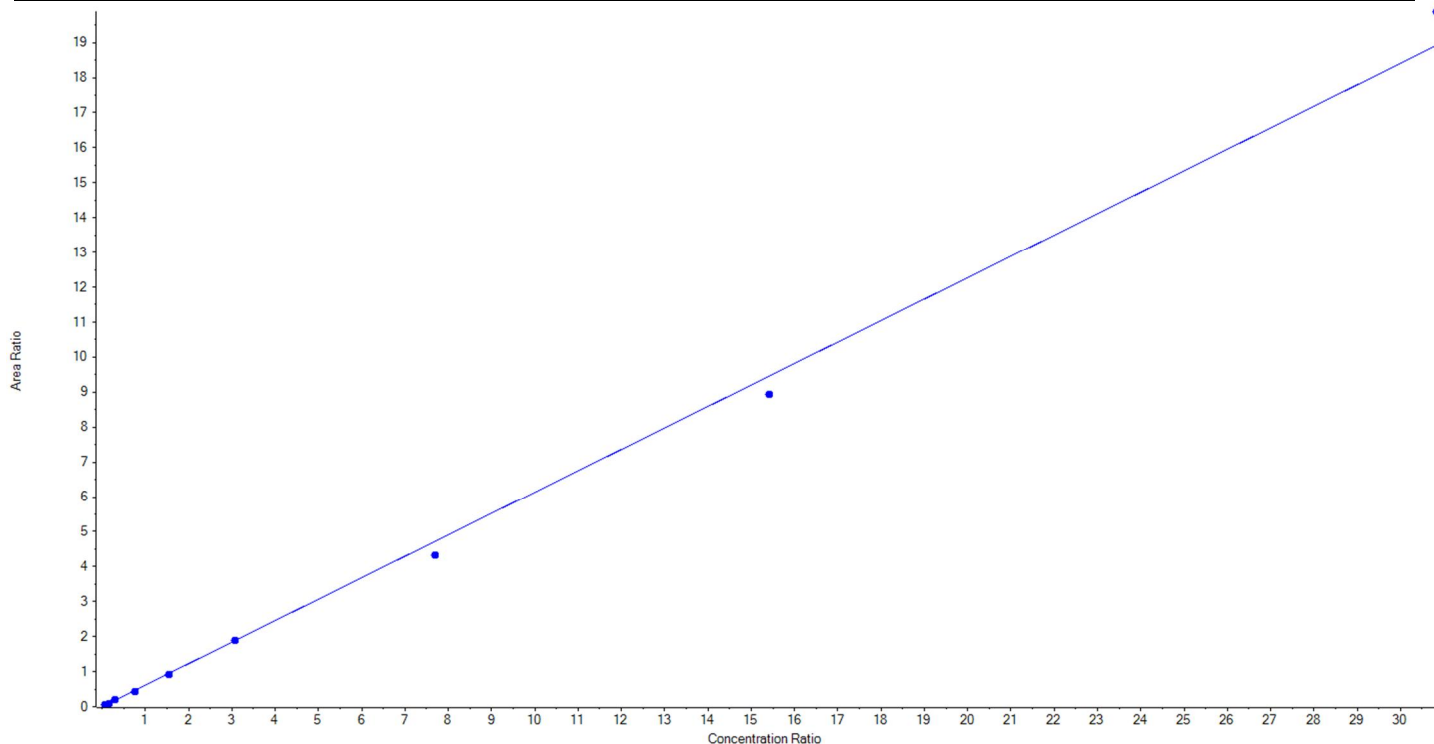
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.61363x + -0.00126$  ( $r = 0.99834$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	23.830433	107.6
3	JX68	L2	True	44.30	46.278541	104.5
4	JX69	L3	True	88.60	93.683891	105.7
5	JX70	L4	True	221.50	206.327632	93.2
6	JX71	L5	True	443.00	432.516100	97.6
7	JX72	L6	True	885.00	888.747710	100.4
8	JX73	L7	True	2212.50	2024.674722	91.5
9	JX74	L8	True	4425.00	4178.992960	94.4
10	JX75	L9	True	8850.00	9296.998012	105.1





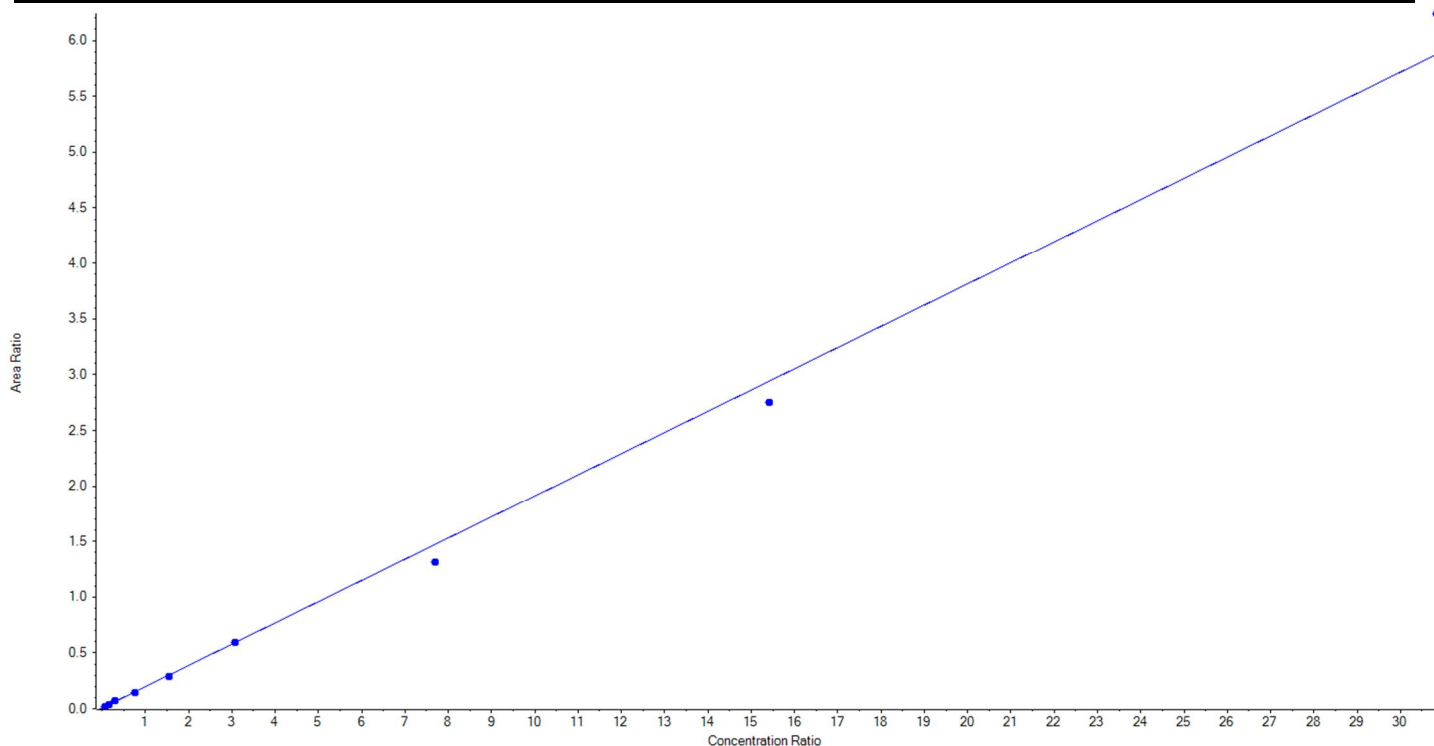
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19036 x + 0.00658$  (r = 0.99747) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	22.983577	103.8
3	JX68	L2	True	44.30	49.356949	111.4
4	JX69	L3	True	88.60	93.887974	106.0
5	JX70	L4	True	221.50	205.818634	92.9
6	JX71	L5	True	443.00	429.643049	97.0
7	JX72	L6	True	885.00	889.170002	100.5
8	JX73	L7	True	2212.50	1962.210653	88.7
9	JX74	L8	True	4425.00	4142.359203	93.6
10	JX75	L9	True	8850.00	9396.619960	106.2





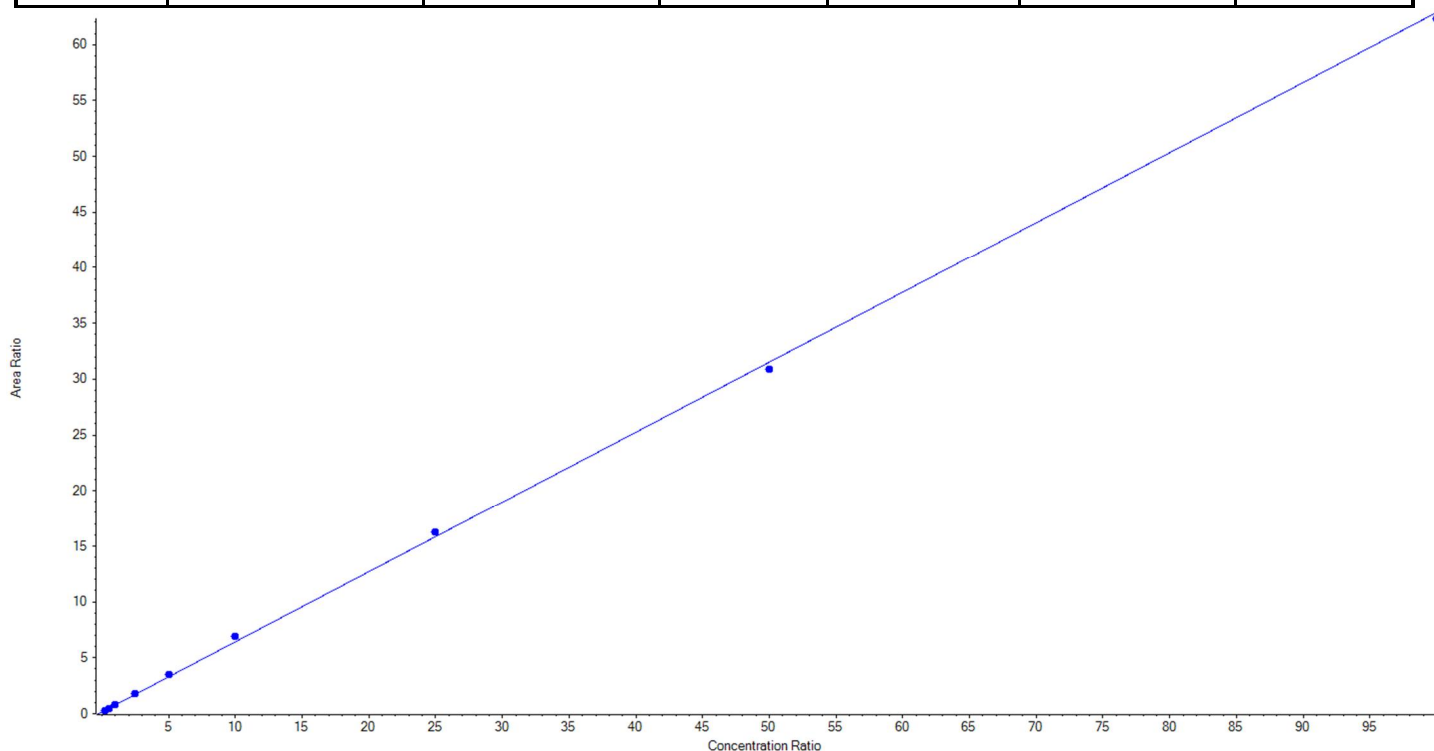
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62713x + 0.16053$  (r = 0.99957) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.791994	75.2
3	JX68	L2	True	50.00	51.402415	102.8
4	JX69	L3	True	100.00	104.015969	104.0
5	JX70	L4	True	250.00	256.894451	102.8
6	JX71	L5	True	500.00	536.593763	107.3
7	JX72	L6	True	1000.00	1083.560155	108.4
8	JX73	L7	True	2500.00	2559.637674	102.4
9	JX74	L8	True	5000.00	4905.213315	98.1
10	JX75	L9	True	10000.00	9908.890264	99.1





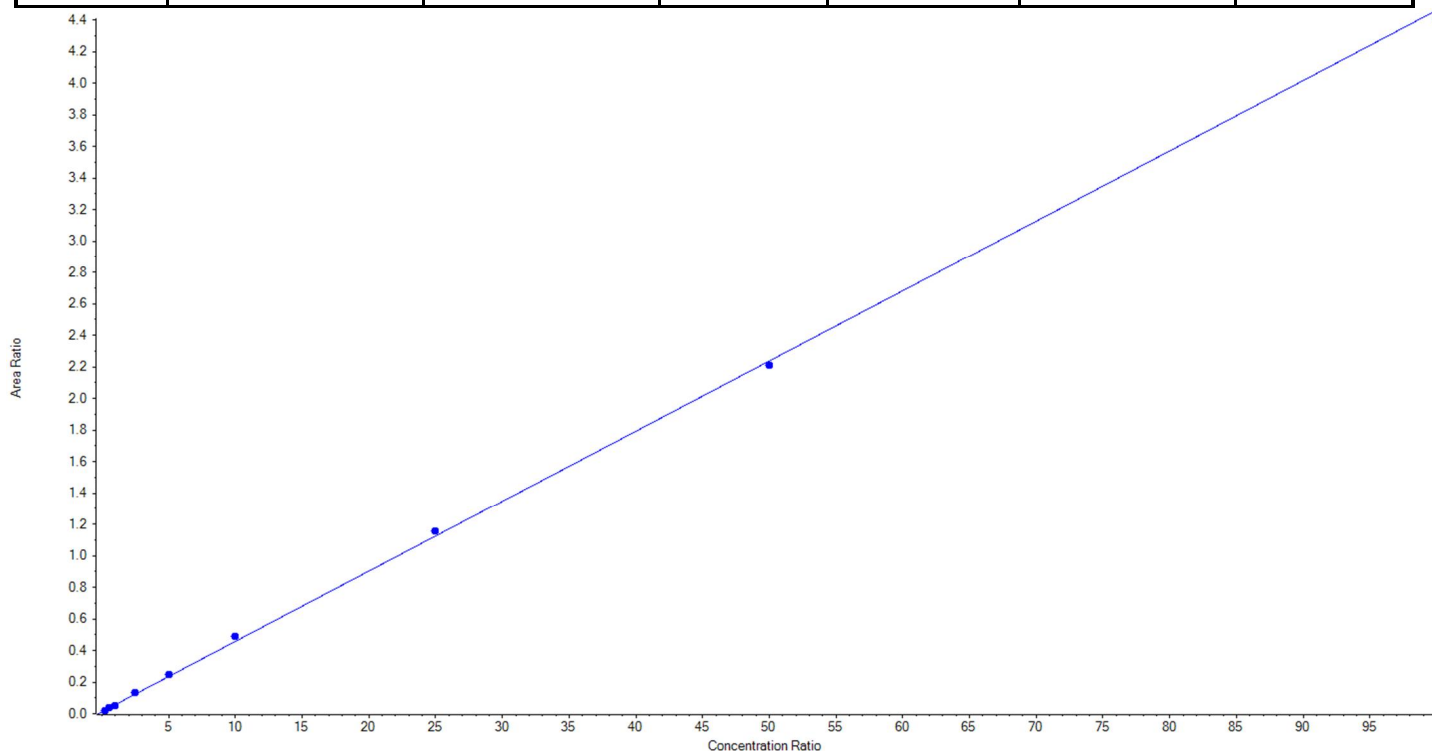
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04450 x + 0.01264$  (r = 0.99956) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.296701	81.2
3	JX68	L2	True	50.00	53.760551	107.5
4	JX69	L3	True	100.00	88.961255	89.0
5	JX70	L4	True	250.00	271.044383	108.4
6	JX71	L5	True	500.00	529.040331	105.8
7	JX72	L6	True	1000.00	1077.865222	107.8
8	JX73	L7	True	2500.00	2570.917958	102.8
9	JX74	L8	True	5000.00	4935.064490	98.7
10	JX75	L9	True	10000.00	9878.049109	98.8





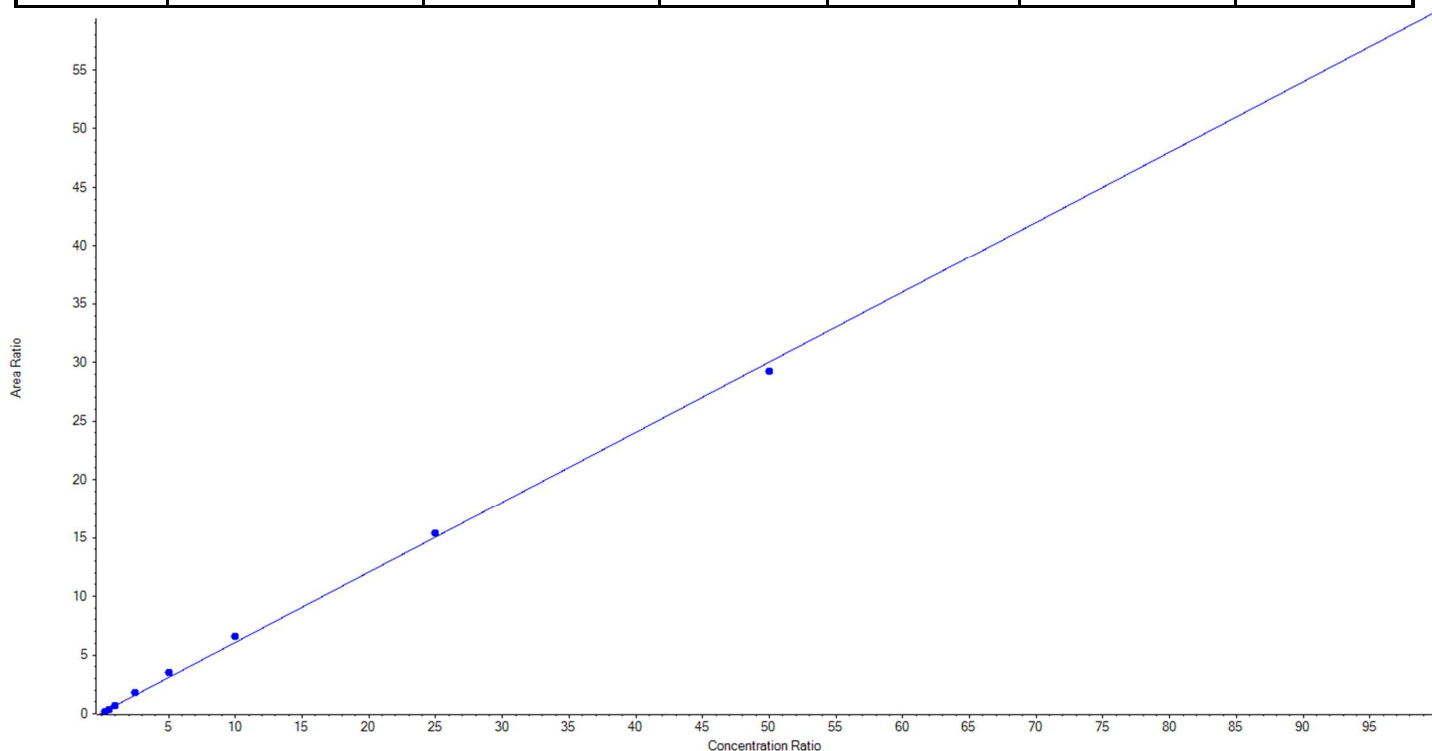
## Calibration Summary Report

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<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.59900x + 0.08720$  ( $r = 0.99924$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.302340	73.2
3	JX68	L2	True	50.00	44.691384	89.4
4	JX69	L3	True	100.00	104.066690	104.1
5	JX70	L4	True	250.00	283.179151	113.3
6	JX71	L5	True	500.00	564.092719	112.8
7	JX72	L6	True	1000.00	1085.640666	108.6
8	JX73	L7	True	2500.00	2557.091682	102.3
9	JX74	L8	True	5000.00	4872.389047	97.5
10	JX75	L9	True	10000.00	9895.546320	99.0





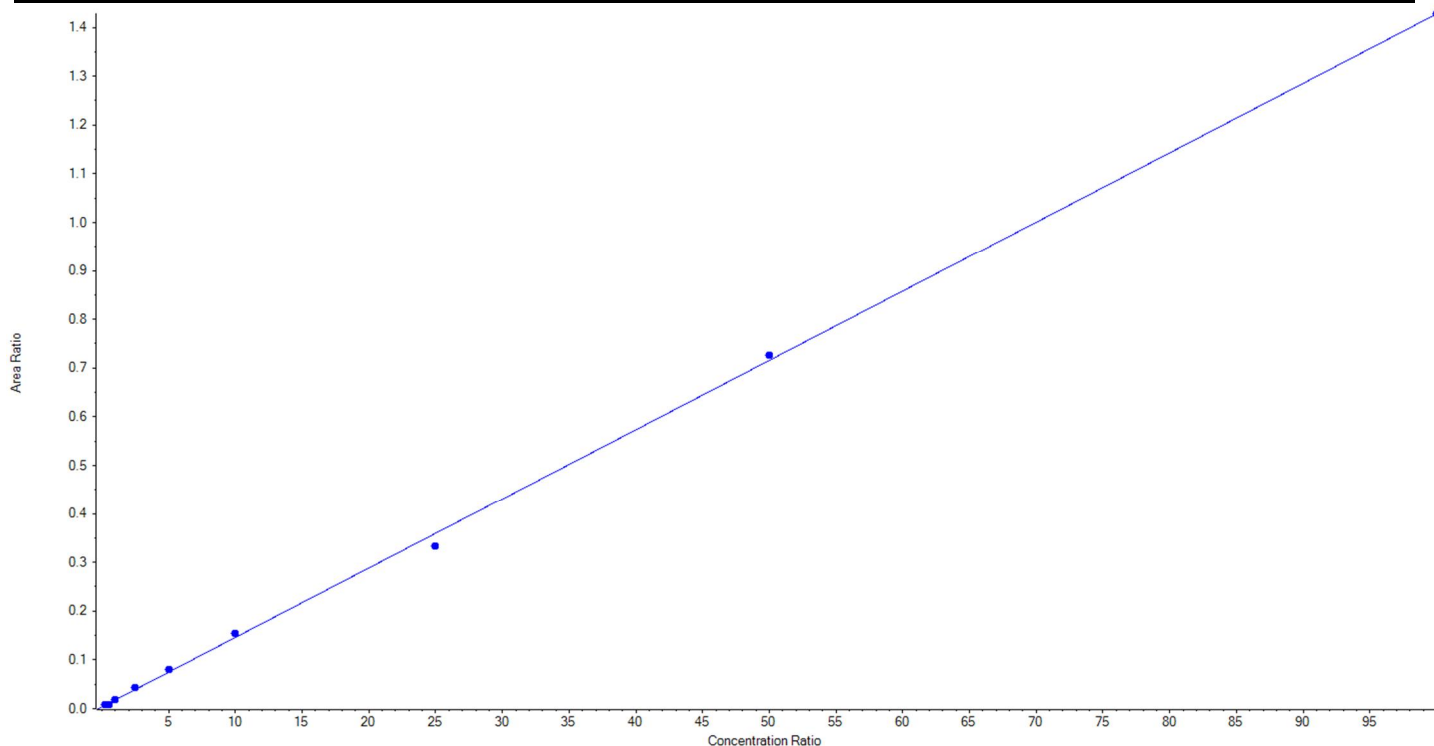
## Calibration Summary Report

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<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01424 x + 0.00368$  (r = 0.99920) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	25.182337	100.7
3	JX68	L2	True	50.00	37.004714	74.0
4	JX69	L3	True	100.00	106.084205	106.1
5	JX70	L4	True	250.00	279.413504	111.8
6	JX71	L5	True	500.00	537.484438	107.5
7	JX72	L6	True	1000.00	1062.086999	106.2
8	JX73	L7	True	2500.00	2307.985347	92.3
9	JX74	L8	True	5000.00	5068.903345	101.4
10	JX75	L9	True	10000.00	10000.855110	100.0





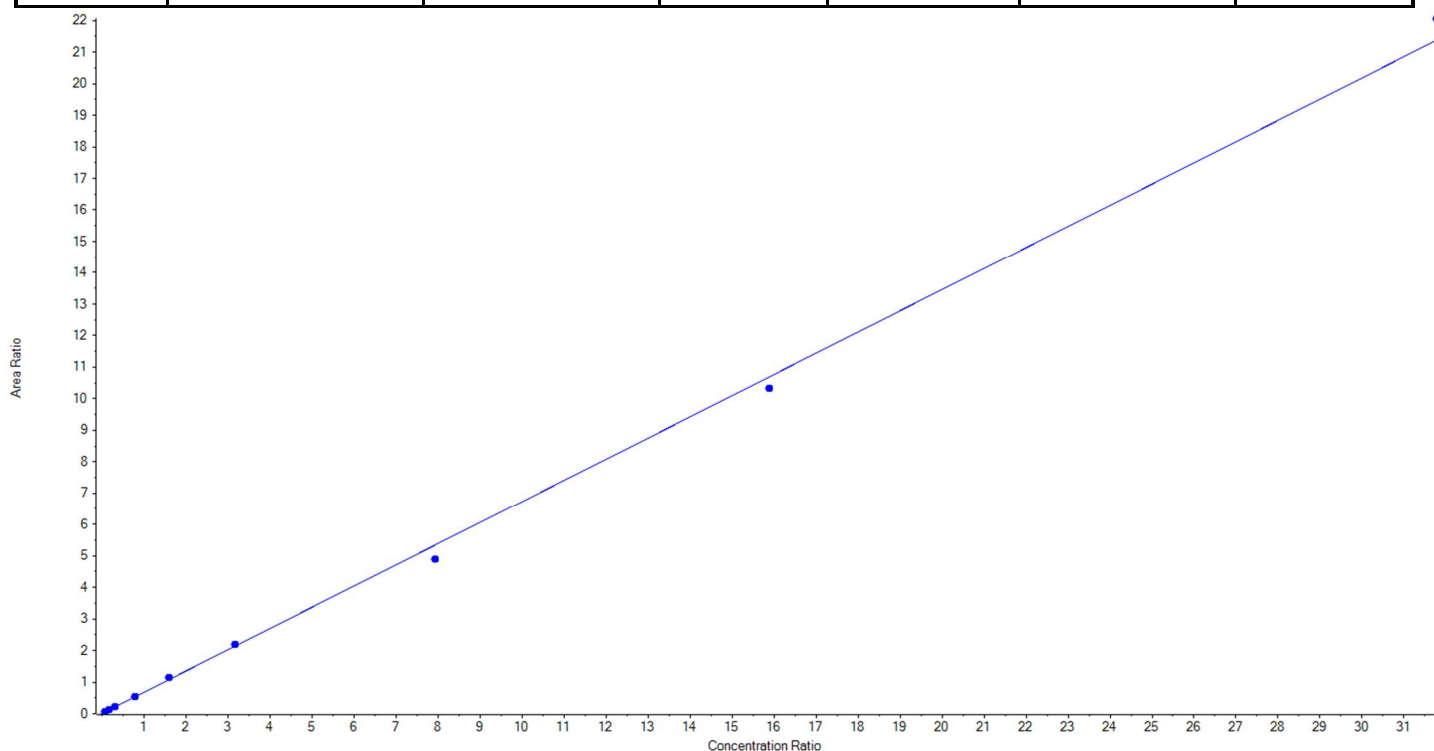
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67255x + 0.00557$  ( $r = 0.99899$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.540088	94.5
3	JX68	L2	True	45.60	45.354398	99.5
4	JX69	L3	True	91.20	94.429375	103.5
5	JX70	L4	True	228.00	231.961115	101.7
6	JX71	L5	True	456.00	490.677670	107.6
7	JX72	L6	True	912.00	928.885400	101.9
8	JX73	L7	True	2280.00	2086.096882	91.5
9	JX74	L8	True	4560.00	4408.253001	96.7
10	JX75	L9	True	9120.00	9408.402070	103.2







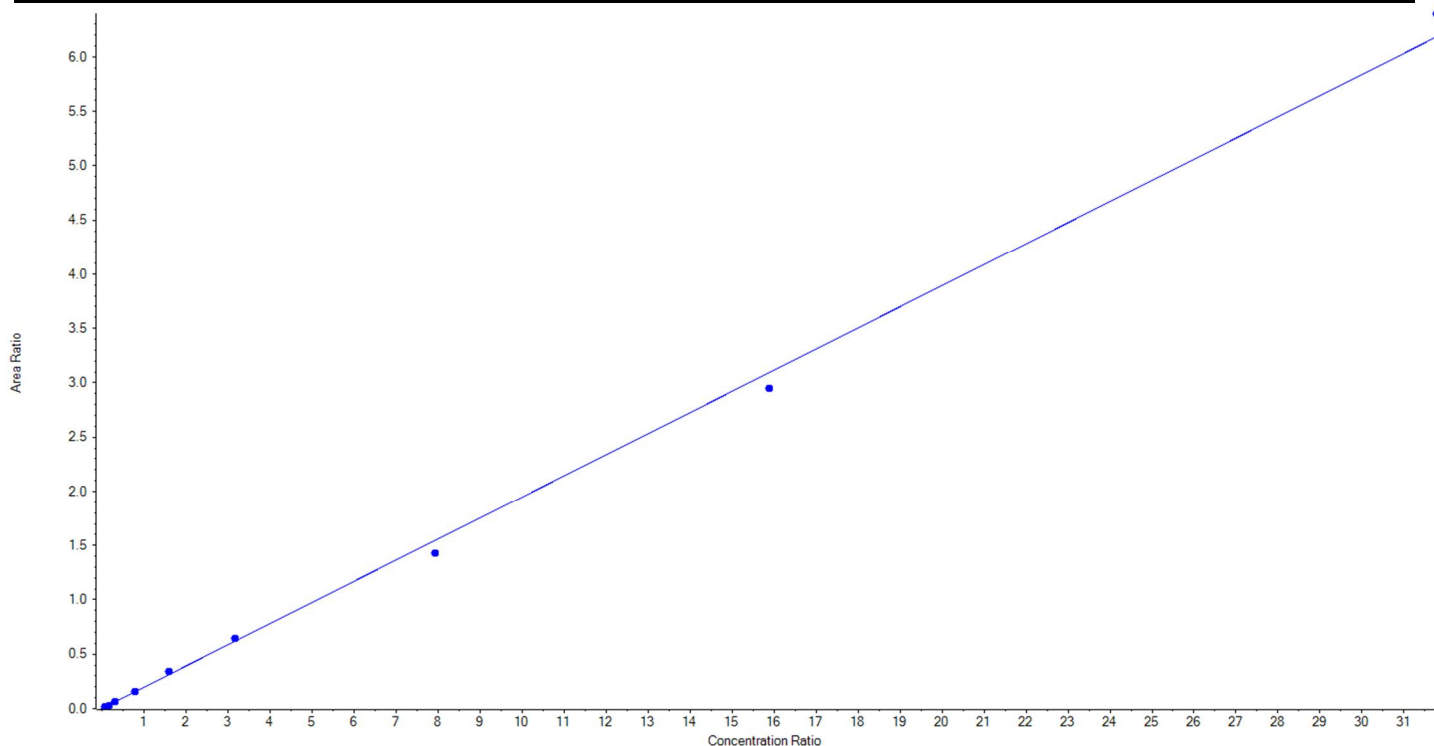
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19454 x + 0.00249$  (r = 0.99879) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.831569	95.8
3	JX68	L2	True	45.60	43.862949	96.2
4	JX69	L3	True	91.20	95.814283	105.1
5	JX70	L4	True	228.00	224.050348	98.3
6	JX71	L5	True	456.00	499.804218	109.6
7	JX72	L6	True	912.00	950.335119	104.2
8	JX73	L7	True	2280.00	2101.773991	92.2
9	JX74	L8	True	4560.00	4346.681282	95.3
10	JX75	L9	True	9120.00	9431.446241	103.4





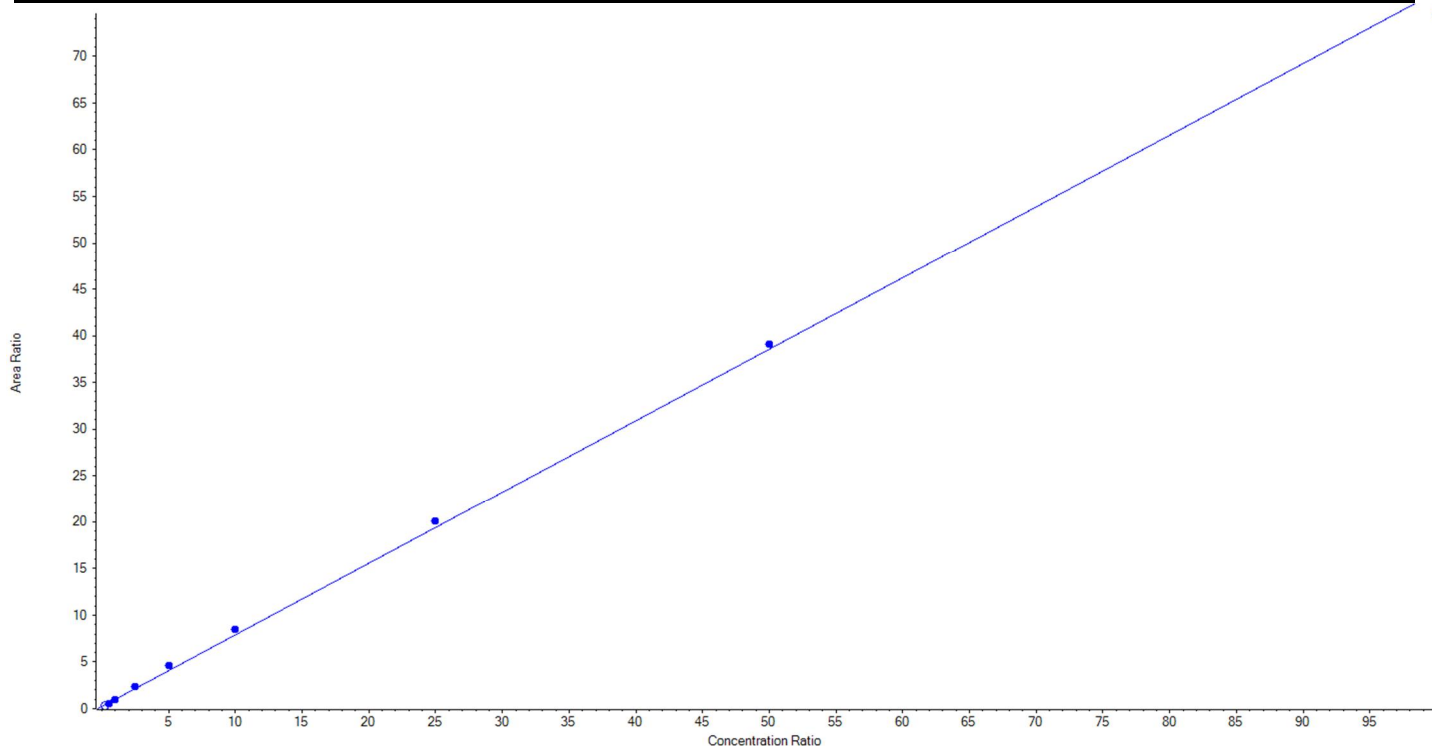
## Calibration Summary Report

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<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.76657 x + 0.23682$  (r = 0.99897) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	5.415311	21.7
3	JX68	L2	True	50.00	36.683792	73.4
4	JX69	L3	True	100.00	92.235736	92.2
5	JX70	L4	True	250.00	275.902665	110.4
6	JX71	L5	True	500.00	572.330827	114.5
7	JX72	L6	True	1000.00	1079.143229	107.9
8	JX73	L7	True	2500.00	2586.190651	103.5
9	JX74	L8	True	5000.00	5063.236772	101.3
10	JX75	L9	True	10000.00	9694.276329	96.9





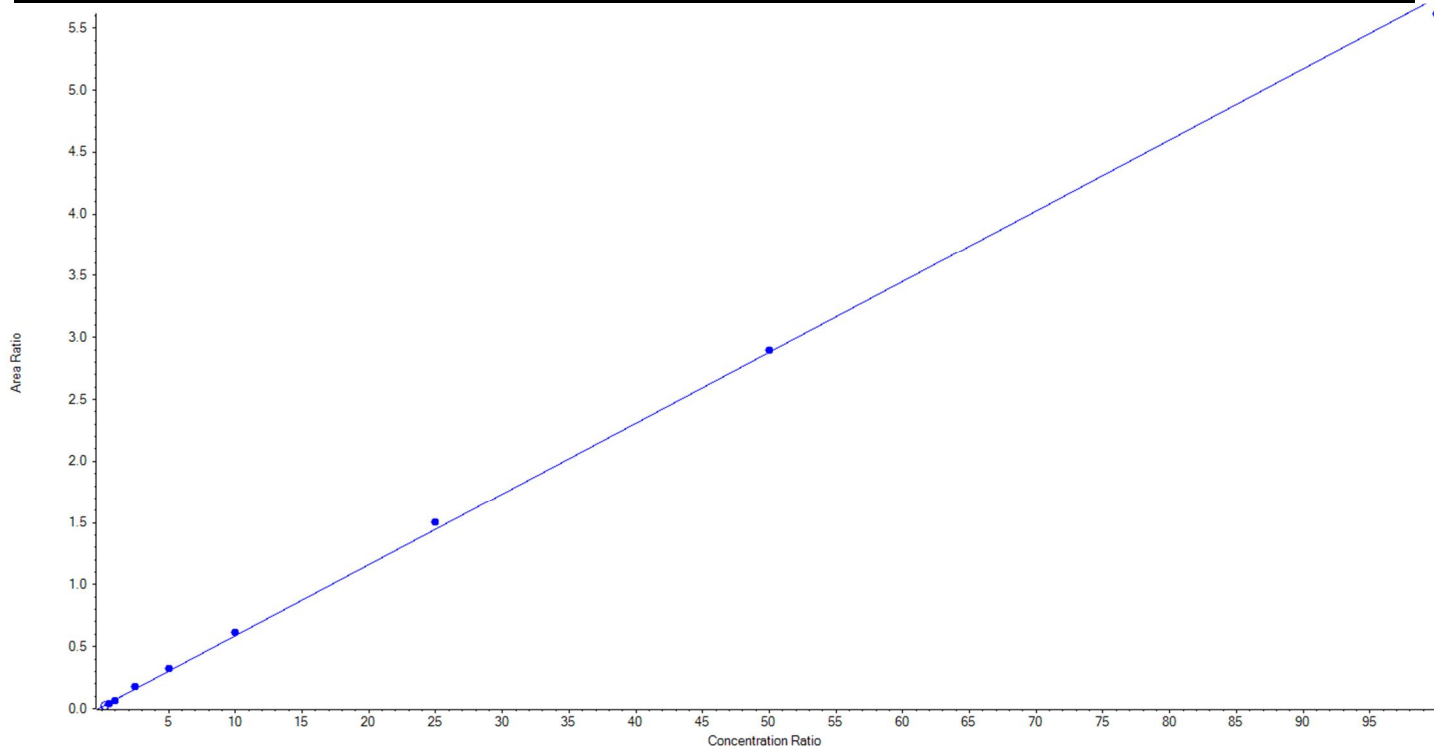
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<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05729x + 0.01572$  ( $r = 0.99941$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	12.318640	49.3
3	JX68	L2	True	50.00	43.335566	86.7
4	JX69	L3	True	100.00	86.590381	86.6
5	JX70	L4	True	250.00	279.024584	111.6
6	JX71	L5	True	500.00	542.178268	108.4
7	JX72	L6	True	1000.00	1042.123910	104.2
8	JX73	L7	True	2500.00	2604.616479	104.2
9	JX74	L8	True	5000.00	5027.464128	100.6
10	JX75	L9	True	10000.00	9774.666684	97.8





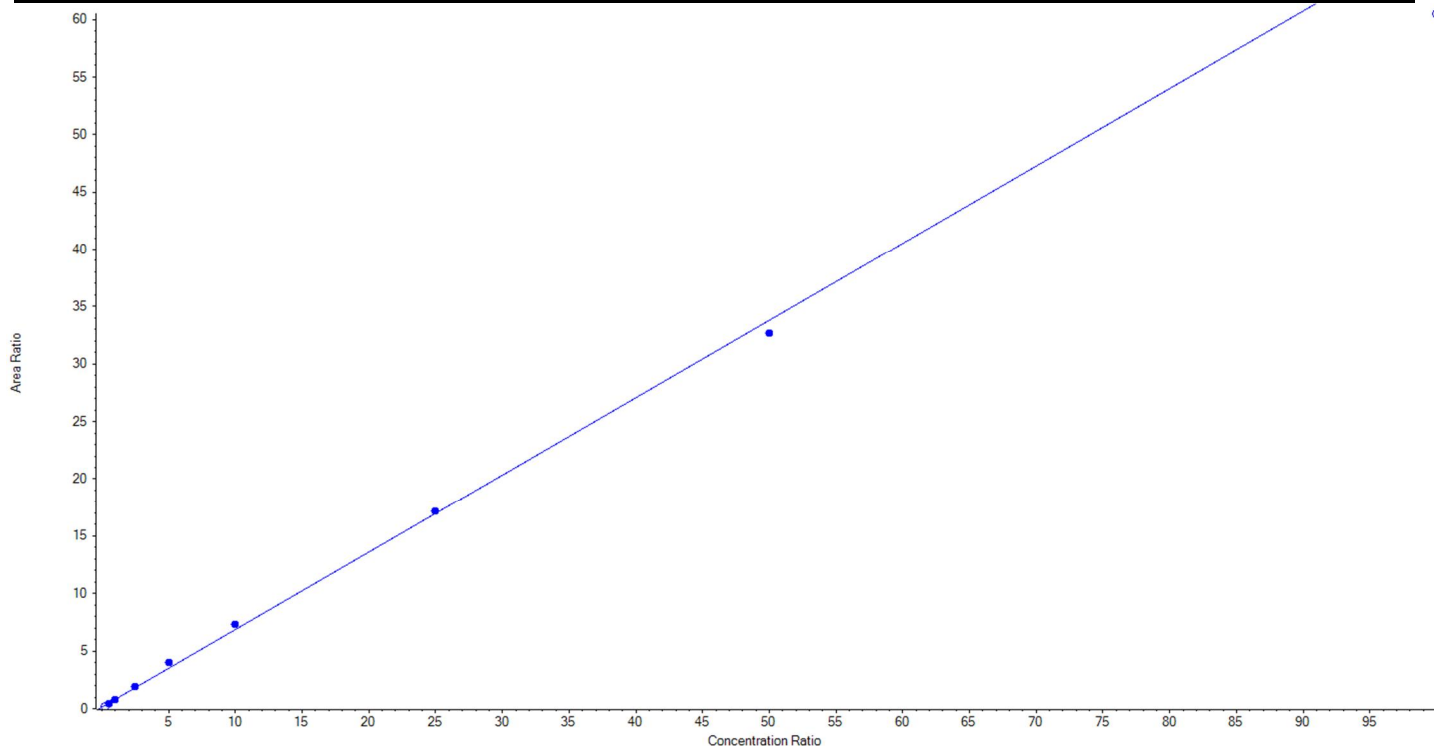
## Calibration Summary Report

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<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67314x + 0.14207$  ( $r = 0.99841$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	7.876482	31.5
3	JX68	L2	True	50.00	38.471445	76.9
4	JX69	L3	True	100.00	96.355173	96.4
5	JX70	L4	True	250.00	268.580288	107.4
6	JX71	L5	True	500.00	575.970800	115.2
7	JX72	L6	True	1000.00	1064.317609	106.4
8	JX73	L7	True	2500.00	2525.890341	101.0
9	JX74	L8	True	5000.00	4830.414344	96.6
10	JX75	L9	False	10000.00	8963.600323	89.6





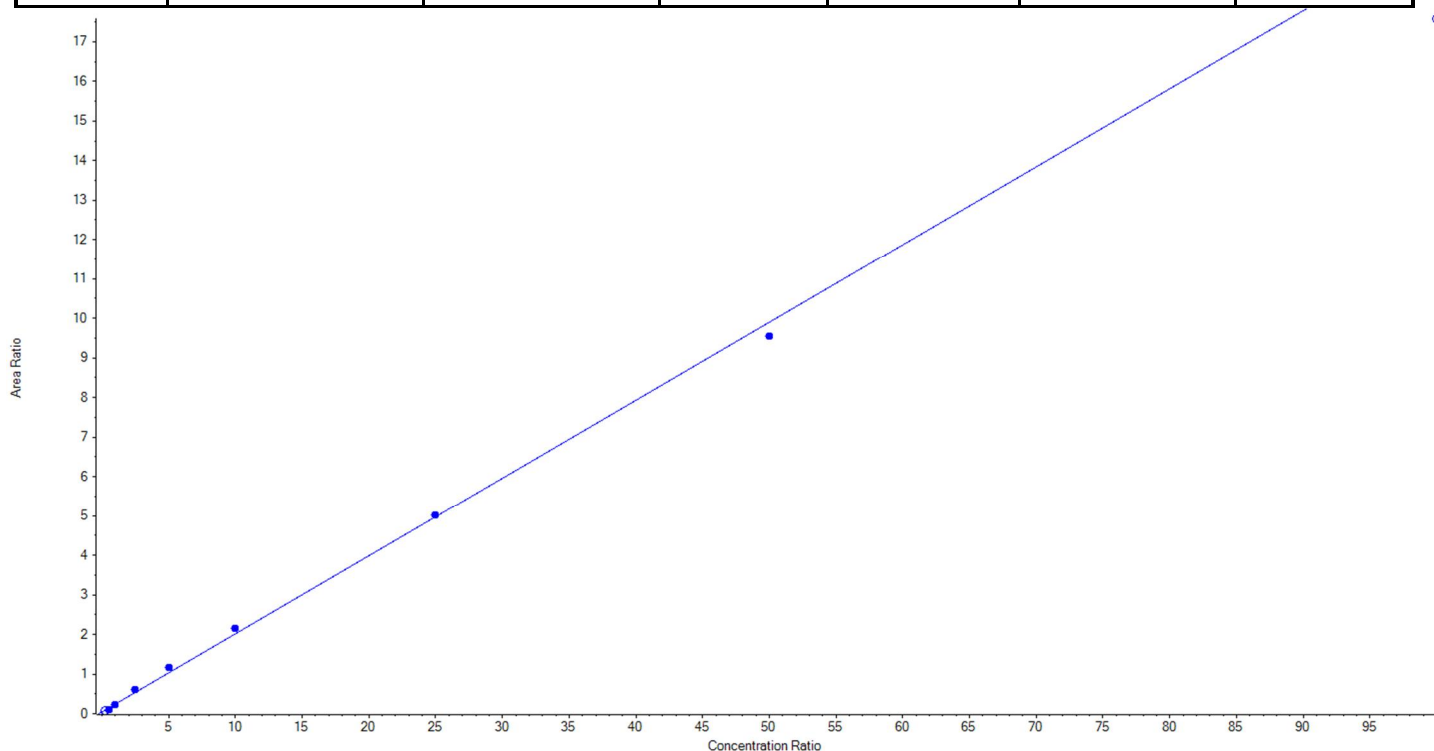
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<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19709x + 0.04473$  ( $r = 0.99821$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	17.483575	69.9
3	JX68	L2	True	50.00	35.058175	70.1
4	JX69	L3	True	100.00	99.127432	99.1
5	JX70	L4	True	250.00	282.168603	112.9
6	JX71	L5	True	500.00	566.768331	113.4
7	JX72	L6	True	1000.00	1073.450506	107.4
8	JX73	L7	True	2500.00	2516.076067	100.6
9	JX74	L8	True	5000.00	4827.350887	96.6
10	JX75	L9	False	10000.00	8895.837853	89.0





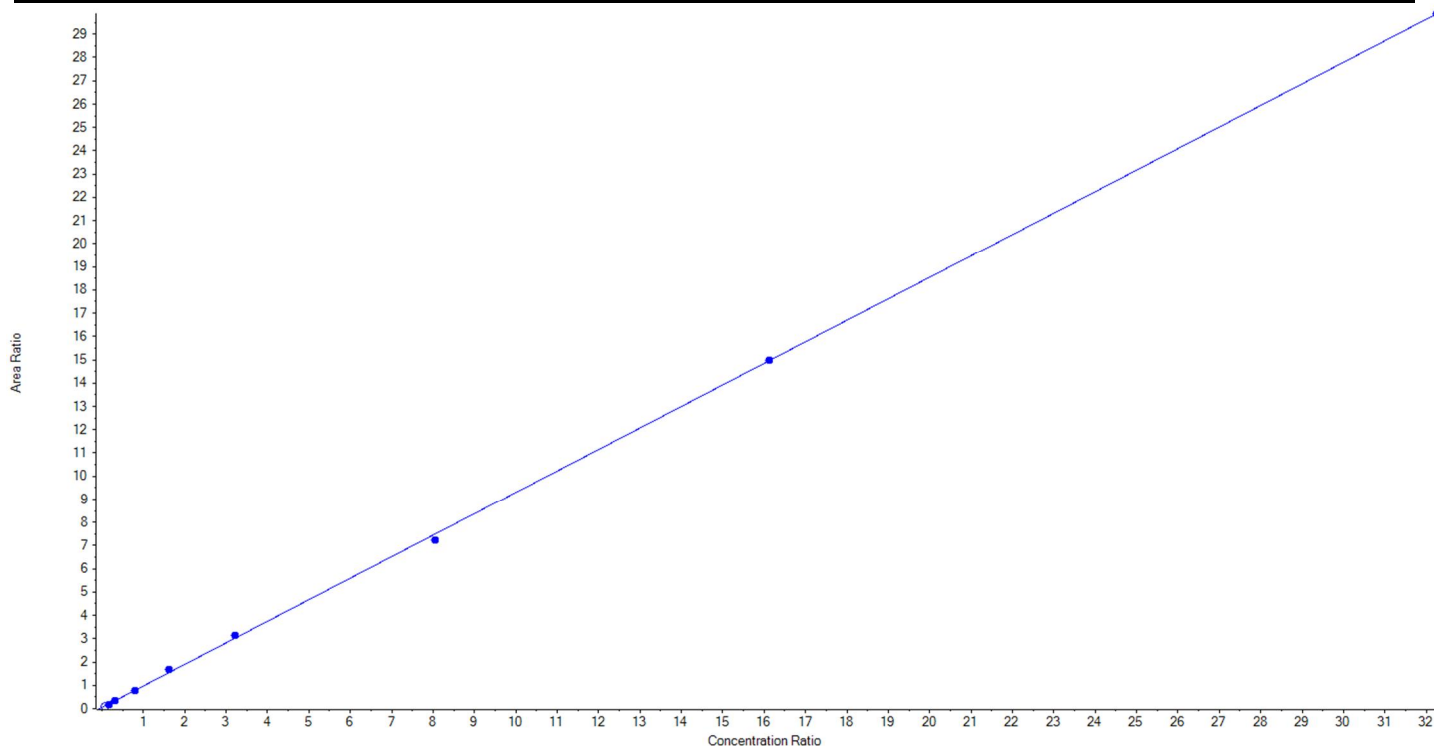
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92479x + 0.04857$  ( $r = 0.99974$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	14.967381	64.7
3	JX68	L2	True	46.30	41.416707	89.5
4	JX69	L3	True	92.60	94.155588	101.7
5	JX70	L4	True	231.50	229.522123	99.2
6	JX71	L5	True	463.00	504.911983	109.1
7	JX72	L6	True	925.60	962.388374	104.0
8	JX73	L7	True	2314.00	2234.023744	96.5
9	JX74	L8	True	4628.00	4635.388250	100.2
10	JX75	L9	True	9256.00	9255.193233	100.0





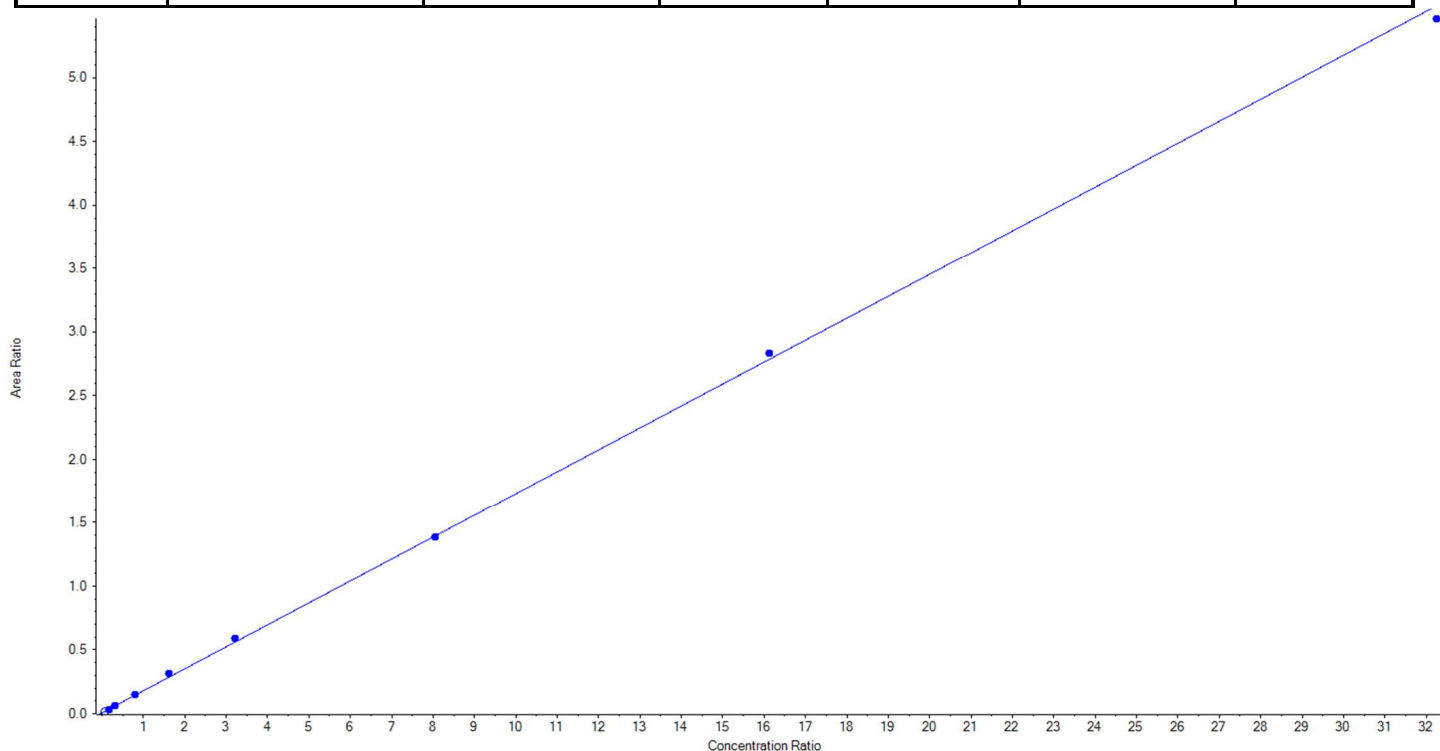
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17232 x + 0.00703$  (r = 0.99957) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	17.551763	75.8
3	JX68	L2	True	46.30	36.618609	79.1
4	JX69	L3	True	92.60	94.778219	102.4
5	JX70	L4	True	231.50	241.187429	104.2
6	JX71	L5	True	463.00	506.365979	109.4
7	JX72	L6	True	925.60	976.906219	105.5
8	JX73	L7	True	2314.00	2301.363562	99.5
9	JX74	L8	True	4628.00	4713.142959	101.8
10	JX75	L9	True	9256.00	9086.637025	98.2





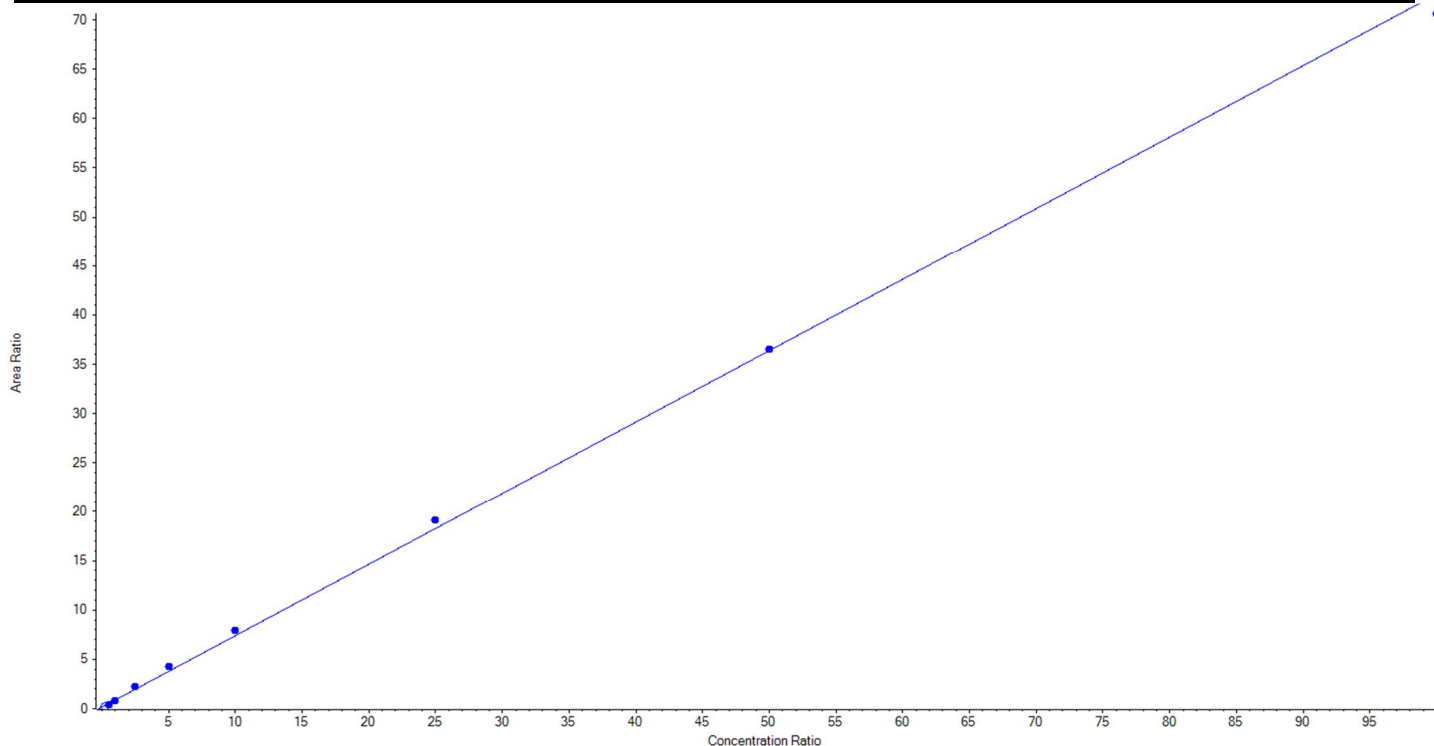
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72444 x + 0.16011$  (r = 0.99902) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	4.293986	17.2
3	JX68	L2	True	50.00	38.400405	76.8
4	JX69	L3	True	100.00	87.838796	87.8
5	JX70	L4	True	250.00	283.367571	113.4
6	JX71	L5	True	500.00	562.746141	112.6
7	JX72	L6	True	1000.00	1073.347869	107.3
8	JX73	L7	True	2500.00	2614.798969	104.6
9	JX74	L8	True	5000.00	5014.238853	100.3
10	JX75	L9	True	10000.00	9725.261395	97.3







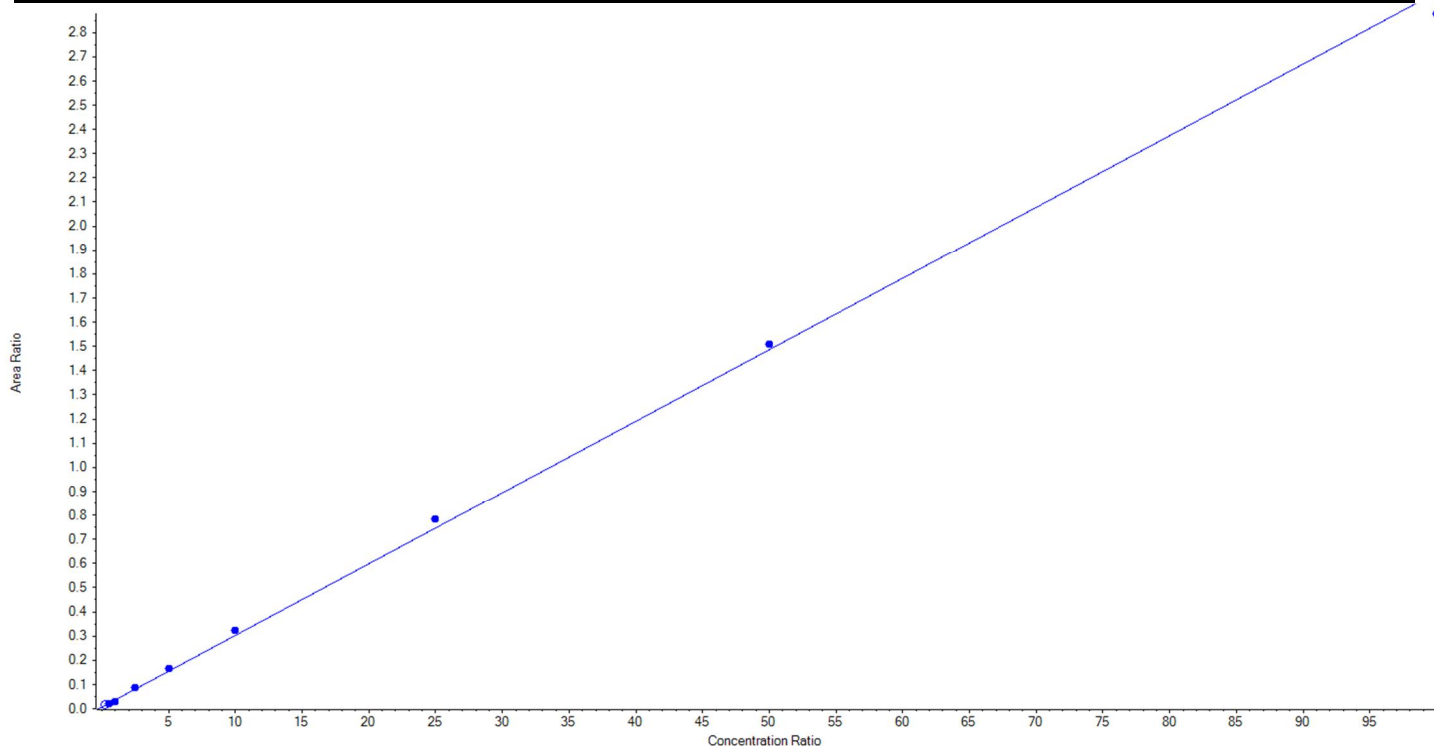
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02959x + 0.00688$  ( $r = 0.99915$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	27.987541	112.0
3	JX68	L2	True	50.00	48.305605	96.6
4	JX69	L3	True	100.00	78.774590	78.8
5	JX70	L4	True	250.00	266.338265	106.5
6	JX71	L5	True	500.00	536.324707	107.3
7	JX72	L6	True	1000.00	1073.774687	107.4
8	JX73	L7	True	2500.00	2625.689392	105.0
9	JX74	L8	True	5000.00	5070.098049	101.4
10	JX75	L9	True	10000.00	9700.694705	97.0





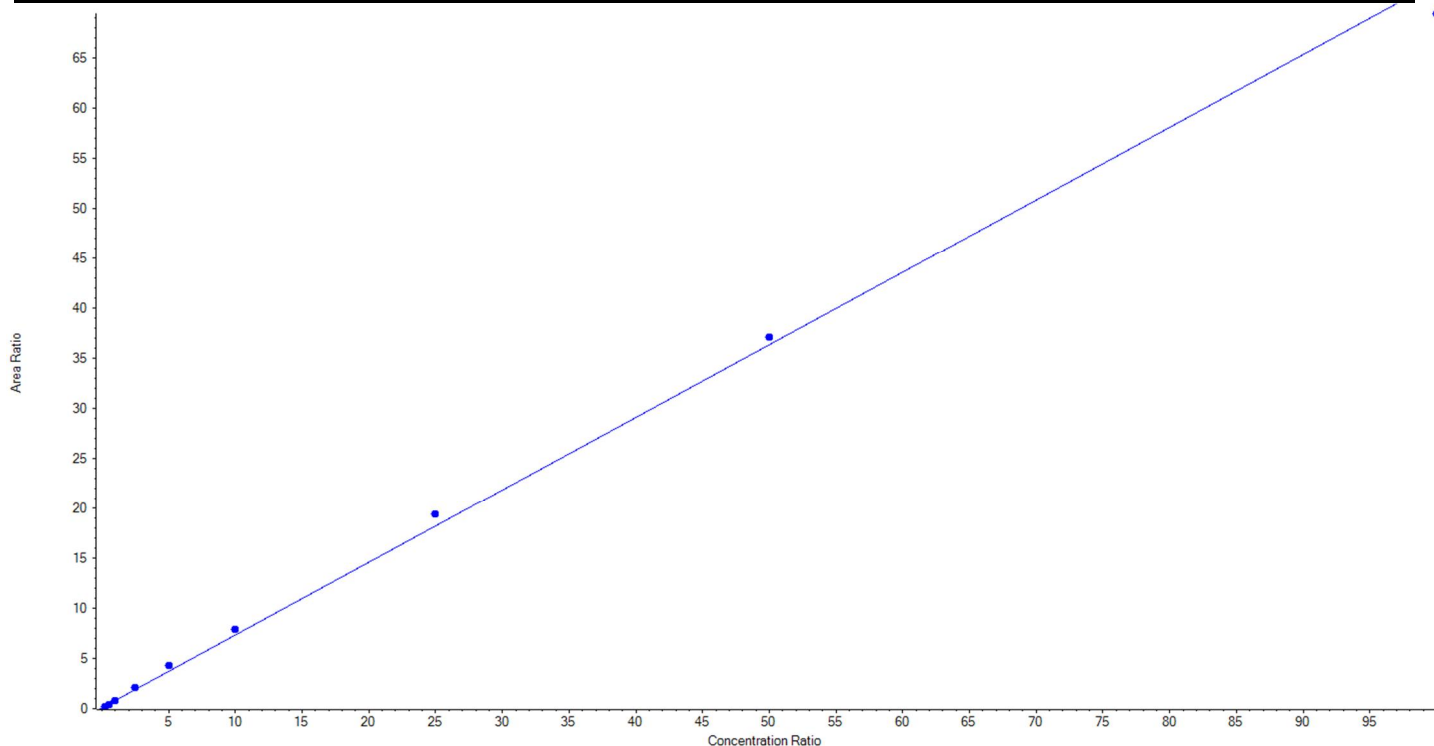
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72537 x + 0.09471$  (r = 0.99844) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.073088	80.3
3	JX68	L2	True	50.00	42.388703	84.8
4	JX69	L3	True	100.00	95.029236	95.0
5	JX70	L4	True	250.00	279.090767	111.6
6	JX71	L5	True	500.00	579.829398	116.0
7	JX72	L6	True	1000.00	1079.142455	107.9
8	JX73	L7	True	2500.00	2669.633957	106.8
9	JX74	L8	True	5000.00	5100.109139	102.0
10	JX75	L9	True	10000.00	9559.703256	95.6





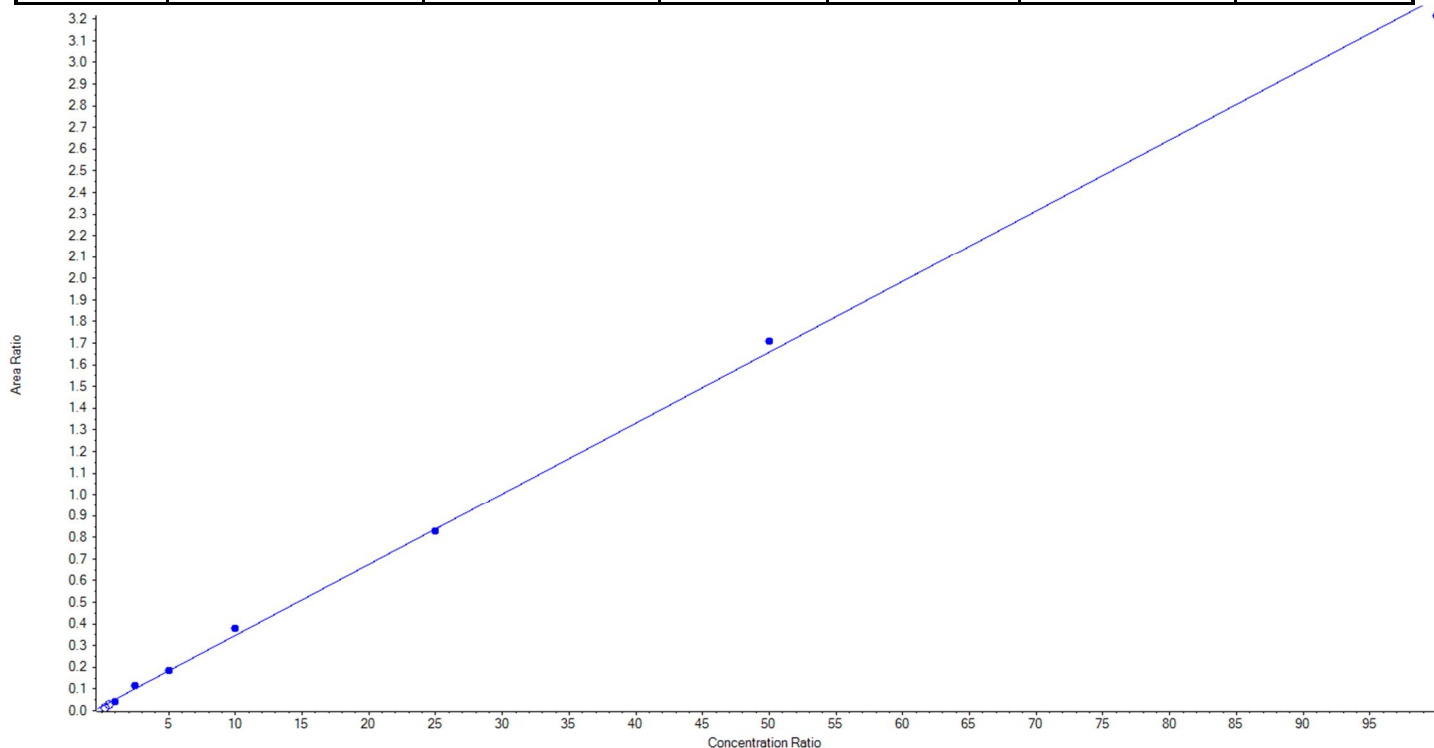
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Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03278 x + 0.01985$  (r = 0.99876) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	25.569843	51.1
4	JX69	L3	True	100.00	70.257455	70.3
5	JX70	L4	True	250.00	299.570771	119.8
6	JX71	L5	True	500.00	500.697313	100.1
7	JX72	L6	True	1000.00	1103.433343	110.3
8	JX73	L7	True	2500.00	2469.487594	98.8
9	JX74	L8	True	5000.00	5158.640024	103.2
10	JX75	L9	True	10000.00	9747.913499	97.5





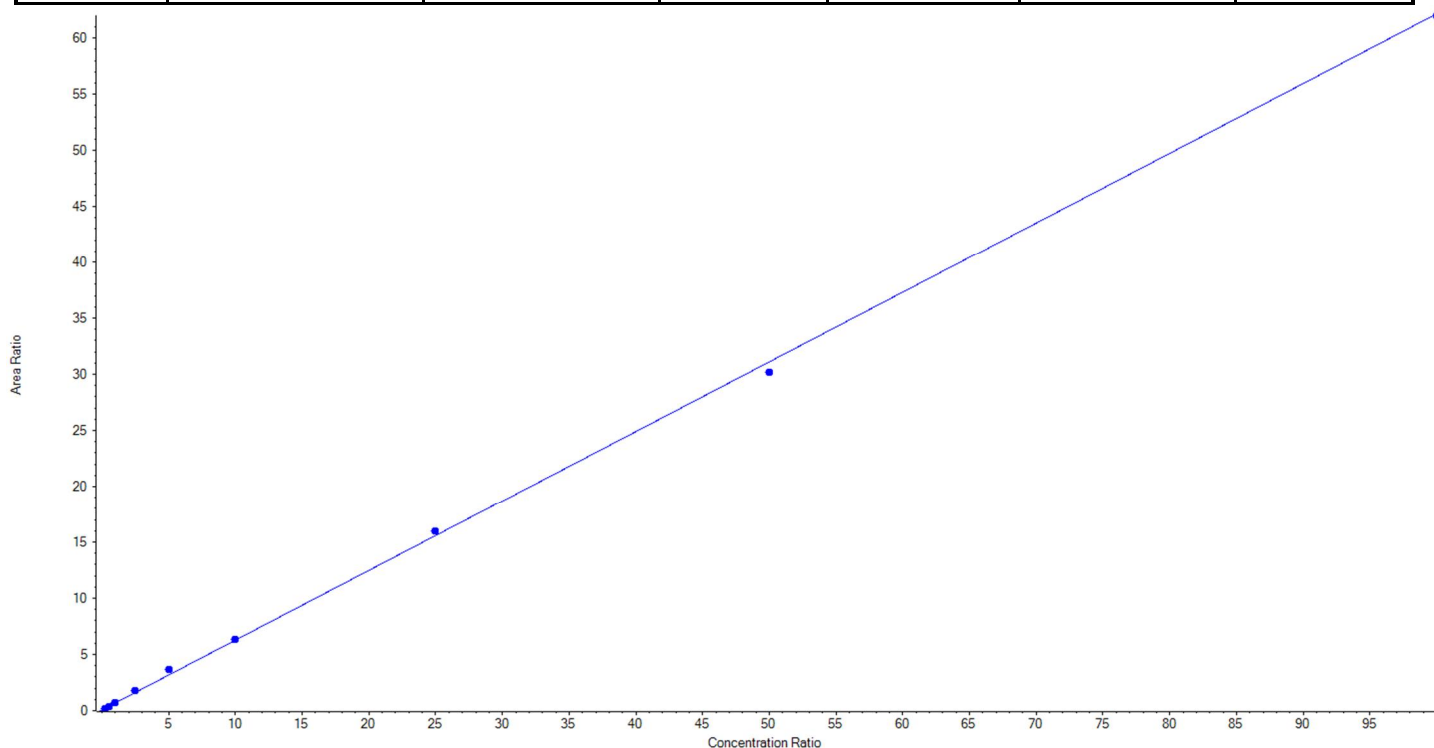
## Calibration Summary Report

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<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62092x + 0.06665$  (r = 0.99942) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.731070	74.9
3	JX68	L2	True	50.00	47.819194	95.6
4	JX69	L3	True	100.00	102.981838	103.0
5	JX70	L4	True	250.00	277.158464	110.9
6	JX71	L5	True	500.00	573.374778	114.7
7	JX72	L6	True	1000.00	1016.155480	101.6
8	JX73	L7	True	2500.00	2561.606452	102.5
9	JX74	L8	True	5000.00	4856.561924	97.1
10	JX75	L9	True	10000.00	9970.610800	99.7





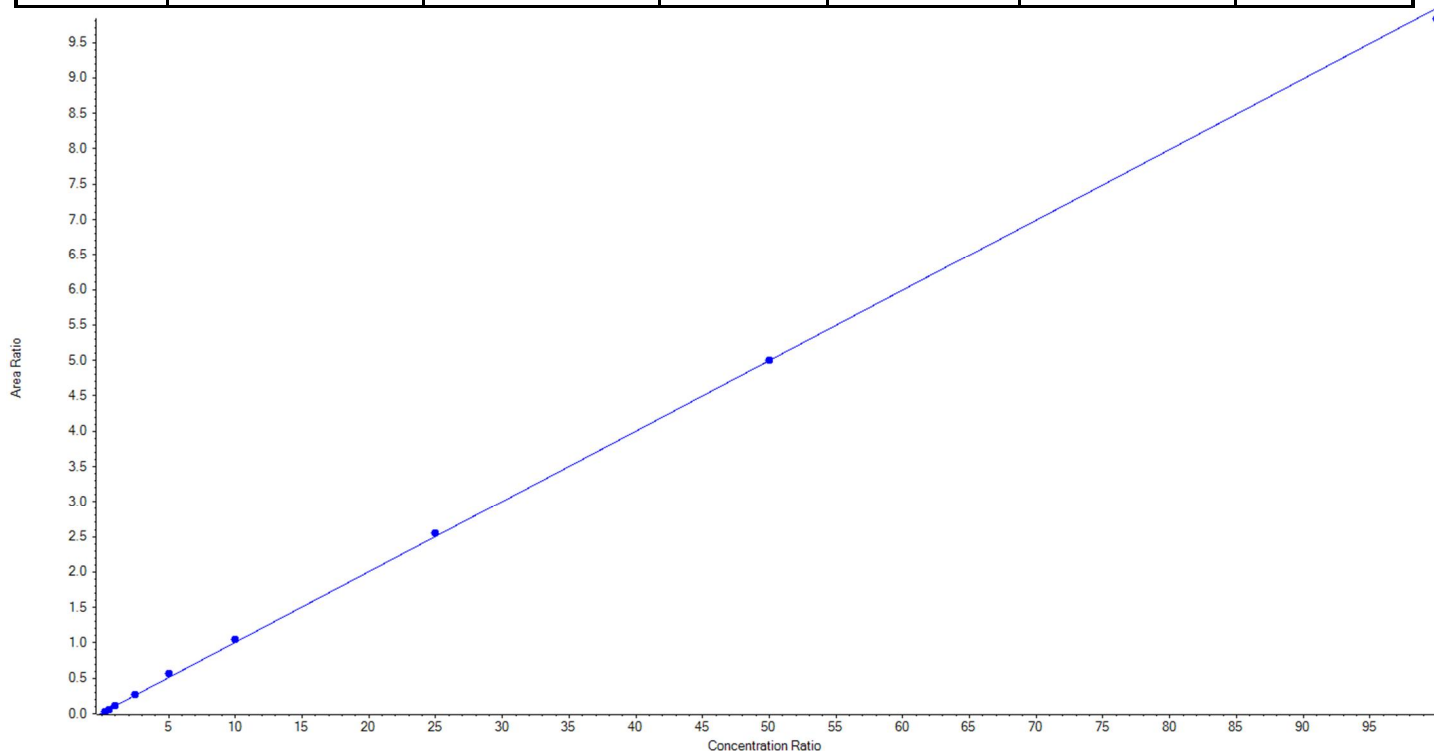
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.09973 x + 0.01082$  (r = 0.99967) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.603828	82.4
3	JX68	L2	True	50.00	49.166918	98.3
4	JX69	L3	True	100.00	98.860597	98.9
5	JX70	L4	True	250.00	262.630095	105.1
6	JX71	L5	True	500.00	555.711859	111.1
7	JX72	L6	True	1000.00	1035.902153	103.6
8	JX73	L7	True	2500.00	2553.060598	102.1
9	JX74	L8	True	5000.00	4999.256910	100.0
10	JX75	L9	True	10000.00	9849.807043	98.5





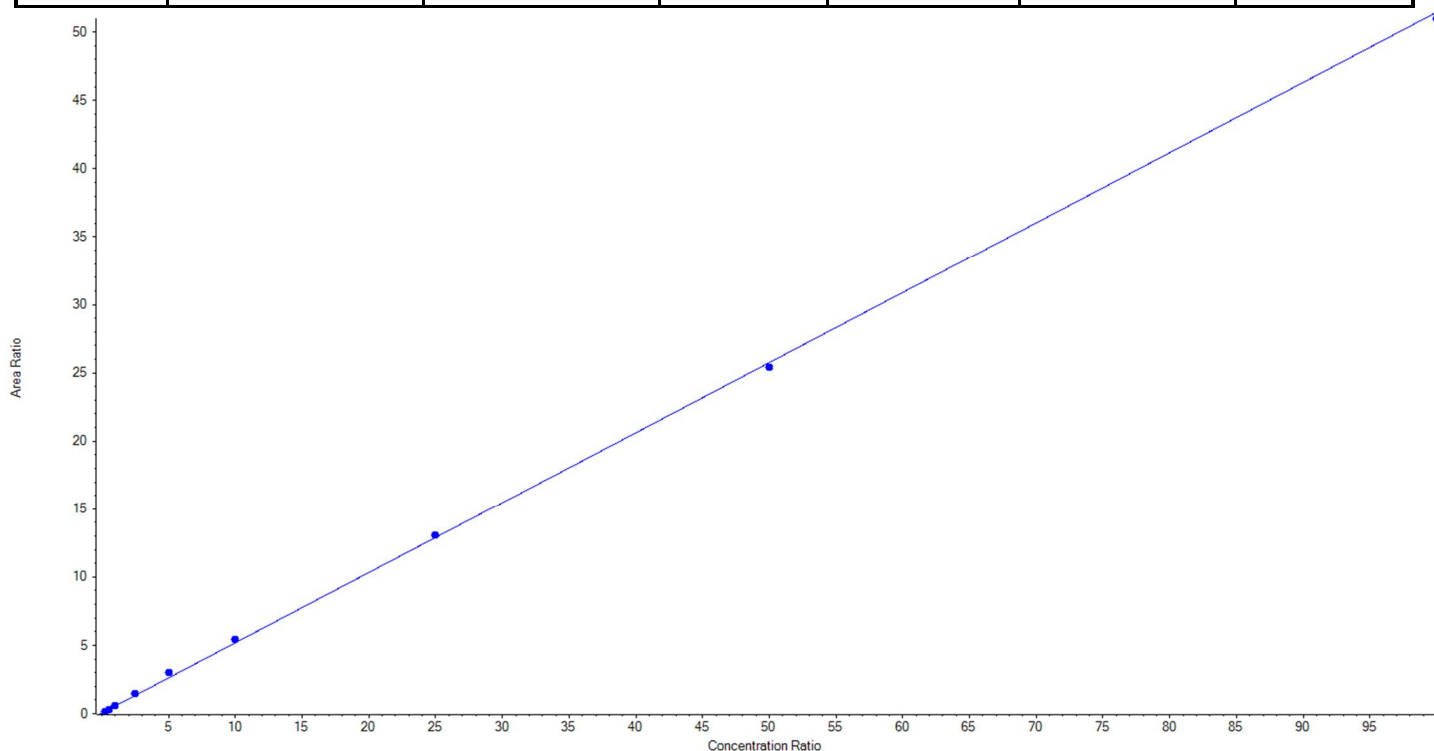
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFTrDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.51402 x + 0.05199$  (r = 0.99946) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	21.244818	85.0
3	JX68	L2	True	50.00	43.984299	88.0
4	JX69	L3	True	100.00	100.101285	100.1
5	JX70	L4	True	250.00	268.672318	107.5
6	JX71	L5	True	500.00	581.148596	116.2
7	JX72	L6	True	1000.00	1043.469036	104.4
8	JX73	L7	True	2500.00	2531.653493	101.3
9	JX74	L8	True	5000.00	4929.189379	98.6
10	JX75	L9	True	10000.00	9905.536776	99.1





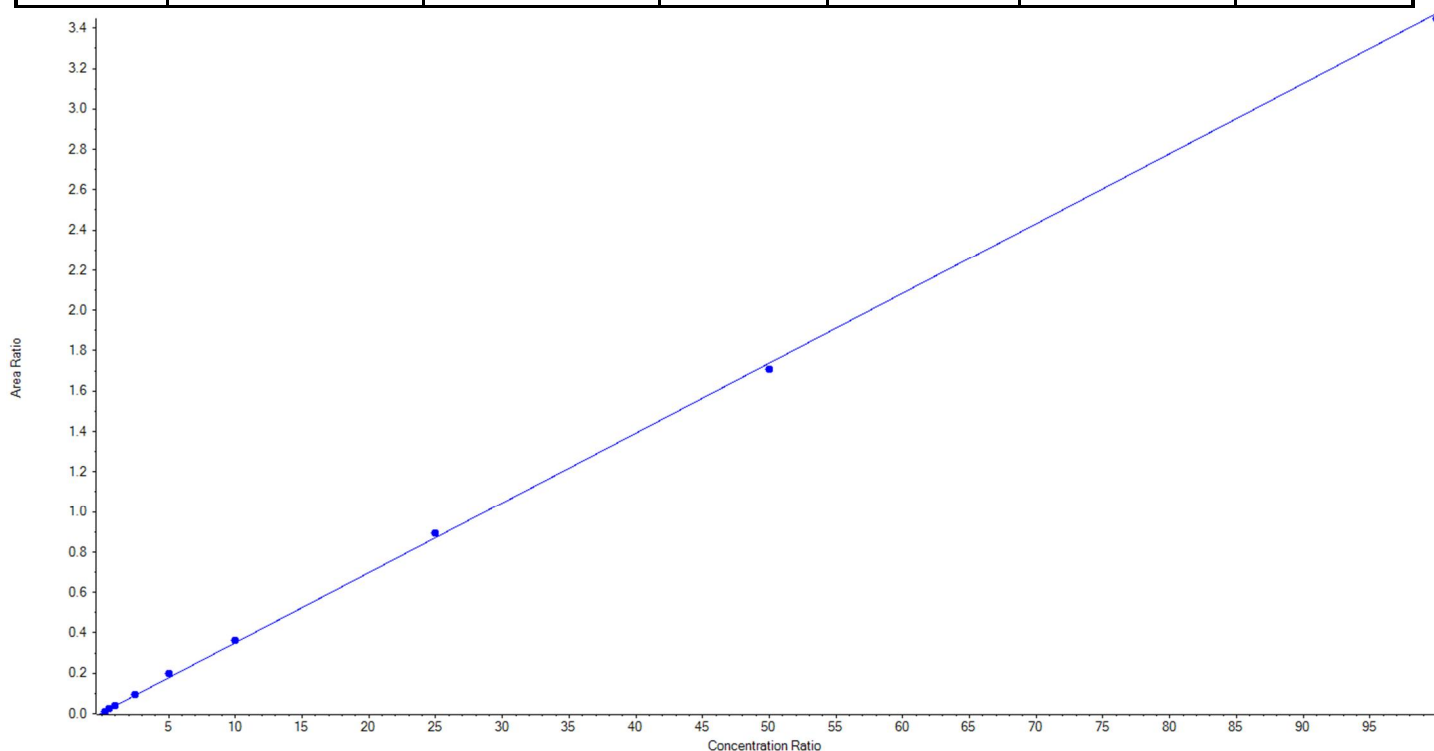
## Calibration Summary Report

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<b>Analyte Name</b>	PFTrDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03468 x + 0.00436$  (r = 0.99956) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.673504	70.7
3	JX68	L2	True	50.00	57.354613	114.7
4	JX69	L3	True	100.00	96.213165	96.2
5	JX70	L4	True	250.00	256.853828	102.7
6	JX71	L5	True	500.00	557.870213	111.6
7	JX72	L6	True	1000.00	1038.781670	103.9
8	JX73	L7	True	2500.00	2570.884235	102.8
9	JX74	L8	True	5000.00	4906.079605	98.1
10	JX75	L9	True	10000.00	9923.289167	99.2





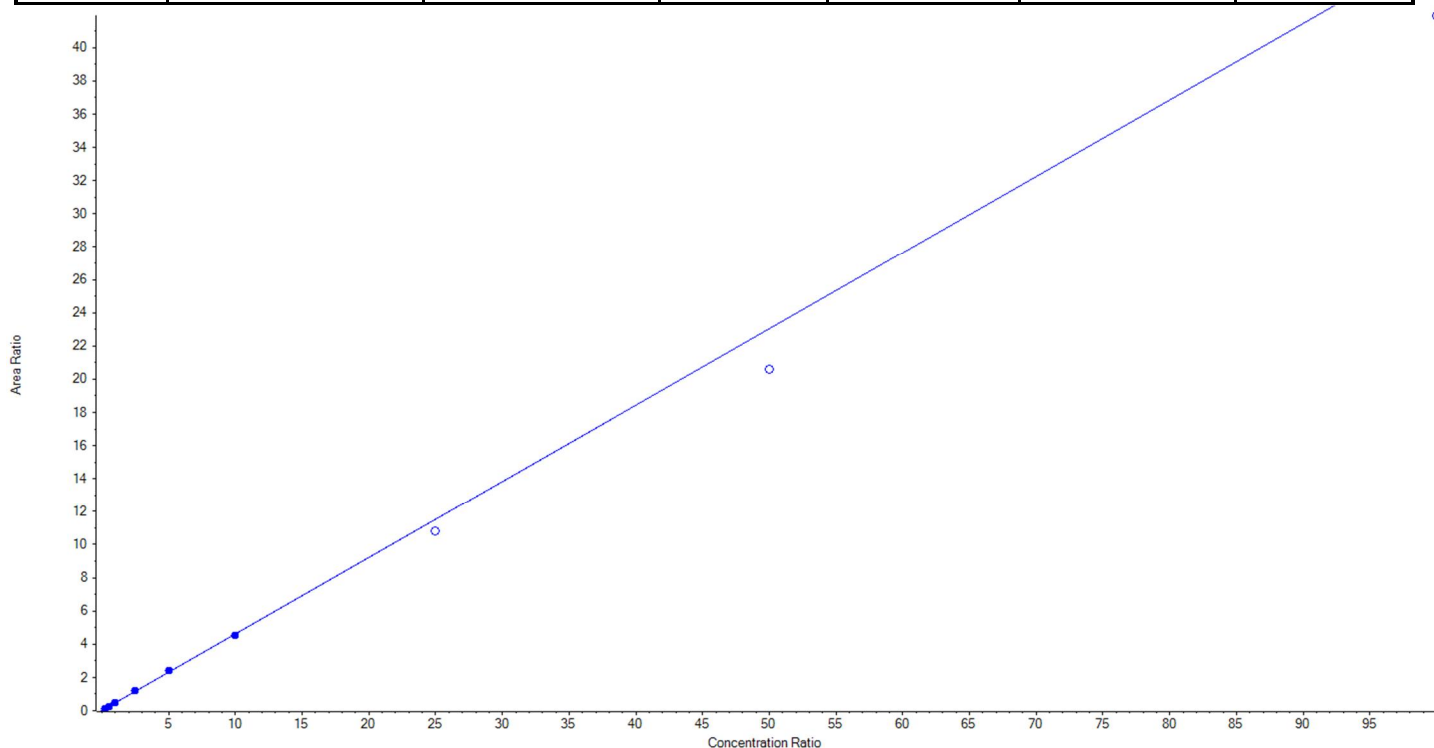
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.46048x + 0.01329$  ( $r = 0.99949$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	24.299437	97.2
3	JX68	L2	True	50.00	50.917249	101.8
4	JX69	L3	True	100.00	96.855598	96.9
5	JX70	L4	True	250.00	256.519550	102.6
6	JX71	L5	True	500.00	518.635209	103.7
7	JX72	L6	True	1000.00	977.772958	97.8
8	JX73	L7	False	2500.00	2351.031942	94.0
9	JX74	L8	False	5000.00	4471.708574	89.4
10	JX75	L9	False	10000.00	9099.628917	91.0







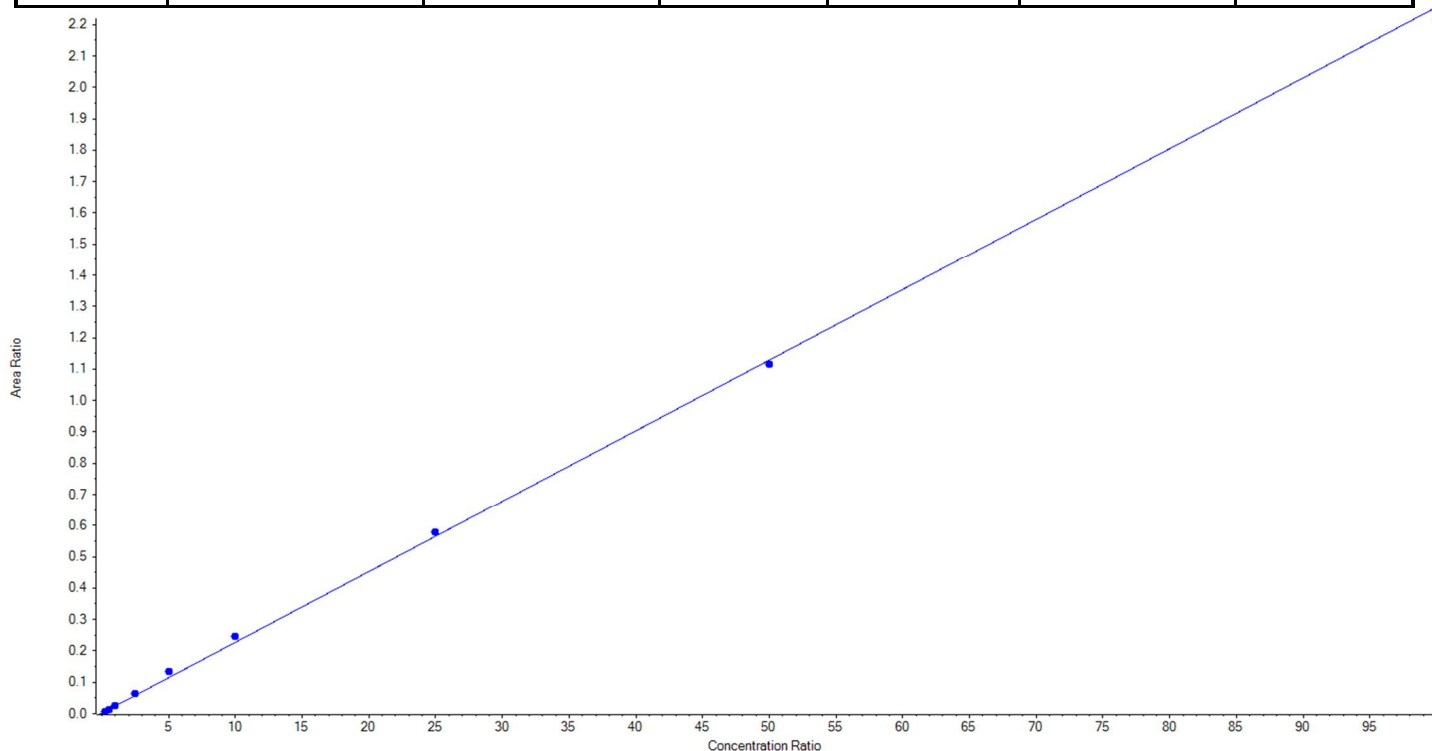
## Calibration Summary Report

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Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02254 x + 0.00202$  (r = 0.99919) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.926807	71.7
3	JX68	L2	True	50.00	48.266278	96.5
4	JX69	L3	True	100.00	99.954762	100.0
5	JX70	L4	True	250.00	267.694654	107.1
6	JX71	L5	True	500.00	588.228040	117.7
7	JX72	L6	True	1000.00	1078.884415	107.9
8	JX73	L7	True	2500.00	2552.861984	102.1
9	JX74	L8	True	5000.00	4936.723449	98.7
10	JX75	L9	True	10000.00	9834.459611	98.3





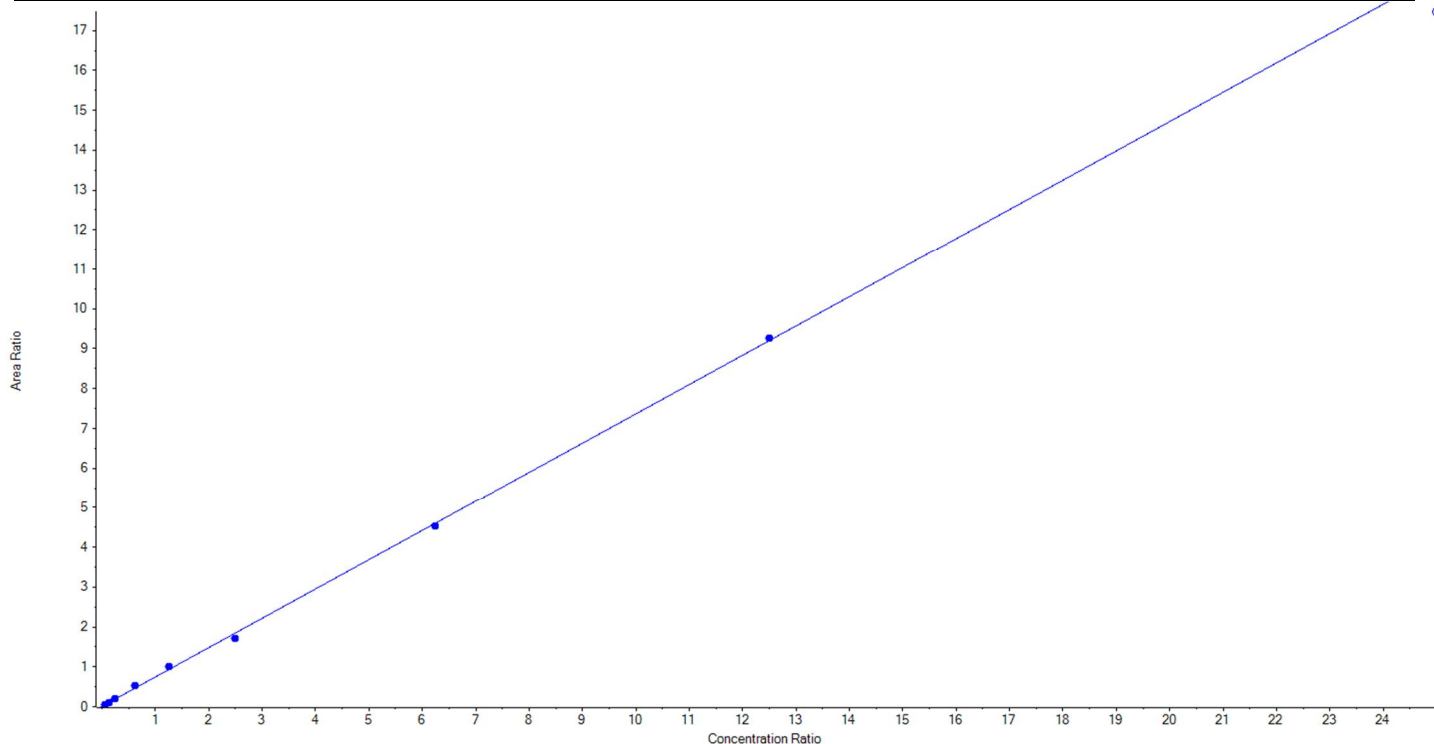
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.73537 x + 0.01025$  (r = 0.99898) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.491095	74.0
3	JX68	L2	True	50.00	51.518002	103.0
4	JX69	L3	True	100.00	108.232072	108.2
5	JX70	L4	True	250.00	284.801456	113.9
6	JX71	L5	True	500.00	545.527150	109.1
7	JX72	L6	True	1000.00	929.237418	92.9
8	JX73	L7	True	2500.00	2453.696787	98.2
9	JX74	L8	True	5000.00	5033.496021	100.7
10	JX75	L9	False	10000.00	9496.783651	95.0





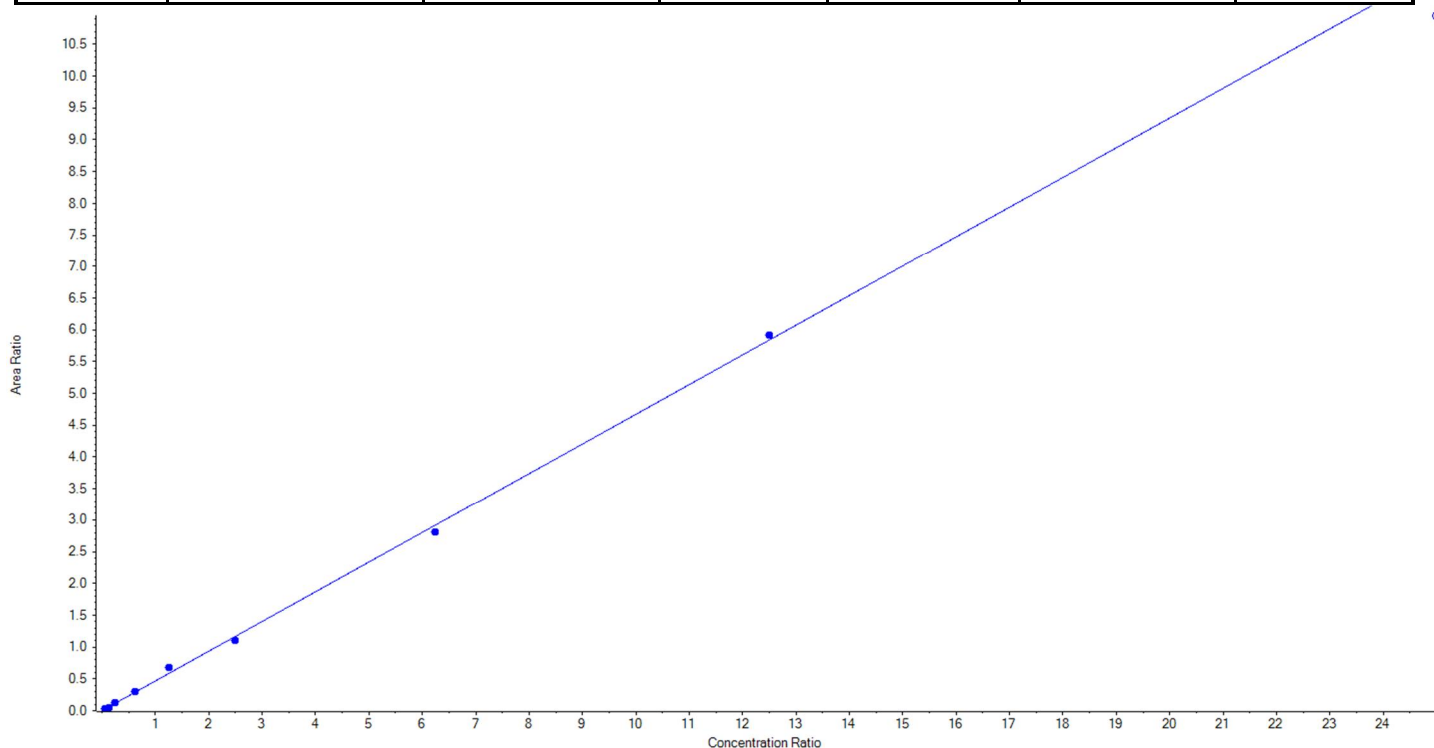
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.46708x + 2.81156e-4$  ( $r = 0.99871$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	23.276176	93.1
3	JX68	L2	True	50.00	43.005903	86.0
4	JX69	L3	True	100.00	109.574657	109.6
5	JX70	L4	True	250.00	261.966030	104.8
6	JX71	L5	True	500.00	574.602501	114.9
7	JX72	L6	True	1000.00	942.155059	94.2
8	JX73	L7	True	2500.00	2398.901036	96.0
9	JX74	L8	True	5000.00	5071.518638	101.4
10	JX75	L9	False	10000.00	9375.584195	93.8





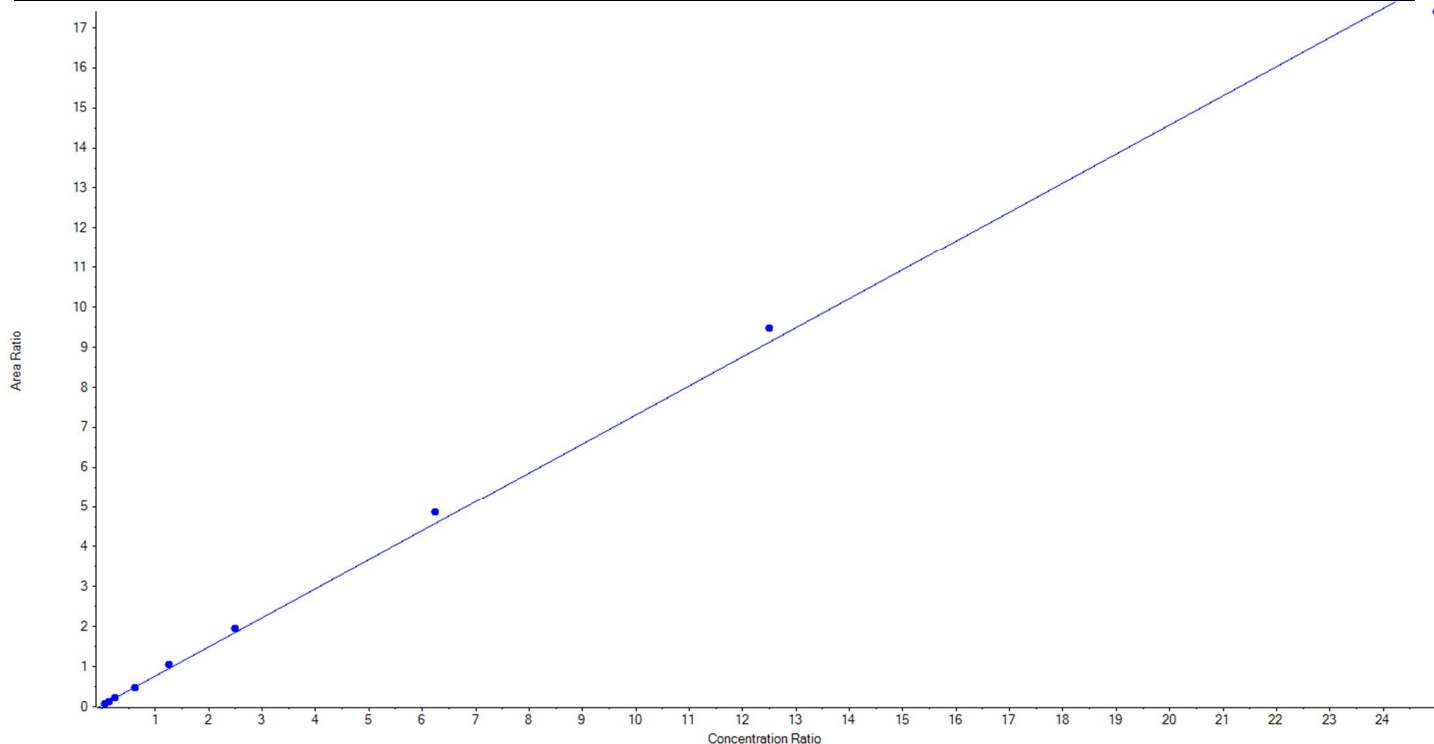
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72682x + 0.03896$  ( $r = 0.99871$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	22.907735	91.6
3	JX68	L2	True	50.00	41.483663	83.0
4	JX69	L3	True	100.00	105.864049	105.9
5	JX70	L4	True	250.00	244.778528	97.9
6	JX71	L5	True	500.00	554.849012	111.0
7	JX72	L6	True	1000.00	1050.849199	105.1
8	JX73	L7	True	2500.00	2651.436287	106.1
9	JX74	L8	True	5000.00	5198.578588	104.0
10	JX75	L9	True	10000.00	9554.252939	95.5





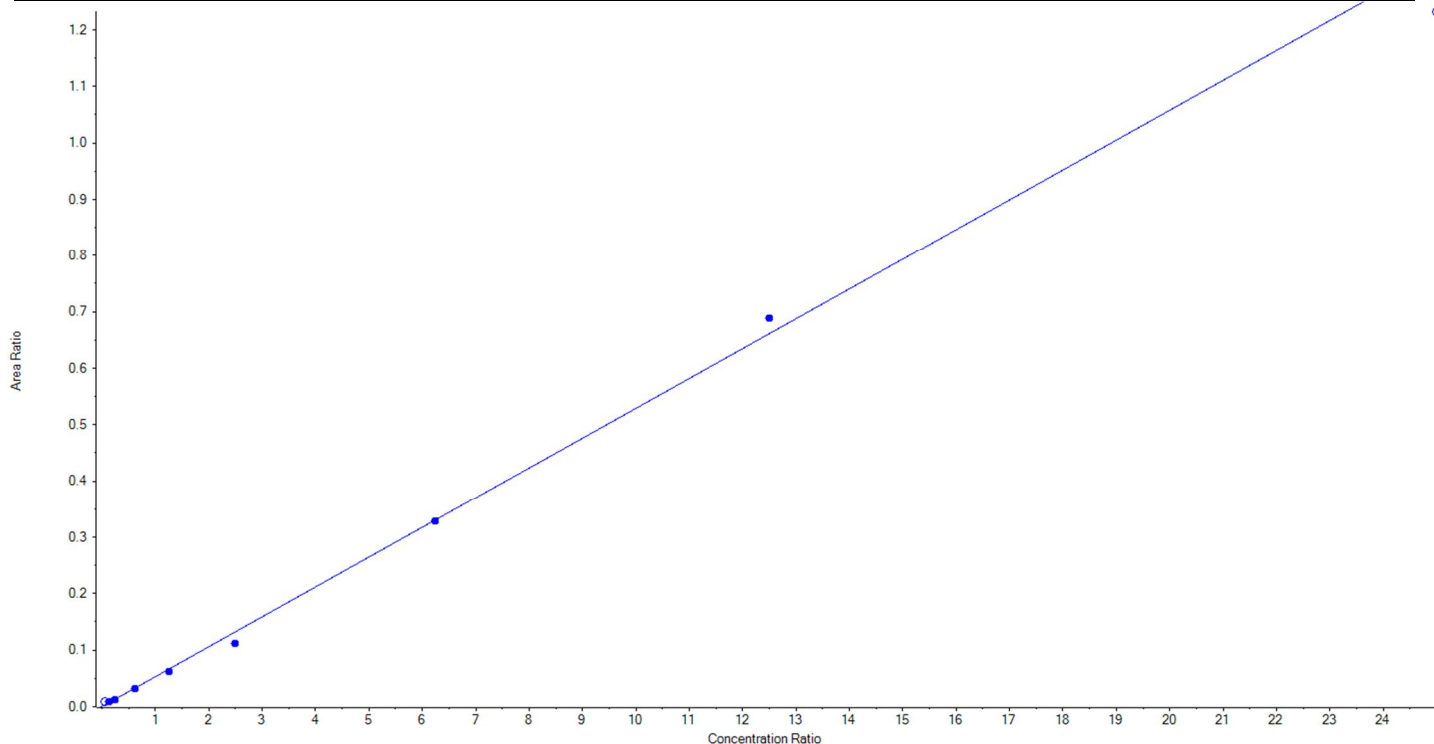
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:18:59 AM

<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0393_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05288 x + 1.72730e-4$  ( $r = 0.99760$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	61.454013	245.8
3	JX68	L2	True	50.00	62.258168	124.5
4	JX69	L3	True	100.00	96.211192	96.2
5	JX70	L4	True	250.00	246.407835	98.6
6	JX71	L5	True	500.00	465.379465	93.1
7	JX72	L6	True	1000.00	843.713651	84.4
8	JX73	L7	True	2500.00	2477.074244	99.1
9	JX74	L8	True	5000.00	5208.955444	104.2
10	JX75	L9	False	10000.00	9316.361301	93.2





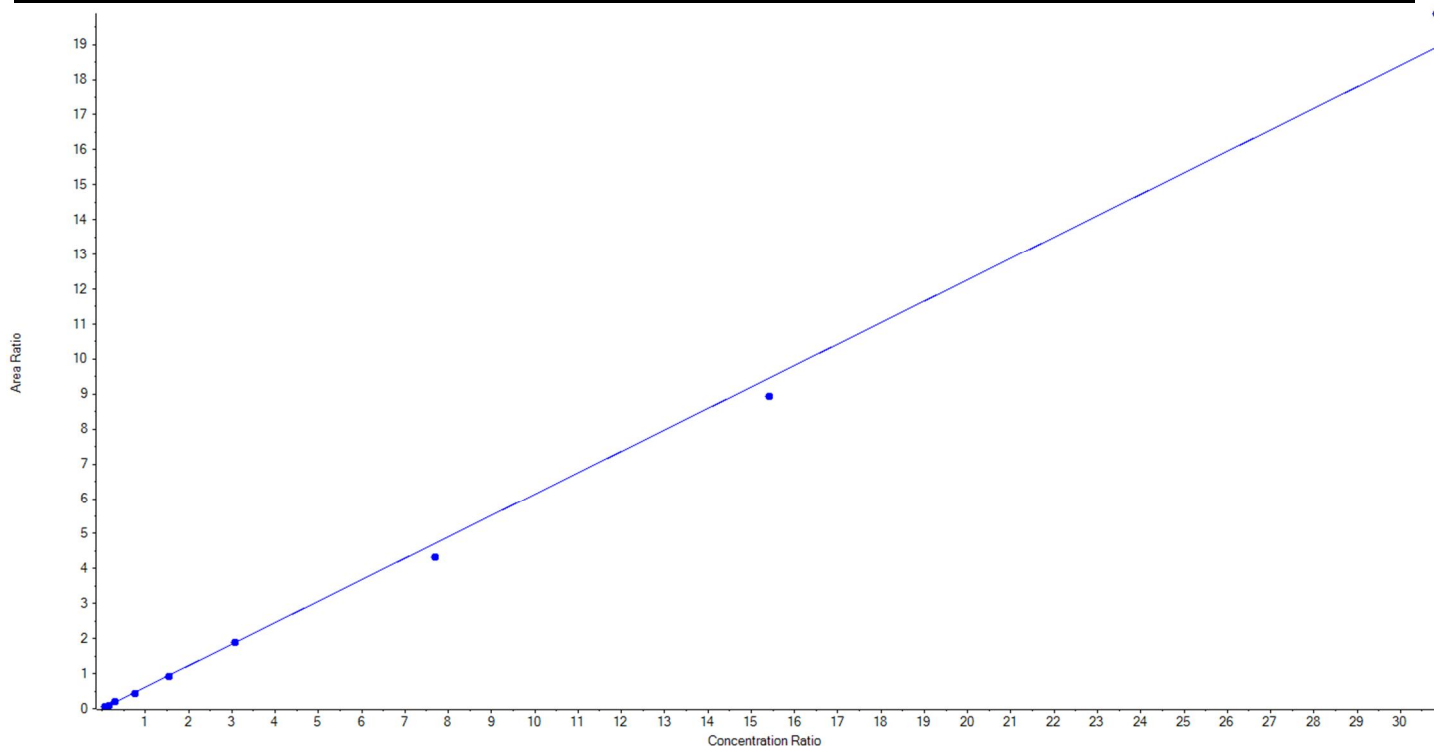
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.61363 x + -0.00126$  ( $r = 0.99834$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	23.830433	107.6
3	JX68	L2	True	44.30	46.278541	104.5
4	JX69	L3	True	88.60	93.683891	105.7
5	JX70	L4	True	221.50	206.327632	93.2
6	JX71	L5	True	443.00	432.516100	97.6
7	JX72	L6	True	885.00	888.747710	100.4
8	JX73	L7	True	2212.50	2024.674722	91.5
9	JX74	L8	True	4425.00	4178.992960	94.4
10	JX75	L9	True	8850.00	9296.998012	105.1





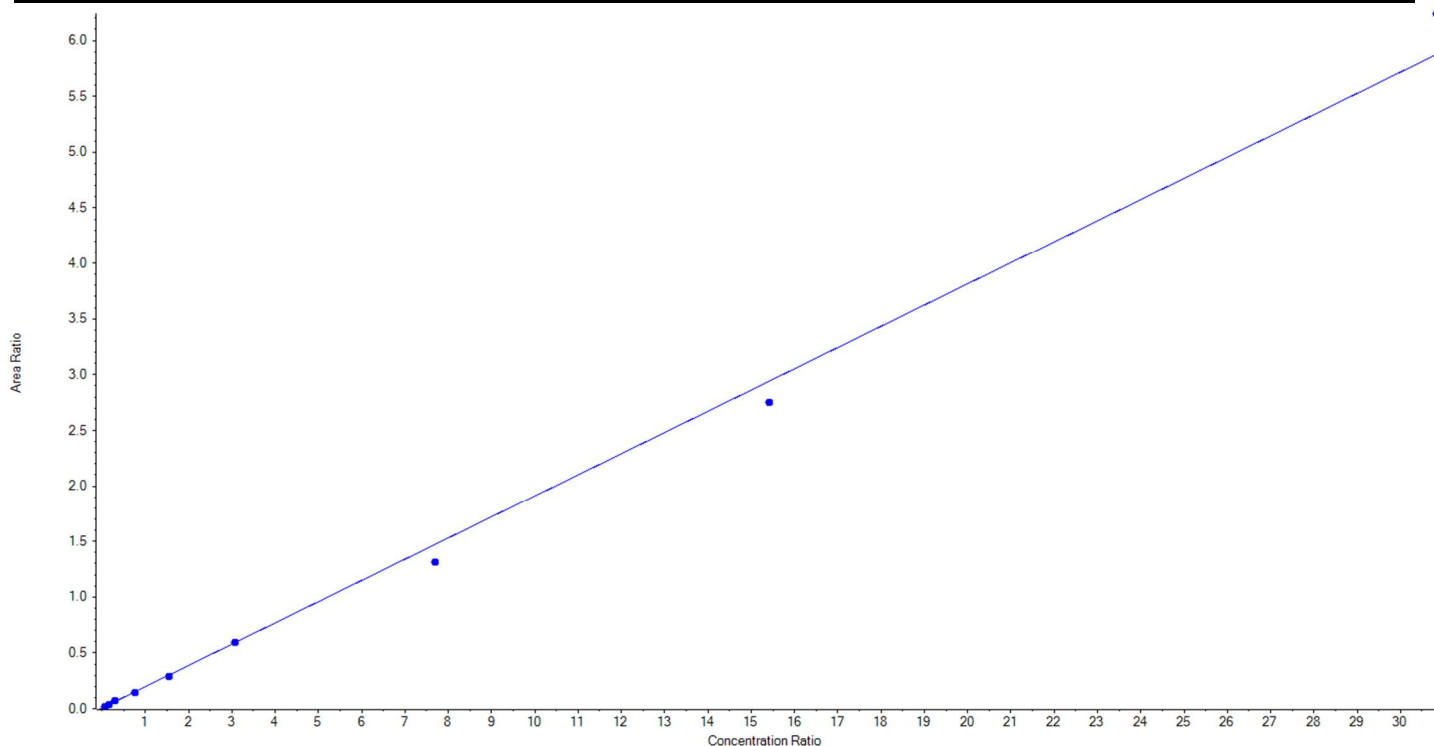
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19036 x + 0.00658$  (r = 0.99747) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	22.983577	103.8
3	JX68	L2	True	44.30	49.356949	111.4
4	JX69	L3	True	88.60	93.887974	106.0
5	JX70	L4	True	221.50	205.818634	92.9
6	JX71	L5	True	443.00	429.643049	97.0
7	JX72	L6	True	885.00	889.170002	100.5
8	JX73	L7	True	2212.50	1962.210653	88.7
9	JX74	L8	True	4425.00	4142.359203	93.6
10	JX75	L9	True	8850.00	9396.619960	106.2





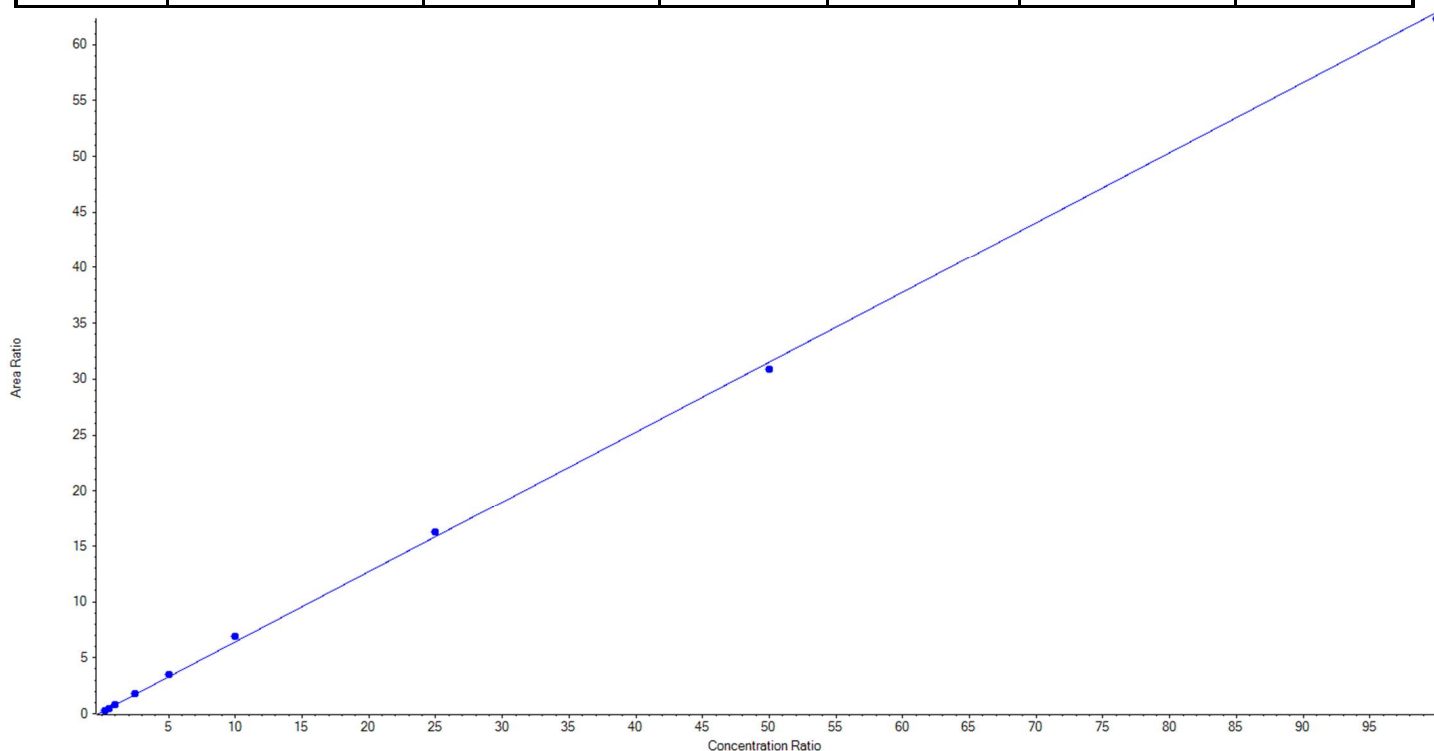
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62713x + 0.16053$  ( $r = 0.99957$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.791994	75.2
3	JX68	L2	True	50.00	51.402415	102.8
4	JX69	L3	True	100.00	104.015969	104.0
5	JX70	L4	True	250.00	256.894451	102.8
6	JX71	L5	True	500.00	536.593763	107.3
7	JX72	L6	True	1000.00	1083.560155	108.4
8	JX73	L7	True	2500.00	2559.637674	102.4
9	JX74	L8	True	5000.00	4905.213315	98.1
10	JX75	L9	True	10000.00	9908.890264	99.1







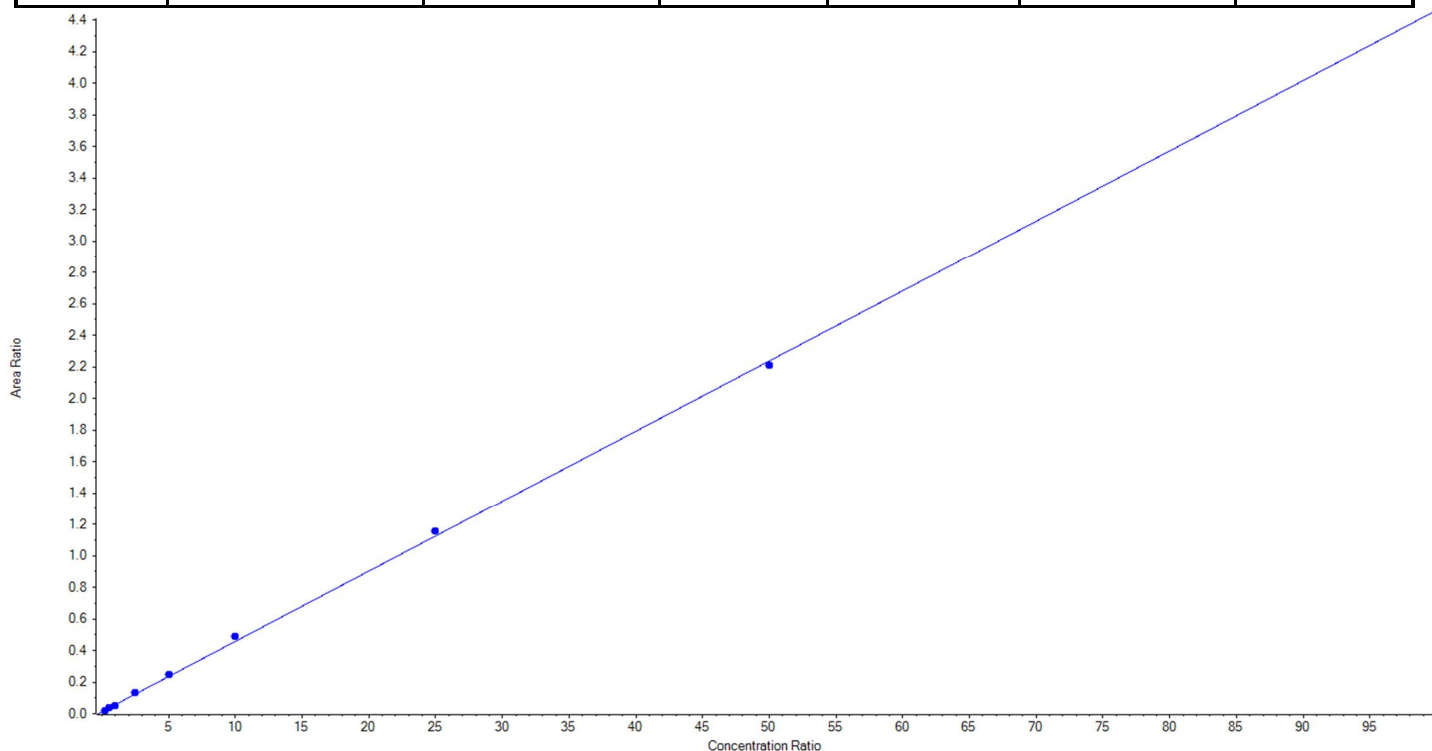
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04450x + 0.01264$  ( $r = 0.99956$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.296701	81.2
3	JX68	L2	True	50.00	53.760551	107.5
4	JX69	L3	True	100.00	88.961255	89.0
5	JX70	L4	True	250.00	271.044383	108.4
6	JX71	L5	True	500.00	529.040331	105.8
7	JX72	L6	True	1000.00	1077.865222	107.8
8	JX73	L7	True	2500.00	2570.917958	102.8
9	JX74	L8	True	5000.00	4935.064490	98.7
10	JX75	L9	True	10000.00	9878.049109	98.8





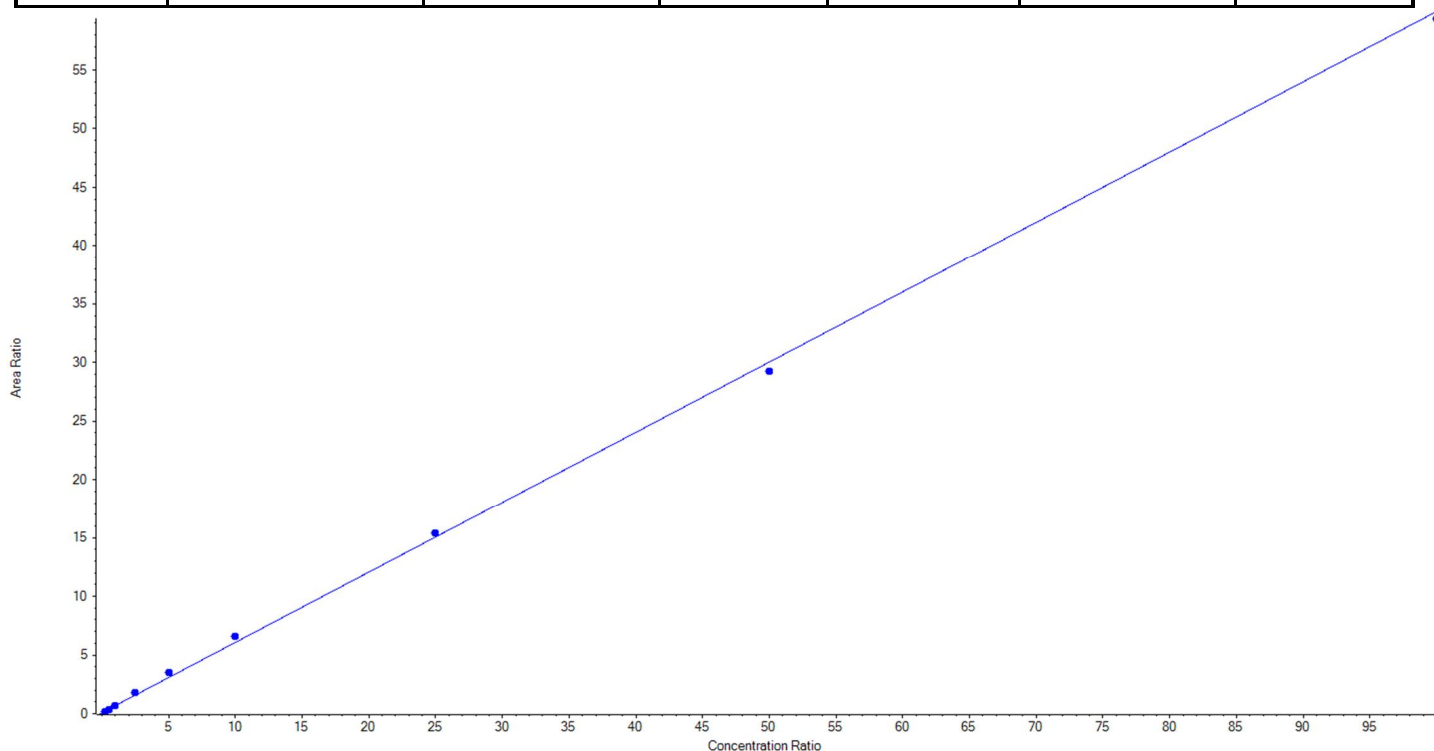
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.59900x + 0.08720$  ( $r = 0.99924$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.302340	73.2
3	JX68	L2	True	50.00	44.691384	89.4
4	JX69	L3	True	100.00	104.066690	104.1
5	JX70	L4	True	250.00	283.179151	113.3
6	JX71	L5	True	500.00	564.092719	112.8
7	JX72	L6	True	1000.00	1085.640666	108.6
8	JX73	L7	True	2500.00	2557.091682	102.3
9	JX74	L8	True	5000.00	4872.389047	97.5
10	JX75	L9	True	10000.00	9895.546320	99.0





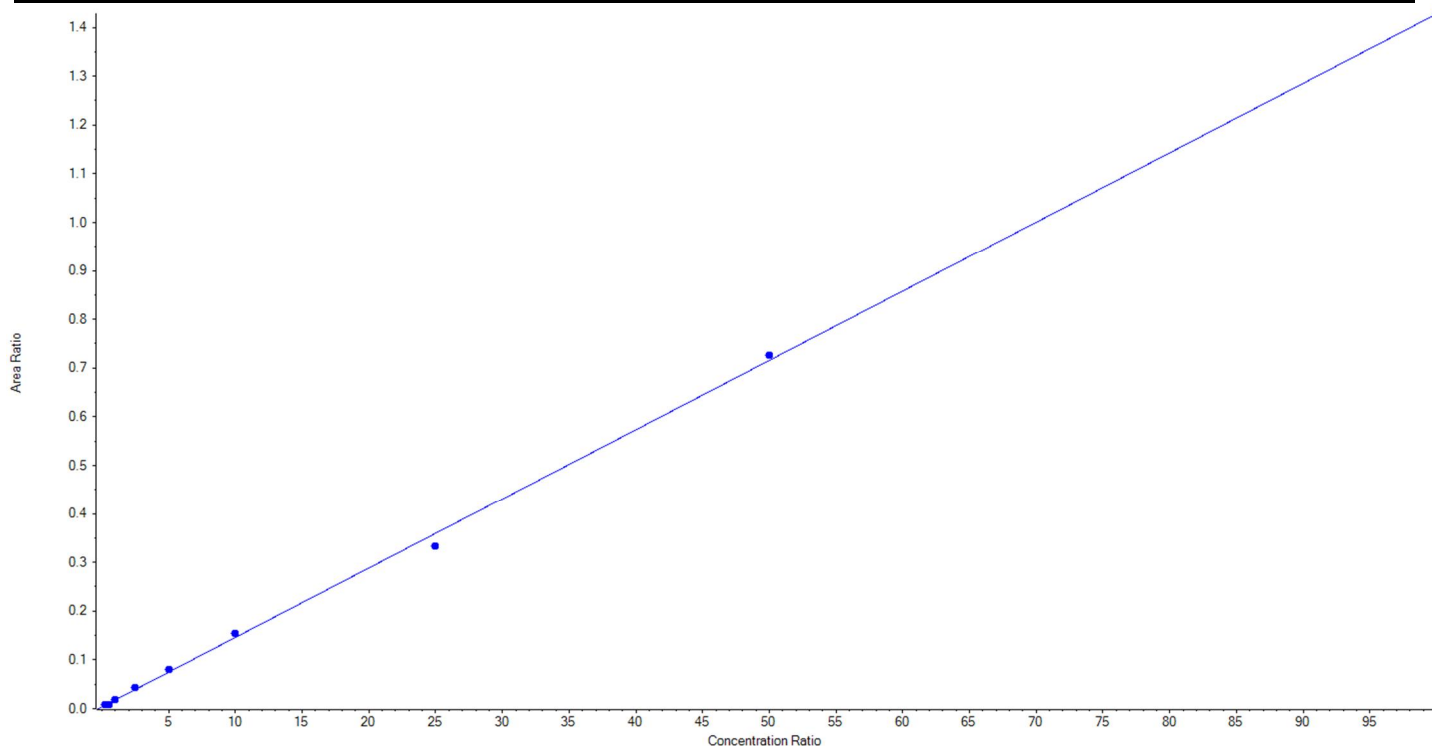
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01424 x + 0.00368$  (r = 0.99920) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	25.182337	100.7
3	JX68	L2	True	50.00	37.004714	74.0
4	JX69	L3	True	100.00	106.084205	106.1
5	JX70	L4	True	250.00	279.413504	111.8
6	JX71	L5	True	500.00	537.484438	107.5
7	JX72	L6	True	1000.00	1062.086999	106.2
8	JX73	L7	True	2500.00	2307.985347	92.3
9	JX74	L8	True	5000.00	5068.903345	101.4
10	JX75	L9	True	10000.00	10000.855110	100.0





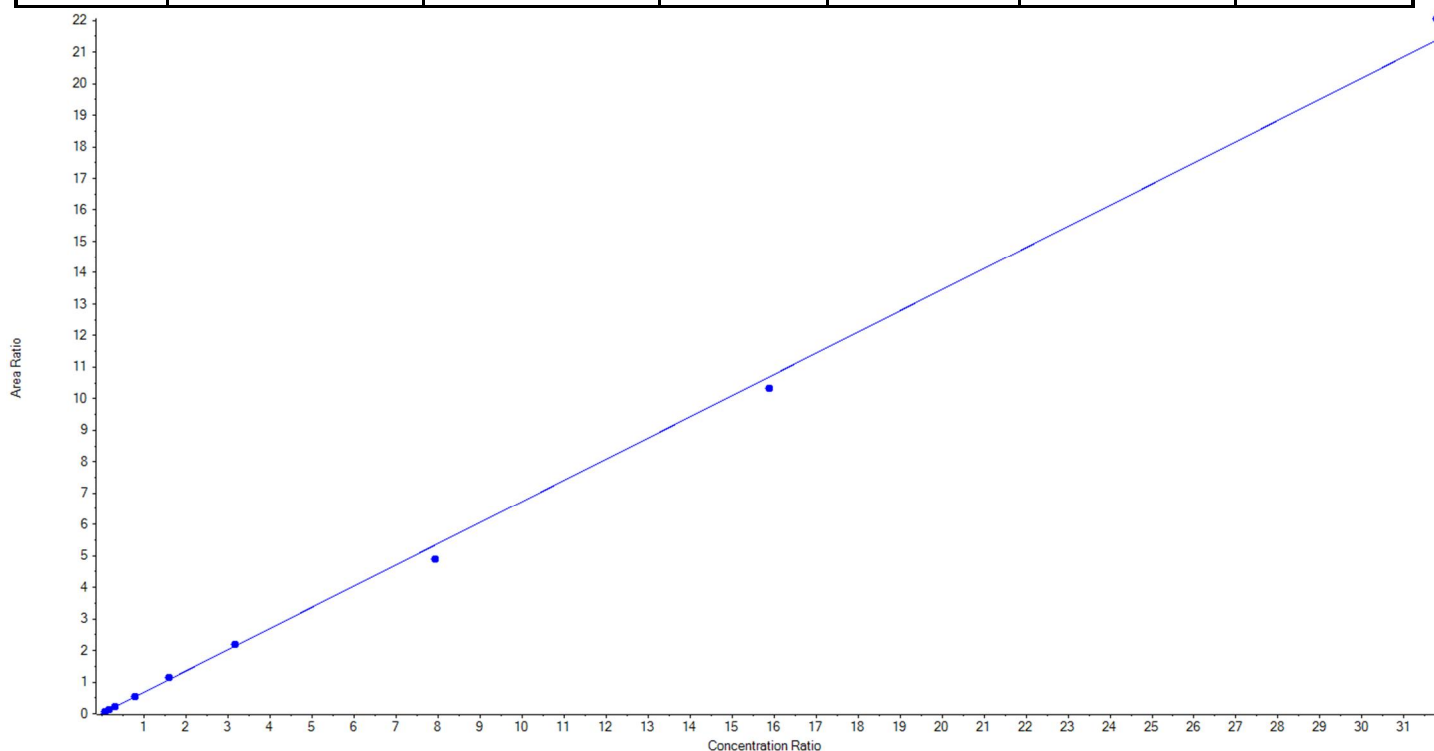
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67255x + 0.00557$  (r = 0.99899) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.540088	94.5
3	JX68	L2	True	45.60	45.354398	99.5
4	JX69	L3	True	91.20	94.429375	103.5
5	JX70	L4	True	228.00	231.961115	101.7
6	JX71	L5	True	456.00	490.677670	107.6
7	JX72	L6	True	912.00	928.885400	101.9
8	JX73	L7	True	2280.00	2086.096882	91.5
9	JX74	L8	True	4560.00	4408.253001	96.7
10	JX75	L9	True	9120.00	9408.402070	103.2





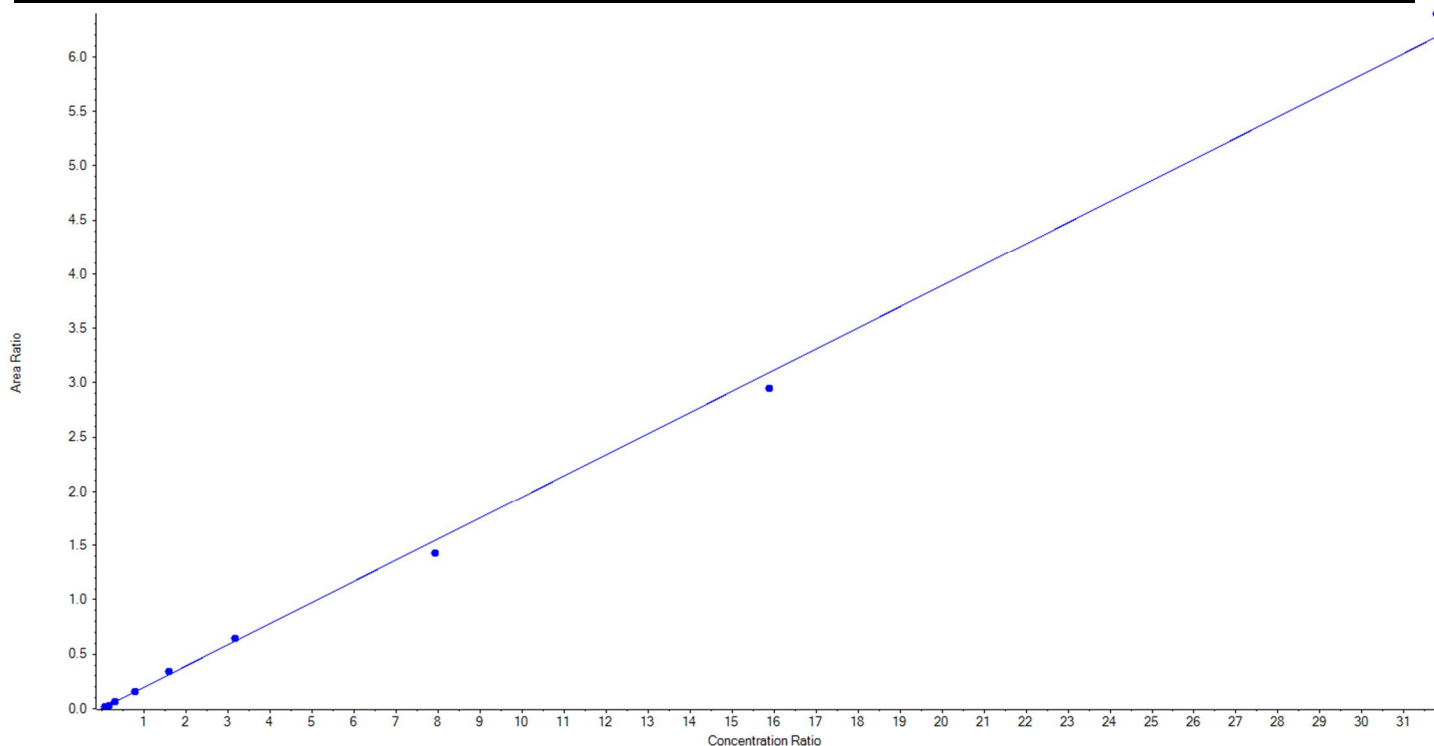
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19454 x + 0.00249$  (r = 0.99879) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.831569	95.8
3	JX68	L2	True	45.60	43.862949	96.2
4	JX69	L3	True	91.20	95.814283	105.1
5	JX70	L4	True	228.00	224.050348	98.3
6	JX71	L5	True	456.00	499.804218	109.6
7	JX72	L6	True	912.00	950.335119	104.2
8	JX73	L7	True	2280.00	2101.773991	92.2
9	JX74	L8	True	4560.00	4346.681282	95.3
10	JX75	L9	True	9120.00	9431.446241	103.4





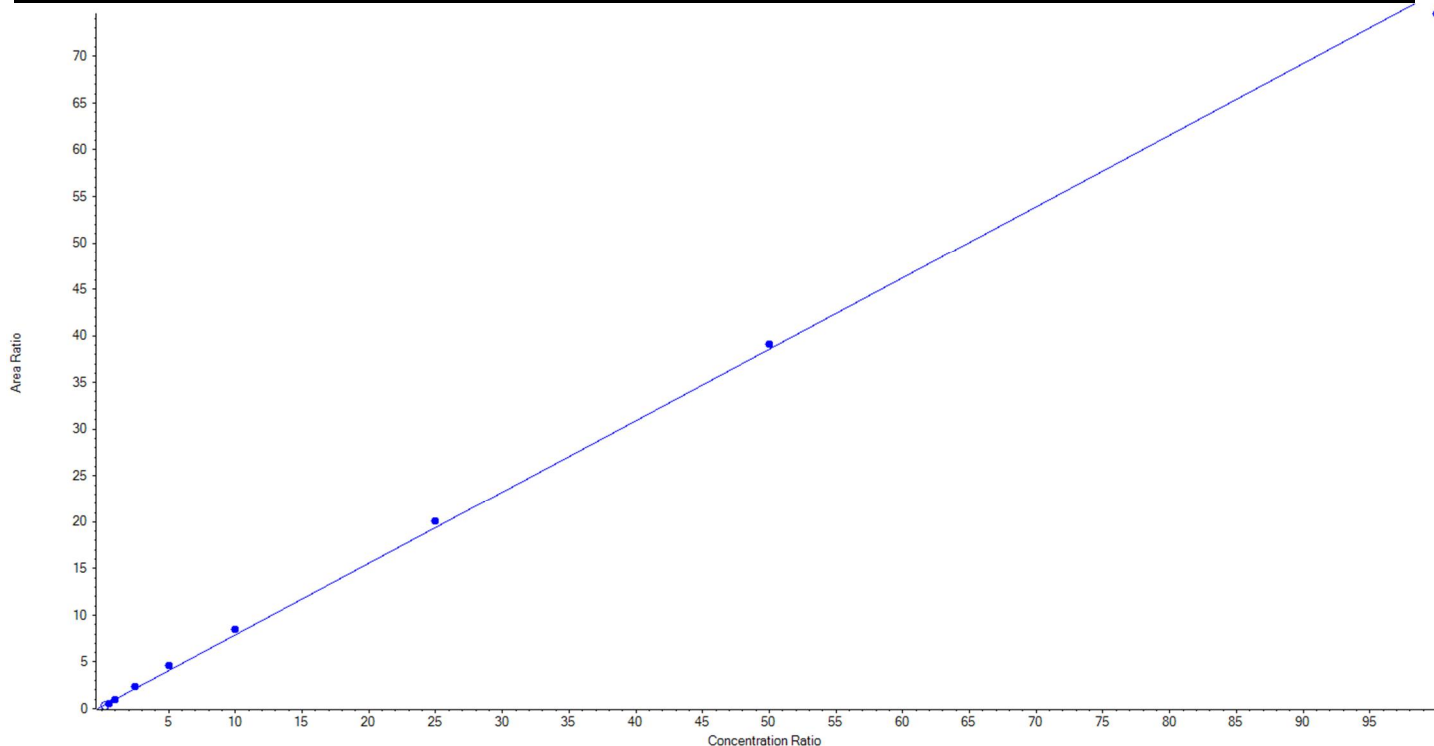
## Calibration Summary Report

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<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.76657 x + 0.23682$  (r = 0.99897) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	5.415311	21.7
3	JX68	L2	True	50.00	36.683792	73.4
4	JX69	L3	True	100.00	92.235736	92.2
5	JX70	L4	True	250.00	275.902665	110.4
6	JX71	L5	True	500.00	572.330827	114.5
7	JX72	L6	True	1000.00	1079.143229	107.9
8	JX73	L7	True	2500.00	2586.190651	103.5
9	JX74	L8	True	5000.00	5063.236772	101.3
10	JX75	L9	True	10000.00	9694.276329	96.9





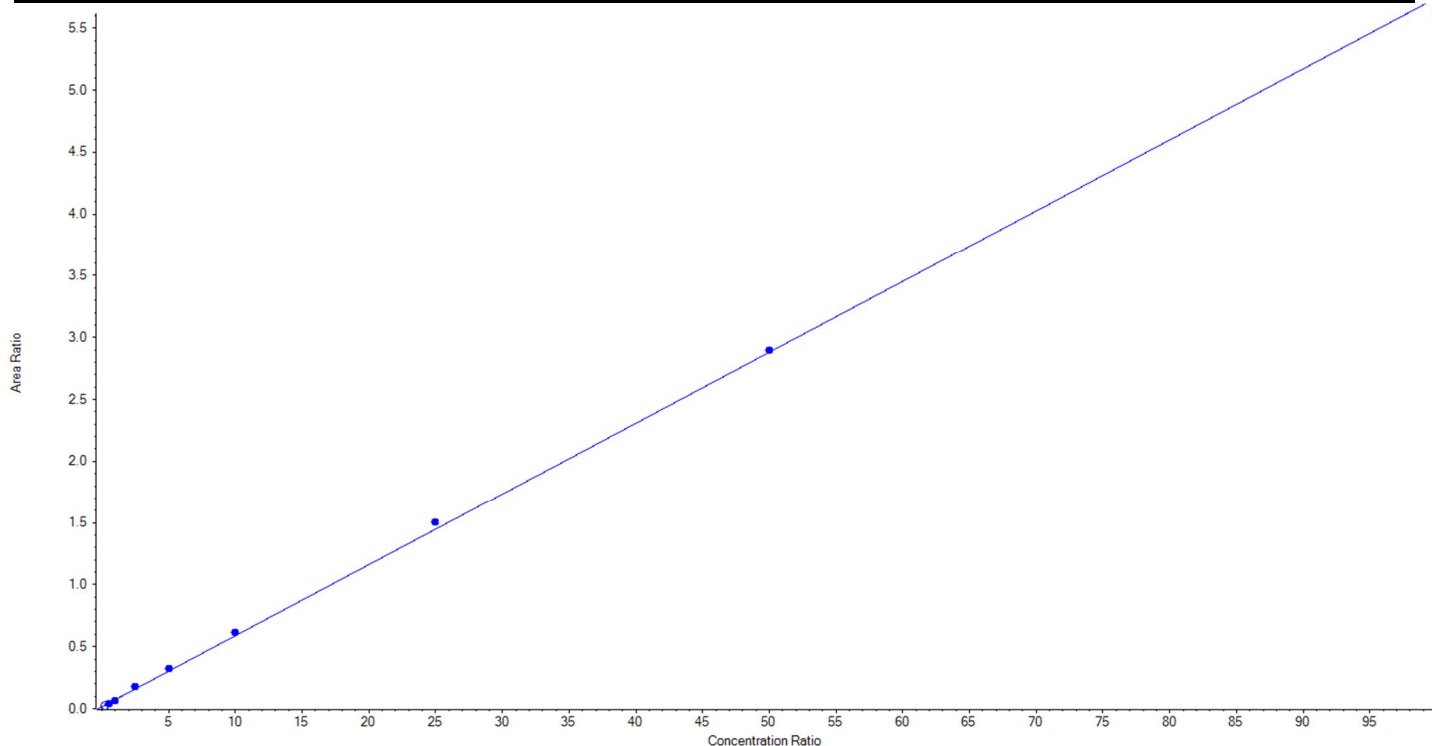
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<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05729x + 0.01572$  ( $r = 0.99941$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	12.318640	49.3
3	JX68	L2	True	50.00	43.335566	86.7
4	JX69	L3	True	100.00	86.590381	86.6
5	JX70	L4	True	250.00	279.024584	111.6
6	JX71	L5	True	500.00	542.178268	108.4
7	JX72	L6	True	1000.00	1042.123910	104.2
8	JX73	L7	True	2500.00	2604.616479	104.2
9	JX74	L8	True	5000.00	5027.464128	100.6
10	JX75	L9	True	10000.00	9774.666684	97.8





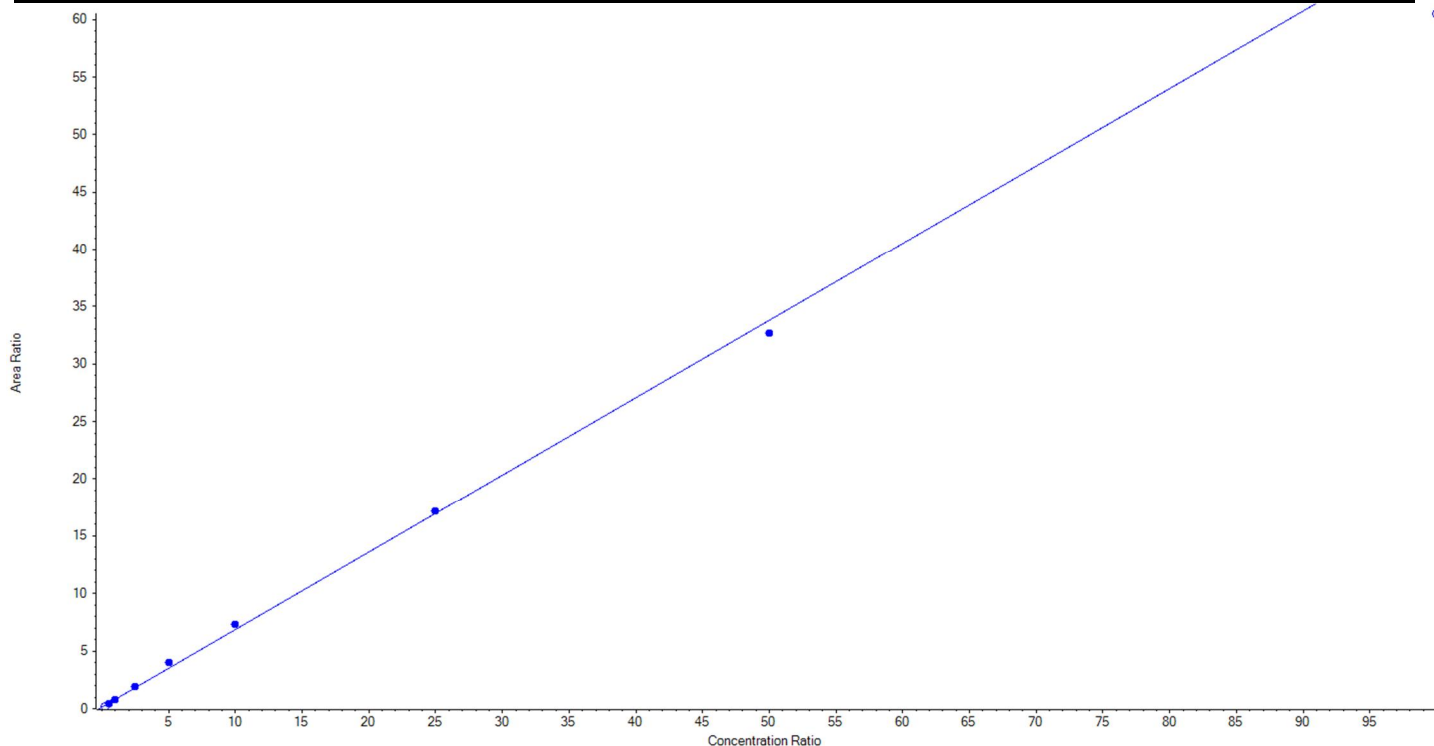
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67314x + 0.14207$  ( $r = 0.99841$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	7.876482	31.5
3	JX68	L2	True	50.00	38.471445	76.9
4	JX69	L3	True	100.00	96.355173	96.4
5	JX70	L4	True	250.00	268.580288	107.4
6	JX71	L5	True	500.00	575.970800	115.2
7	JX72	L6	True	1000.00	1064.317609	106.4
8	JX73	L7	True	2500.00	2525.890341	101.0
9	JX74	L8	True	5000.00	4830.414344	96.6
10	JX75	L9	False	10000.00	8963.600323	89.6







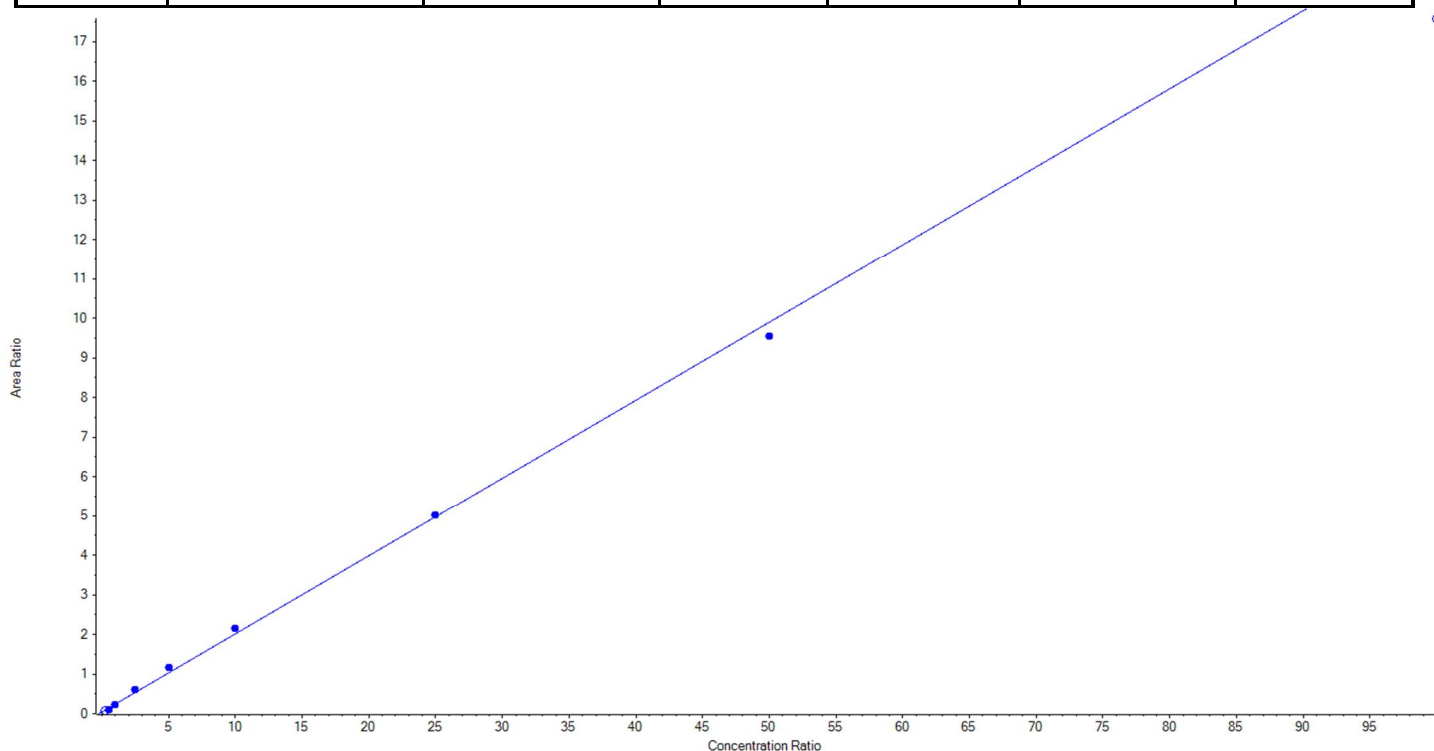
## Calibration Summary Report

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Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19709x + 0.04473$  ( $r = 0.99821$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	17.483575	69.9
3	JX68	L2	True	50.00	35.058175	70.1
4	JX69	L3	True	100.00	99.127432	99.1
5	JX70	L4	True	250.00	282.168603	112.9
6	JX71	L5	True	500.00	566.768331	113.4
7	JX72	L6	True	1000.00	1073.450506	107.4
8	JX73	L7	True	2500.00	2516.076067	100.6
9	JX74	L8	True	5000.00	4827.350887	96.6
10	JX75	L9	False	10000.00	8895.837853	89.0





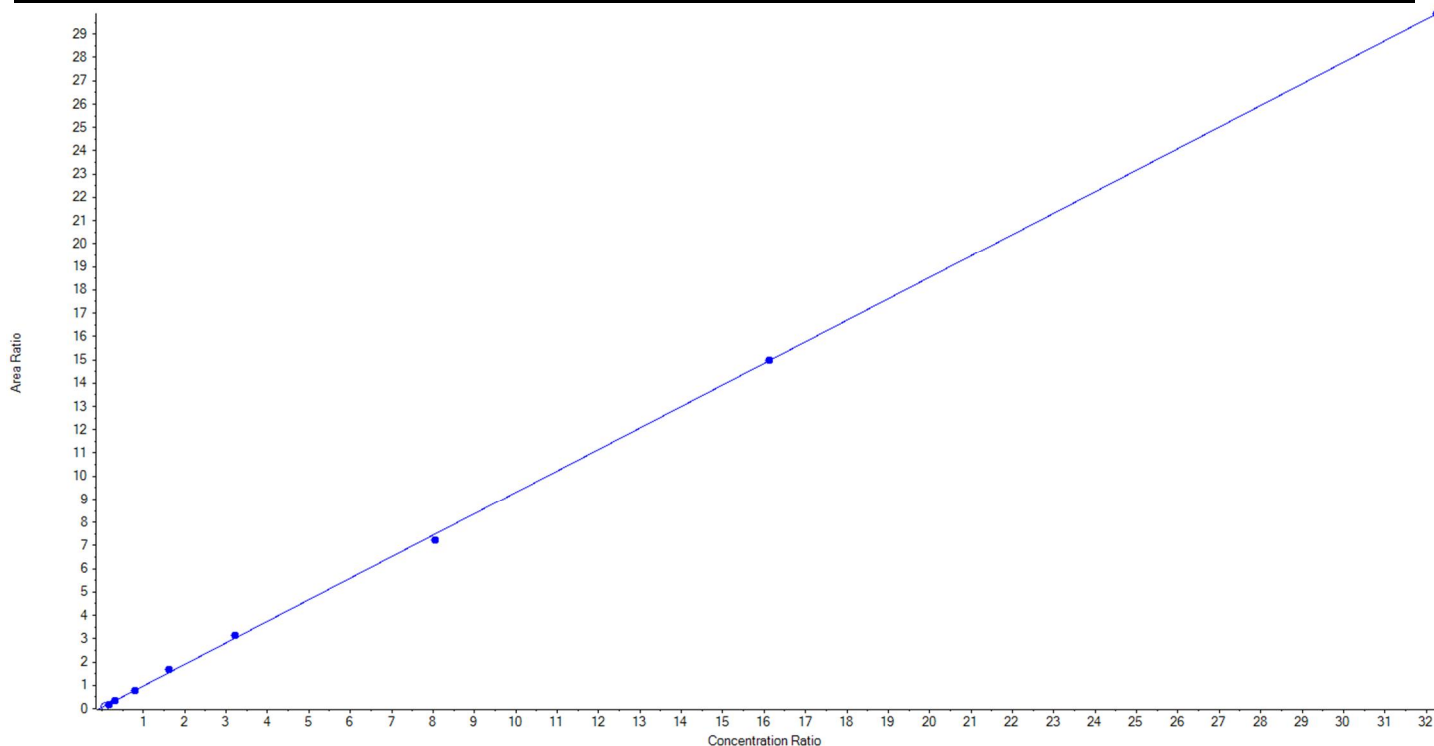
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92479x + 0.04857$  ( $r = 0.99974$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	14.967381	64.7
3	JX68	L2	True	46.30	41.416707	89.5
4	JX69	L3	True	92.60	94.155588	101.7
5	JX70	L4	True	231.50	229.522123	99.2
6	JX71	L5	True	463.00	504.911983	109.1
7	JX72	L6	True	925.60	962.388374	104.0
8	JX73	L7	True	2314.00	2234.023744	96.5
9	JX74	L8	True	4628.00	4635.388250	100.2
10	JX75	L9	True	9256.00	9255.193233	100.0





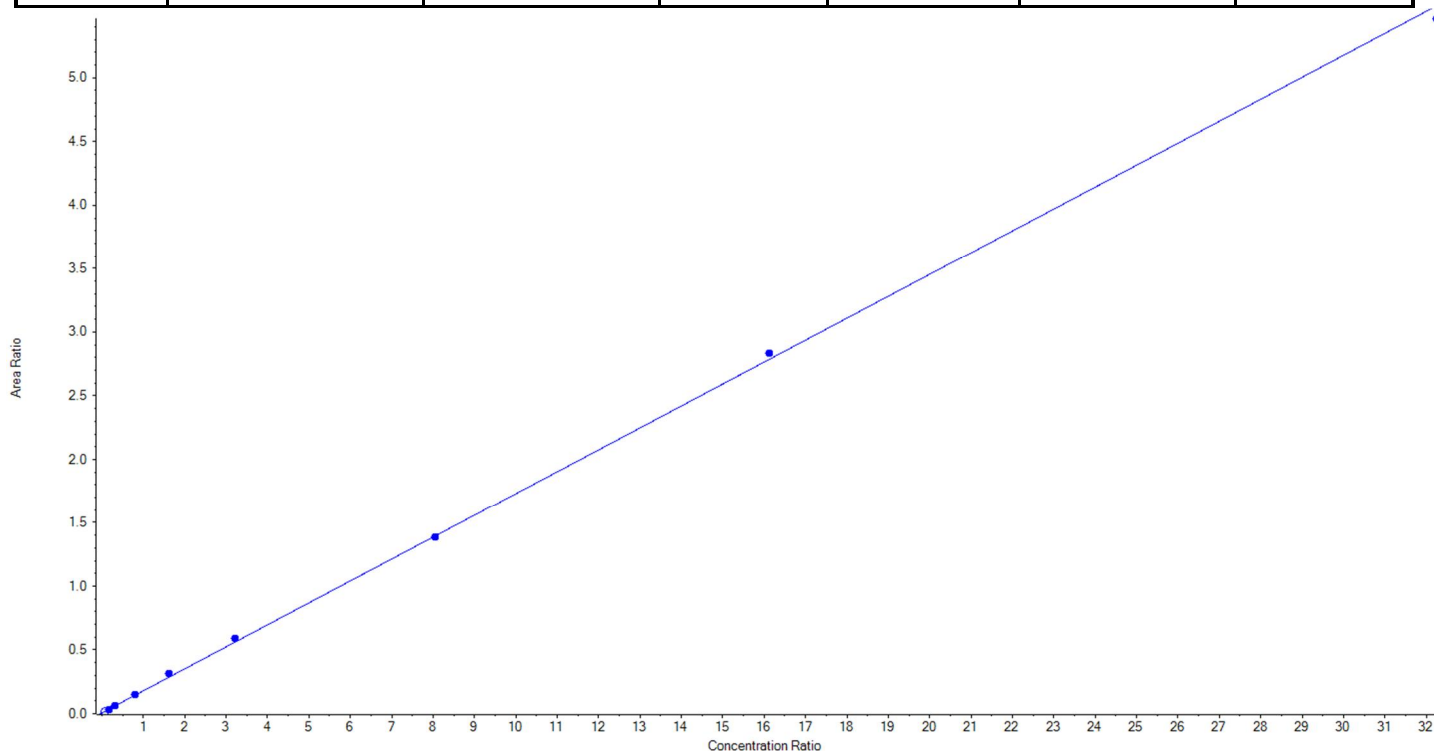
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17232 x + 0.00703$  (r = 0.99957) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	17.551763	75.8
3	JX68	L2	True	46.30	36.618609	79.1
4	JX69	L3	True	92.60	94.778219	102.4
5	JX70	L4	True	231.50	241.187429	104.2
6	JX71	L5	True	463.00	506.365979	109.4
7	JX72	L6	True	925.60	976.906219	105.5
8	JX73	L7	True	2314.00	2301.363562	99.5
9	JX74	L8	True	4628.00	4713.142959	101.8
10	JX75	L9	True	9256.00	9086.637025	98.2





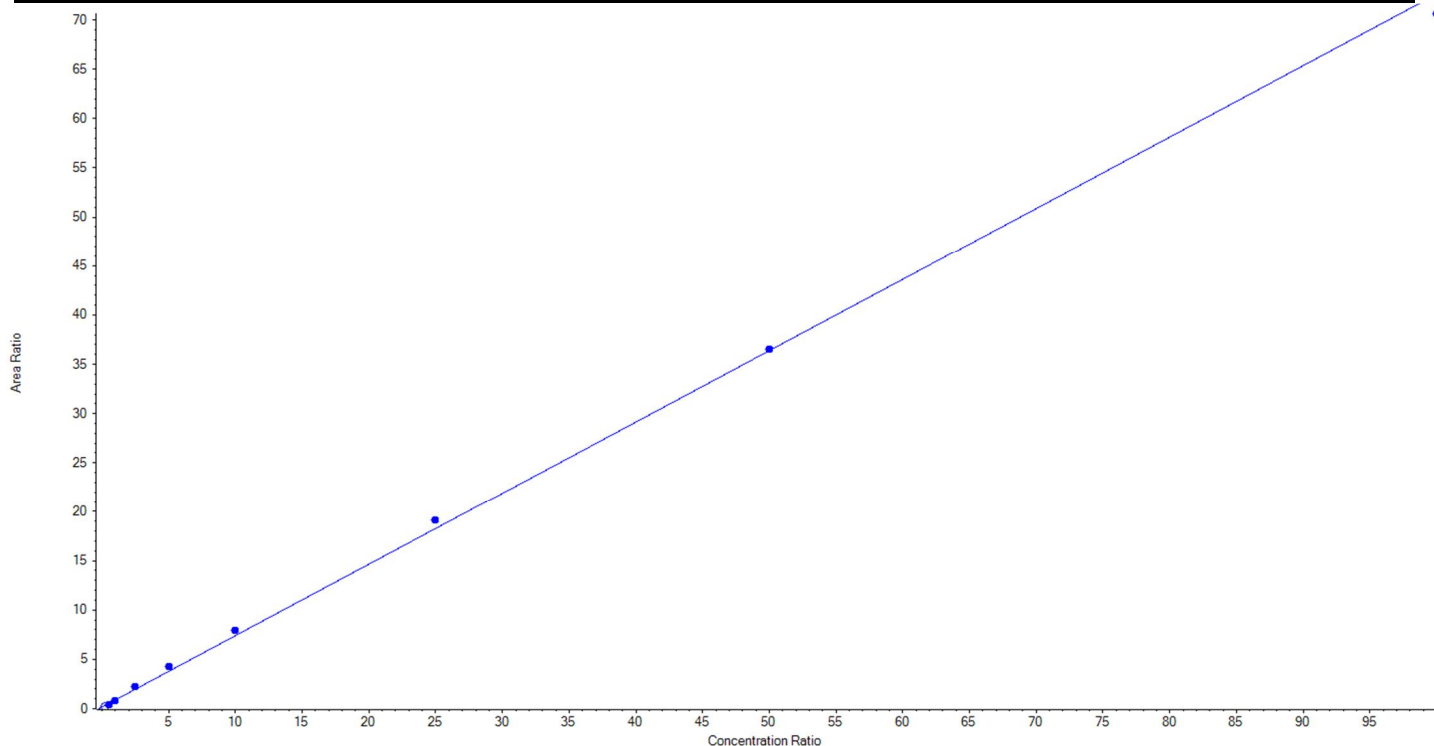
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72444 x + 0.16011$  ( $r = 0.99902$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	4.293986	17.2
3	JX68	L2	True	50.00	38.400405	76.8
4	JX69	L3	True	100.00	87.838796	87.8
5	JX70	L4	True	250.00	283.367571	113.4
6	JX71	L5	True	500.00	562.746141	112.6
7	JX72	L6	True	1000.00	1073.347869	107.3
8	JX73	L7	True	2500.00	2614.798969	104.6
9	JX74	L8	True	5000.00	5014.238853	100.3
10	JX75	L9	True	10000.00	9725.261395	97.3





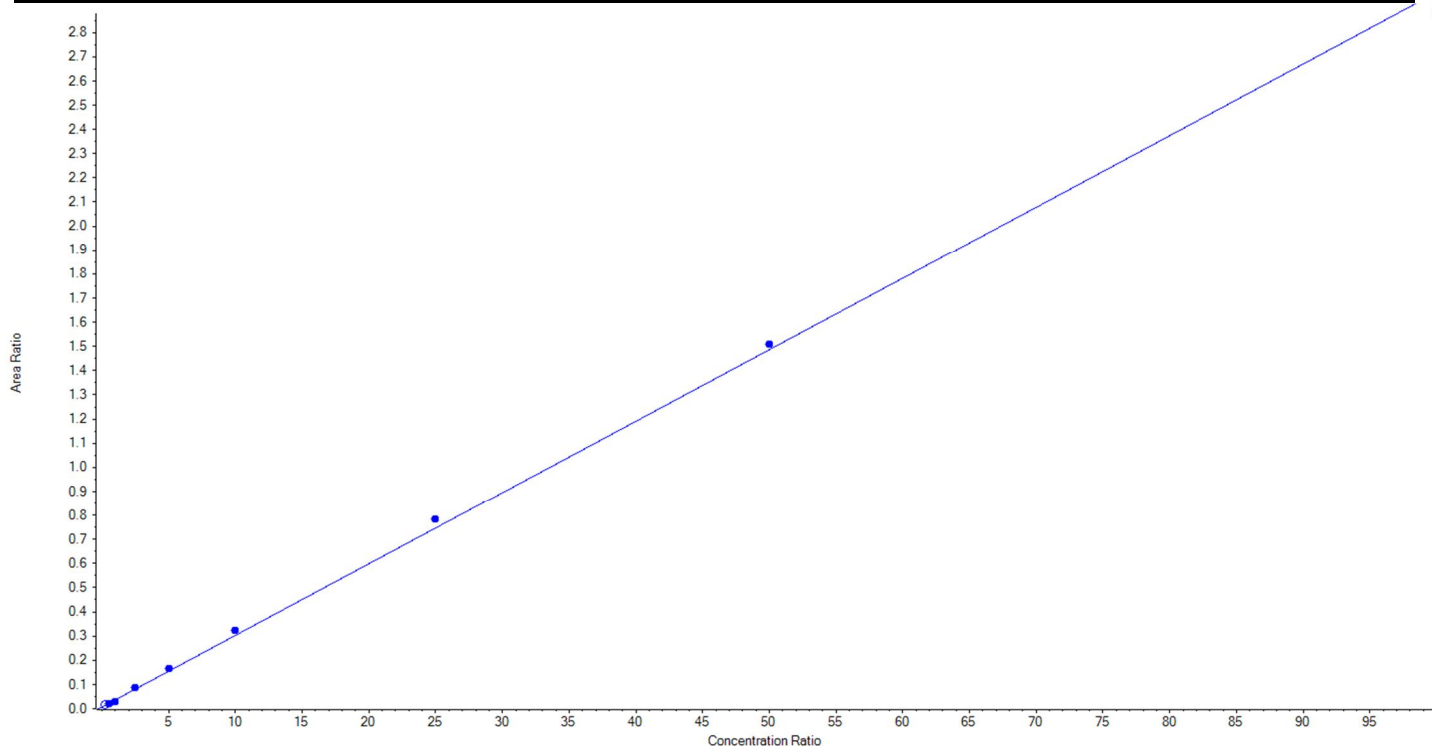
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02959x + 0.00688$  ( $r = 0.99915$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	27.987541	112.0
3	JX68	L2	True	50.00	48.305605	96.6
4	JX69	L3	True	100.00	78.774590	78.8
5	JX70	L4	True	250.00	266.338265	106.5
6	JX71	L5	True	500.00	536.324707	107.3
7	JX72	L6	True	1000.00	1073.774687	107.4
8	JX73	L7	True	2500.00	2625.689392	105.0
9	JX74	L8	True	5000.00	5070.098049	101.4
10	JX75	L9	True	10000.00	9700.694705	97.0





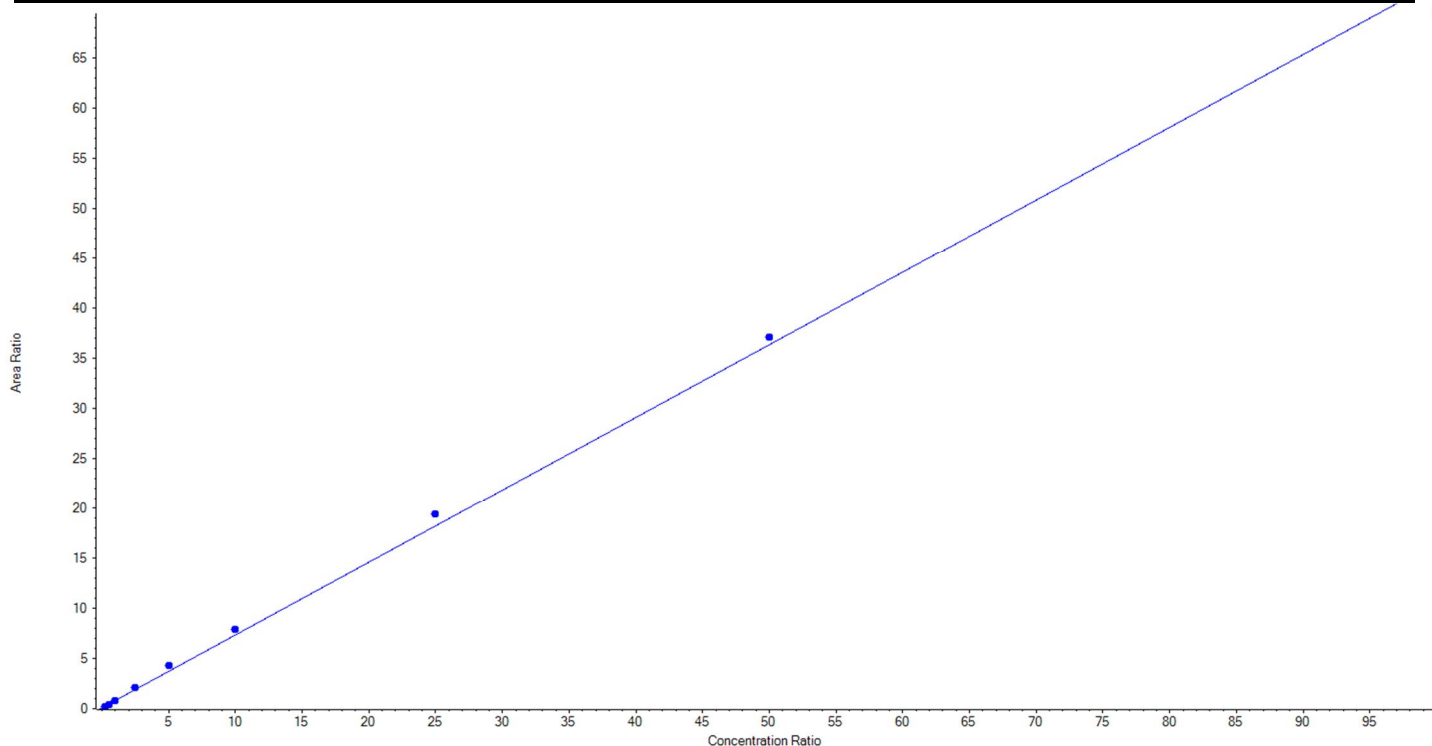
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72537x + 0.09471$  ( $r = 0.99844$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.073088	80.3
3	JX68	L2	True	50.00	42.388703	84.8
4	JX69	L3	True	100.00	95.029236	95.0
5	JX70	L4	True	250.00	279.090767	111.6
6	JX71	L5	True	500.00	579.829398	116.0
7	JX72	L6	True	1000.00	1079.142455	107.9
8	JX73	L7	True	2500.00	2669.633957	106.8
9	JX74	L8	True	5000.00	5100.109139	102.0
10	JX75	L9	True	10000.00	9559.703256	95.6





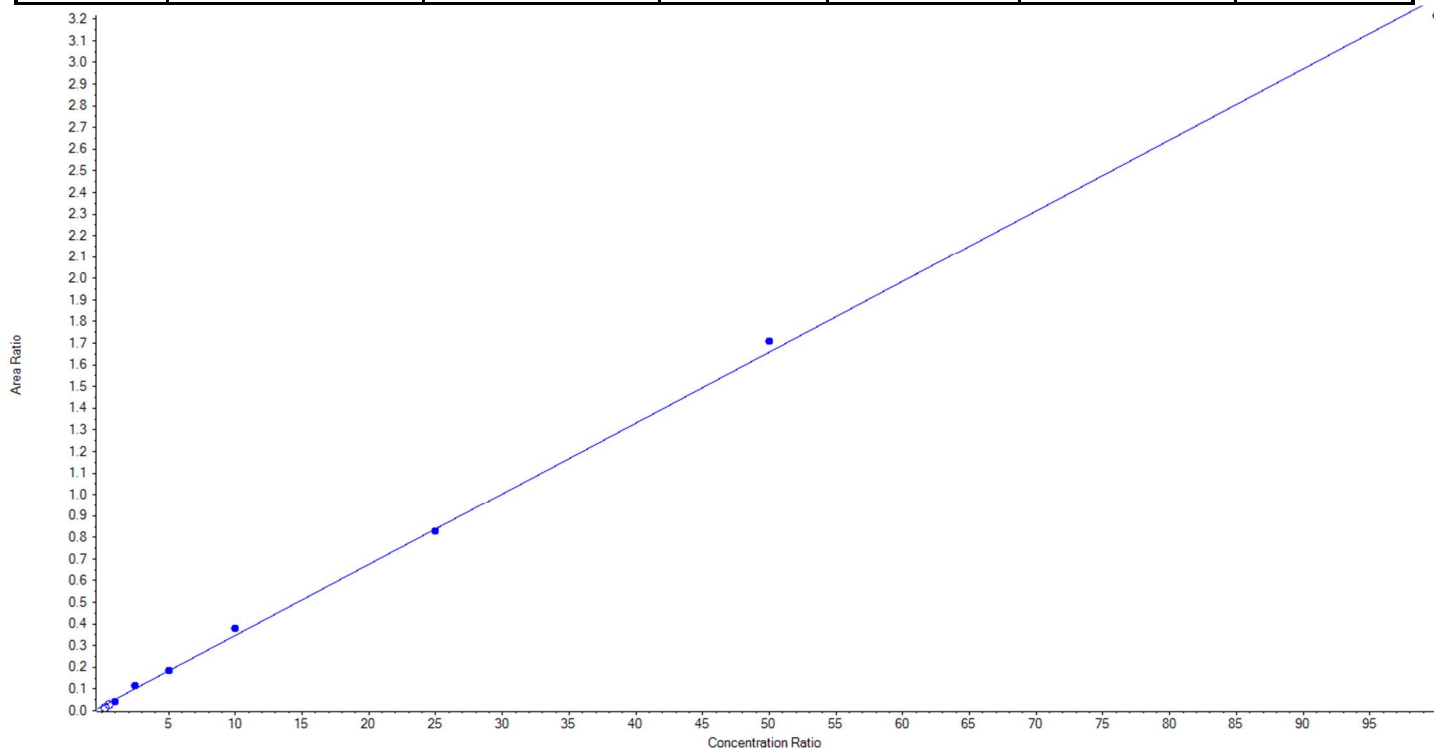
## Calibration Summary Report

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<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03278 x + 0.01985$  ( $r = 0.99876$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	25.569843	51.1
4	JX69	L3	True	100.00	70.257455	70.3
5	JX70	L4	True	250.00	299.570771	119.8
6	JX71	L5	True	500.00	500.697313	100.1
7	JX72	L6	True	1000.00	1103.433343	110.3
8	JX73	L7	True	2500.00	2469.487594	98.8
9	JX74	L8	True	5000.00	5158.640024	103.2
10	JX75	L9	True	10000.00	9747.913499	97.5





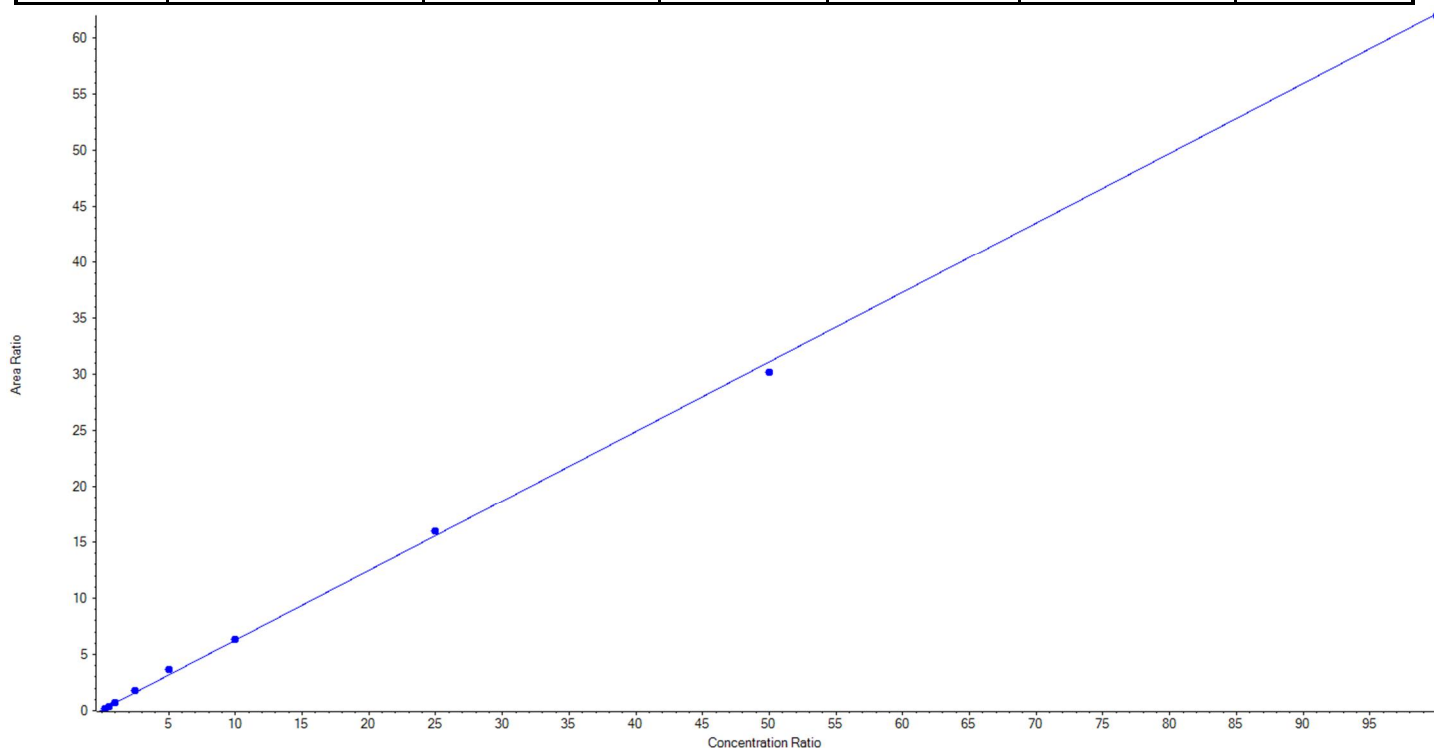
## Calibration Summary Report

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<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62092x + 0.06665$  ( $r = 0.99942$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.731070	74.9
3	JX68	L2	True	50.00	47.819194	95.6
4	JX69	L3	True	100.00	102.981838	103.0
5	JX70	L4	True	250.00	277.158464	110.9
6	JX71	L5	True	500.00	573.374778	114.7
7	JX72	L6	True	1000.00	1016.155480	101.6
8	JX73	L7	True	2500.00	2561.606452	102.5
9	JX74	L8	True	5000.00	4856.561924	97.1
10	JX75	L9	True	10000.00	9970.610800	99.7







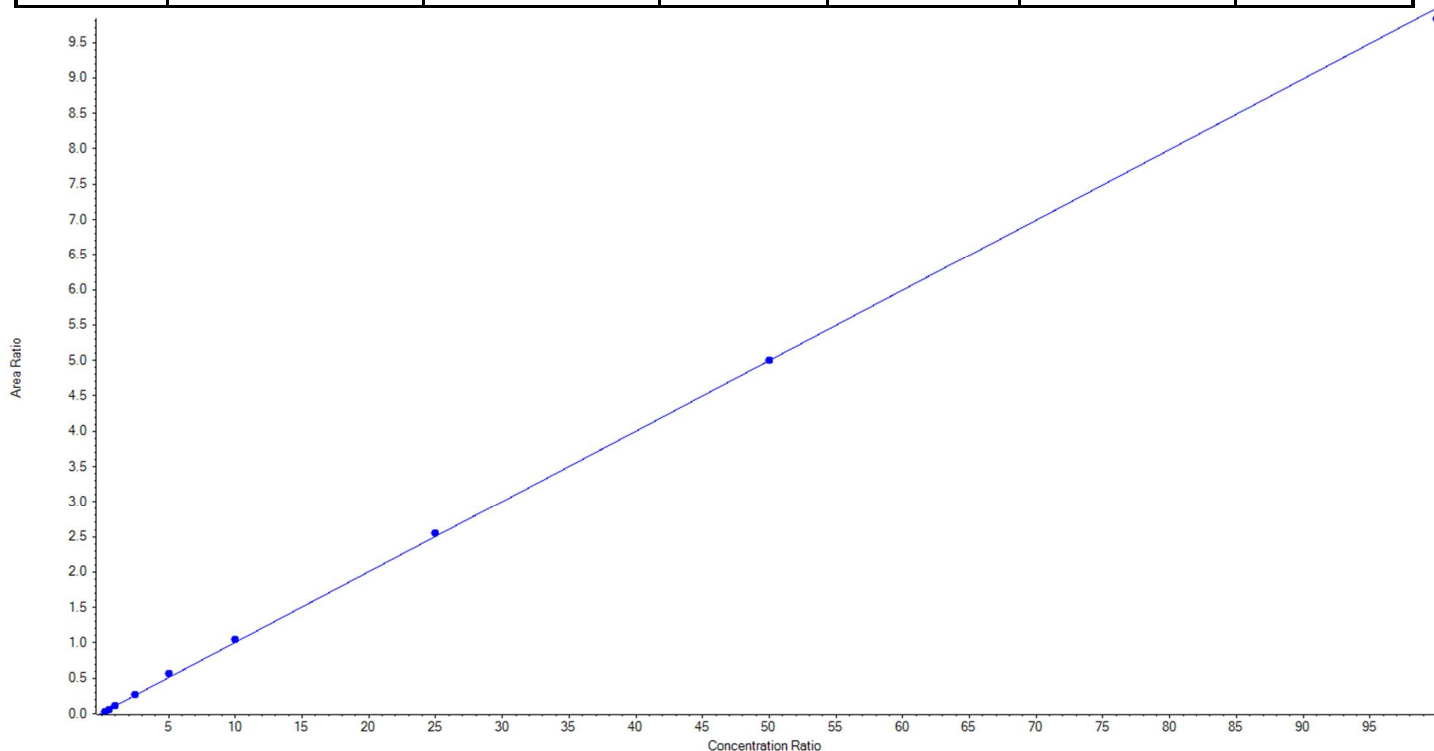
## Calibration Summary Report

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<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.09973 x + 0.01082$  (r = 0.99967) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.603828	82.4
3	JX68	L2	True	50.00	49.166918	98.3
4	JX69	L3	True	100.00	98.860597	98.9
5	JX70	L4	True	250.00	262.630095	105.1
6	JX71	L5	True	500.00	555.711859	111.1
7	JX72	L6	True	1000.00	1035.902153	103.6
8	JX73	L7	True	2500.00	2553.060598	102.1
9	JX74	L8	True	5000.00	4999.256910	100.0
10	JX75	L9	True	10000.00	9849.807043	98.5





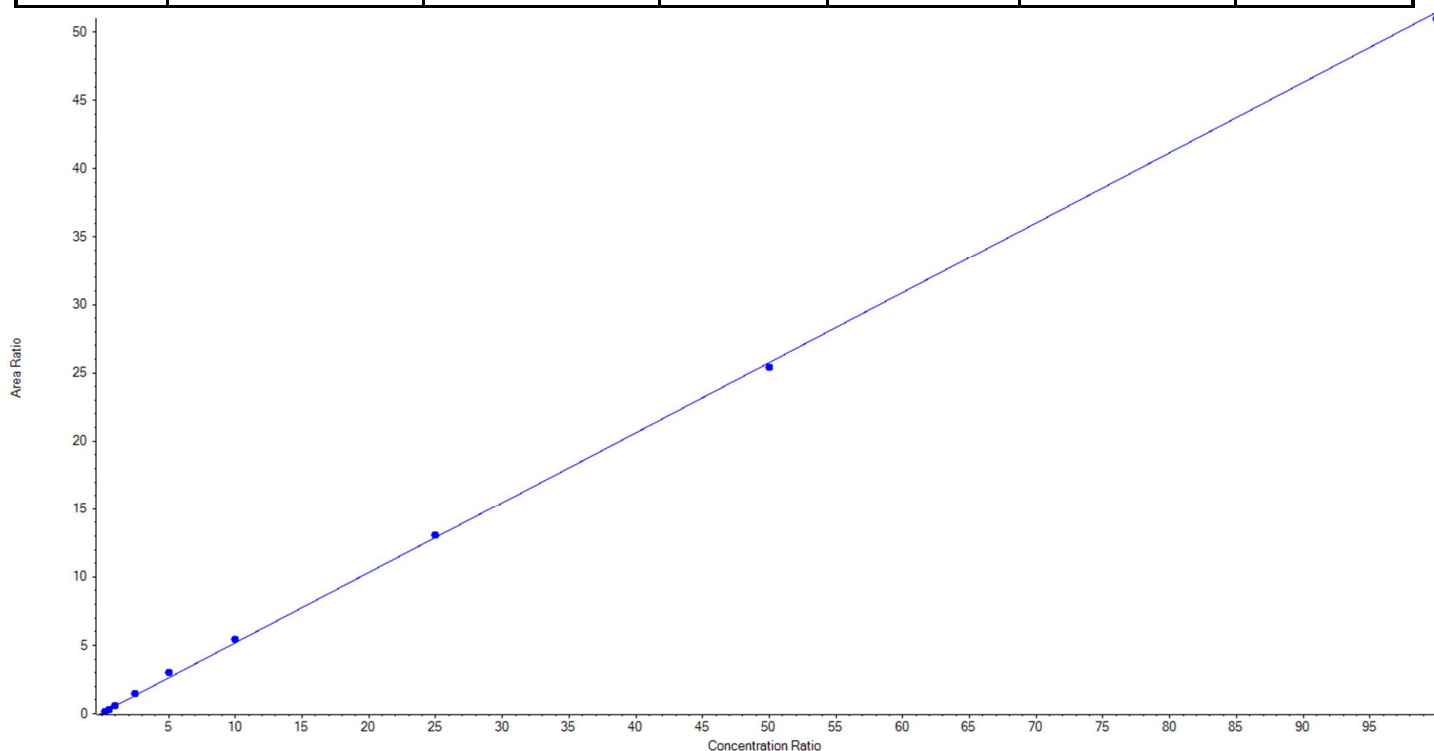
## Calibration Summary Report

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<b>Analyte Name</b>	PFTrDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.51402 x + 0.05199$  (r = 0.99946) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	21.244818	85.0
3	JX68	L2	True	50.00	43.984299	88.0
4	JX69	L3	True	100.00	100.101285	100.1
5	JX70	L4	True	250.00	268.672318	107.5
6	JX71	L5	True	500.00	581.148596	116.2
7	JX72	L6	True	1000.00	1043.469036	104.4
8	JX73	L7	True	2500.00	2531.653493	101.3
9	JX74	L8	True	5000.00	4929.189379	98.6
10	JX75	L9	True	10000.00	9905.536776	99.1





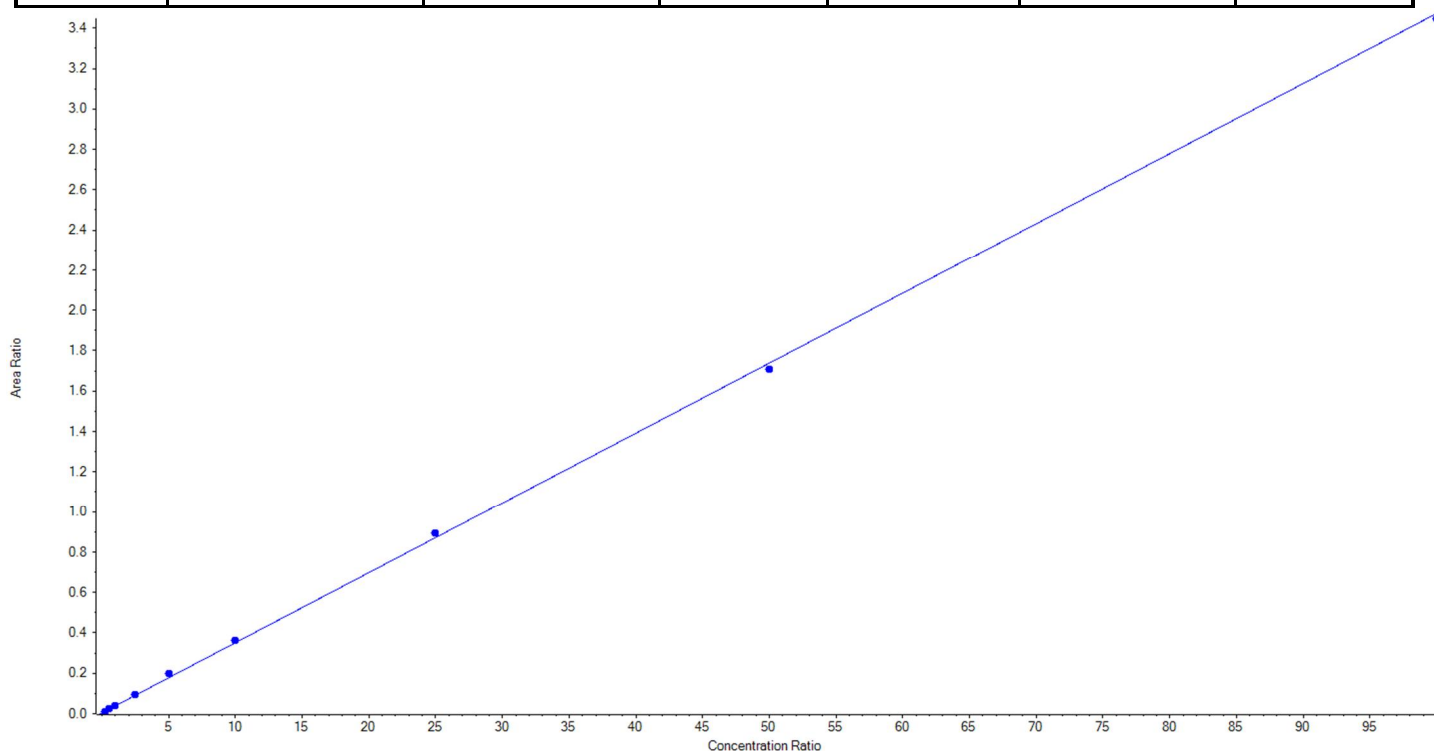
## Calibration Summary Report

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<b>Analyte Name</b>	PFTrDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03468 x + 0.00436$  (r = 0.99956) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.673504	70.7
3	JX68	L2	True	50.00	57.354613	114.7
4	JX69	L3	True	100.00	96.213165	96.2
5	JX70	L4	True	250.00	256.853828	102.7
6	JX71	L5	True	500.00	557.870213	111.6
7	JX72	L6	True	1000.00	1038.781670	103.9
8	JX73	L7	True	2500.00	2570.884235	102.8
9	JX74	L8	True	5000.00	4906.079605	98.1
10	JX75	L9	True	10000.00	9923.289167	99.2





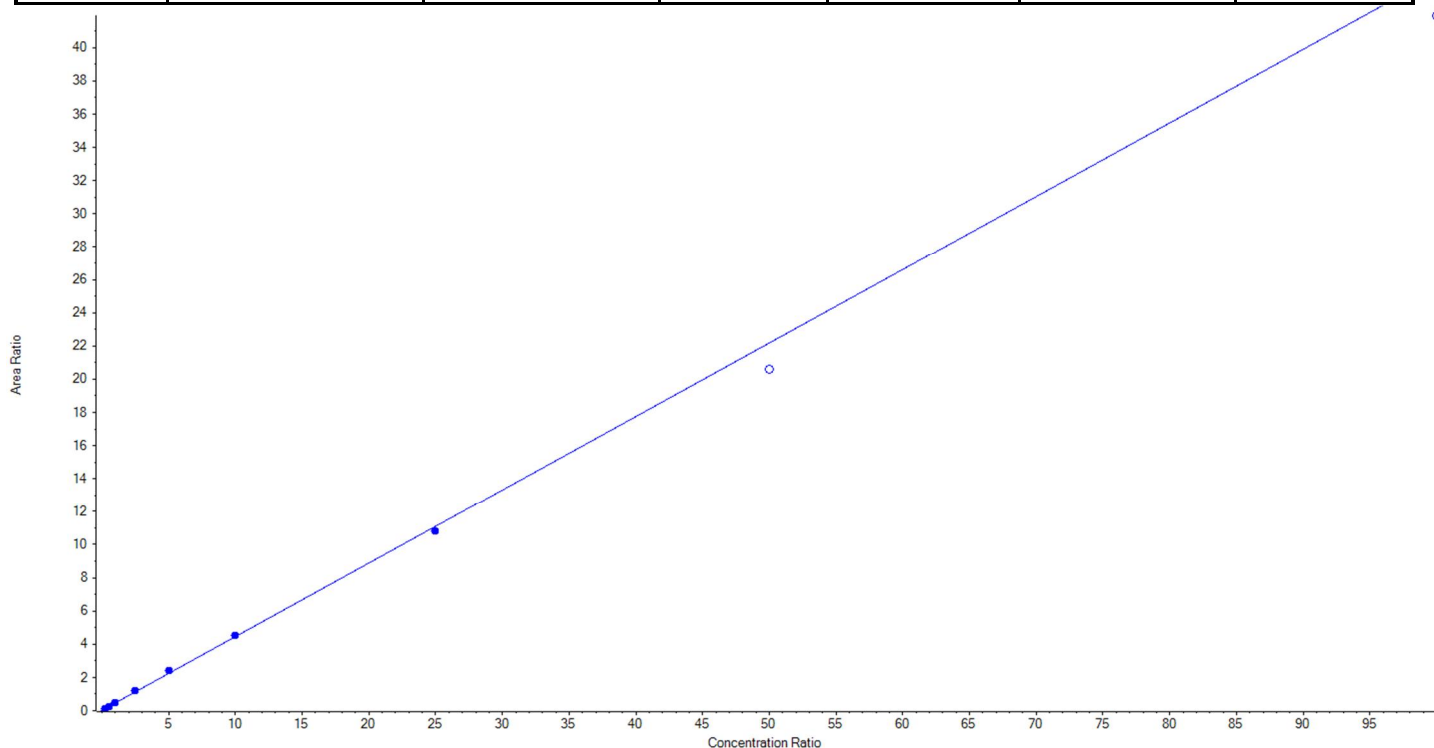
## Calibration Summary Report

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<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.44304 x + 0.02551$  ( $r = 0.99930$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	22.496691	90.0
3	JX68	L2	True	50.00	50.162035	100.3
4	JX69	L3	True	100.00	97.908267	97.9
5	JX70	L4	True	250.00	263.855723	105.5
6	JX71	L5	True	500.00	536.286828	107.3
7	JX72	L6	True	1000.00	1013.493738	101.4
8	JX73	L7	True	2500.00	2440.796718	97.6
9	JX74	L8	False	5000.00	4644.931633	92.9
10	JX75	L9	False	10000.00	9454.981719	94.6





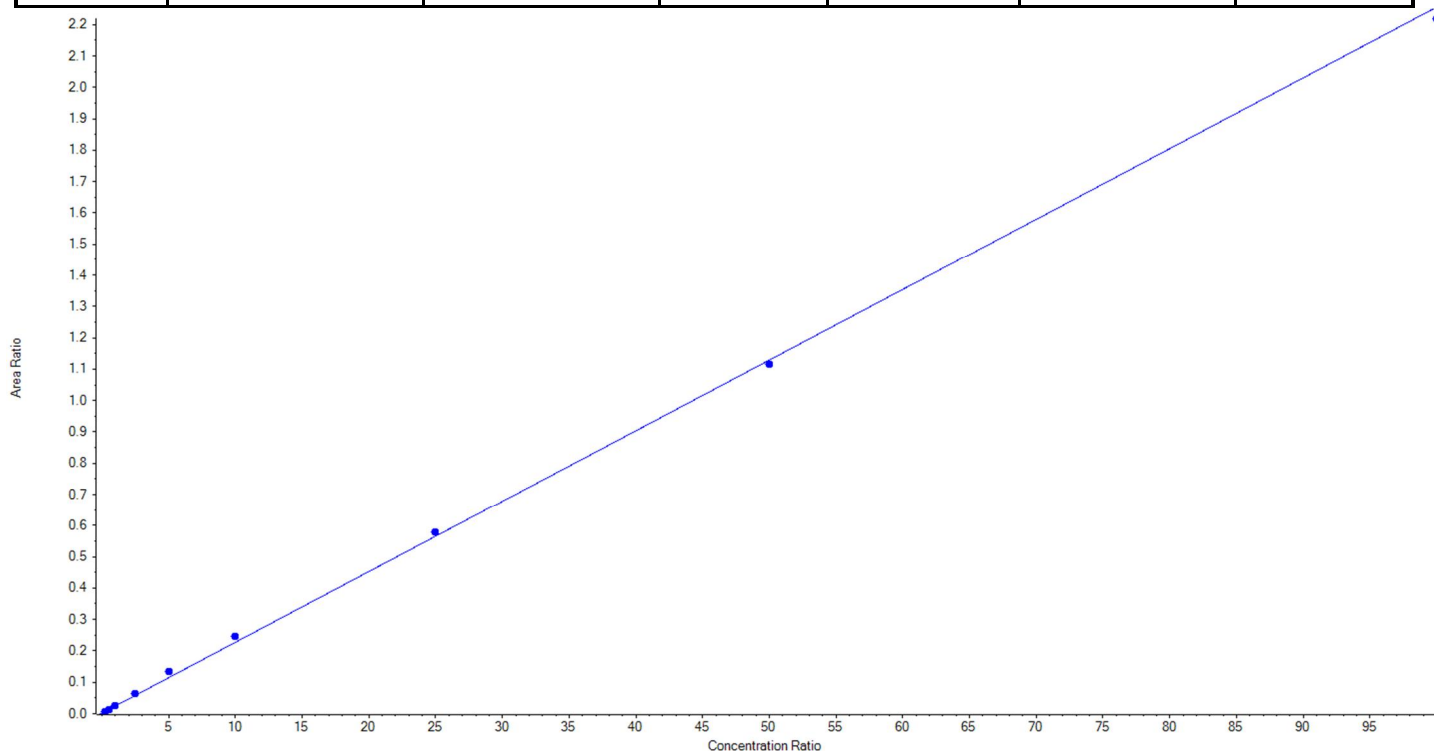
## Calibration Summary Report

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Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02254 x + 0.00202$  (r = 0.99919) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.926807	71.7
3	JX68	L2	True	50.00	48.266278	96.5
4	JX69	L3	True	100.00	99.954762	100.0
5	JX70	L4	True	250.00	267.694654	107.1
6	JX71	L5	True	500.00	588.228040	117.7
7	JX72	L6	True	1000.00	1078.884415	107.9
8	JX73	L7	True	2500.00	2552.861984	102.1
9	JX74	L8	True	5000.00	4936.723449	98.7
10	JX75	L9	True	10000.00	9834.459611	98.3





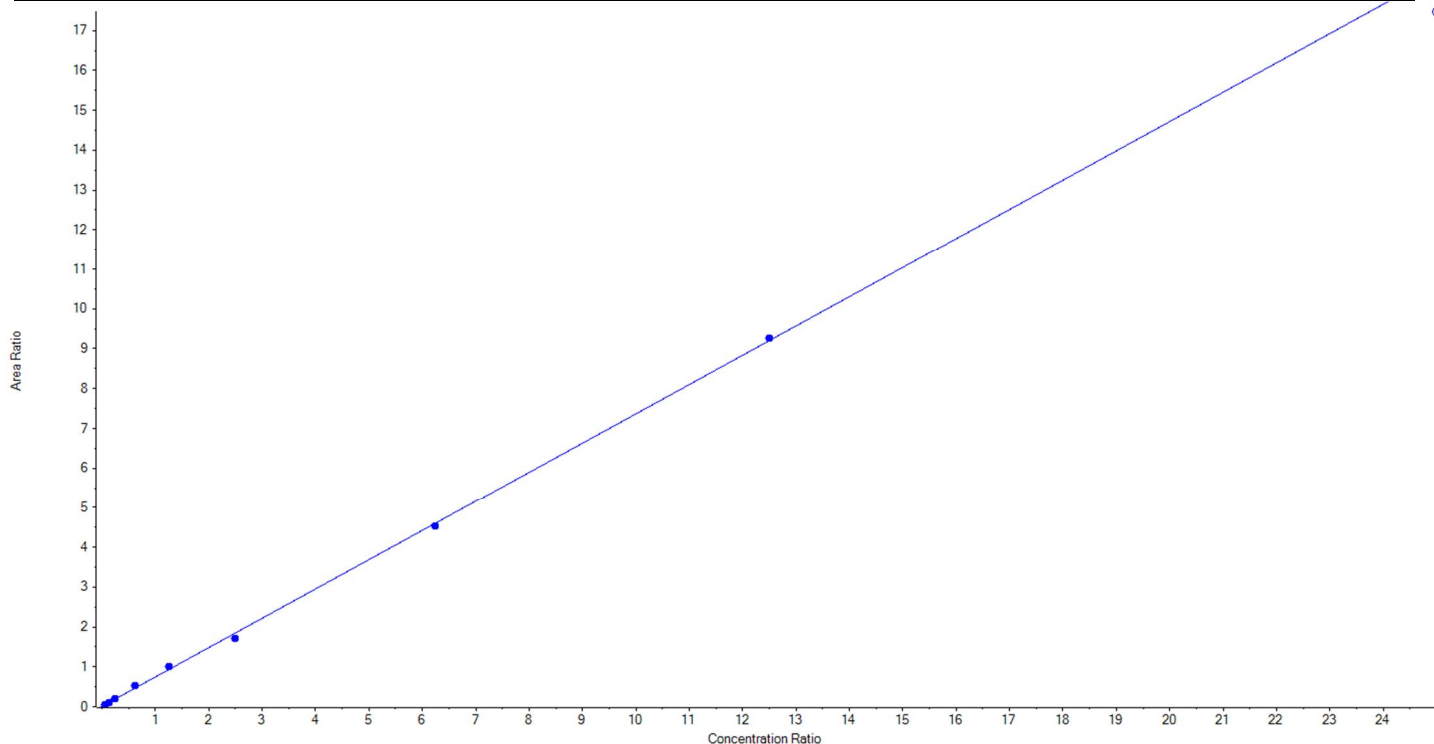
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.73537 x + 0.01025$  (r = 0.99898) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.491095	74.0
3	JX68	L2	True	50.00	51.518002	103.0
4	JX69	L3	True	100.00	108.232072	108.2
5	JX70	L4	True	250.00	284.801456	113.9
6	JX71	L5	True	500.00	545.527150	109.1
7	JX72	L6	True	1000.00	929.237418	92.9
8	JX73	L7	True	2500.00	2453.696787	98.2
9	JX74	L8	True	5000.00	5033.496021	100.7
10	JX75	L9	False	10000.00	9496.783651	95.0





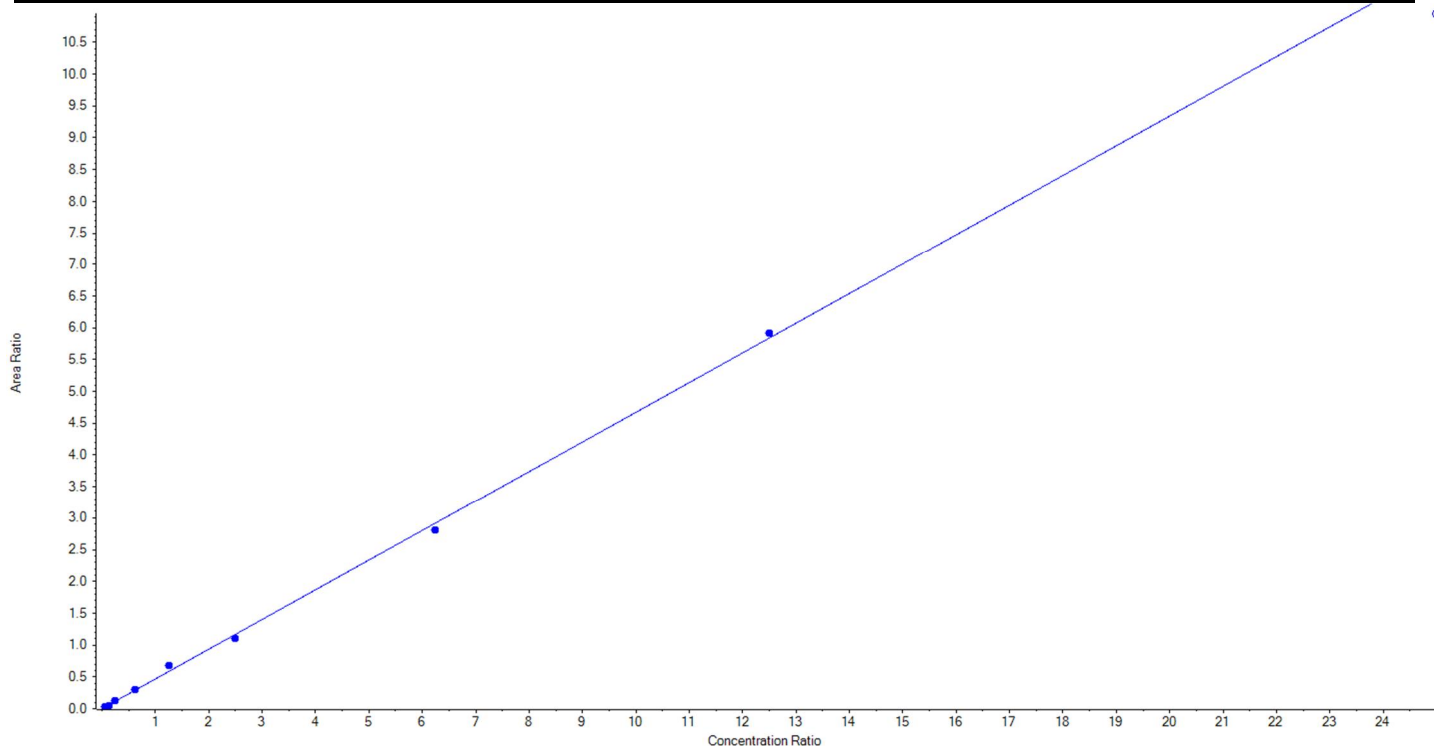
## Calibration Summary Report

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<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.46708x + 2.81156e-4$  ( $r = 0.99871$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	23.276176	93.1
3	JX68	L2	True	50.00	43.005903	86.0
4	JX69	L3	True	100.00	109.574657	109.6
5	JX70	L4	True	250.00	261.966030	104.8
6	JX71	L5	True	500.00	574.602501	114.9
7	JX72	L6	True	1000.00	942.155059	94.2
8	JX73	L7	True	2500.00	2398.901036	96.0
9	JX74	L8	True	5000.00	5071.518638	101.4
10	JX75	L9	False	10000.00	9375.584195	93.8





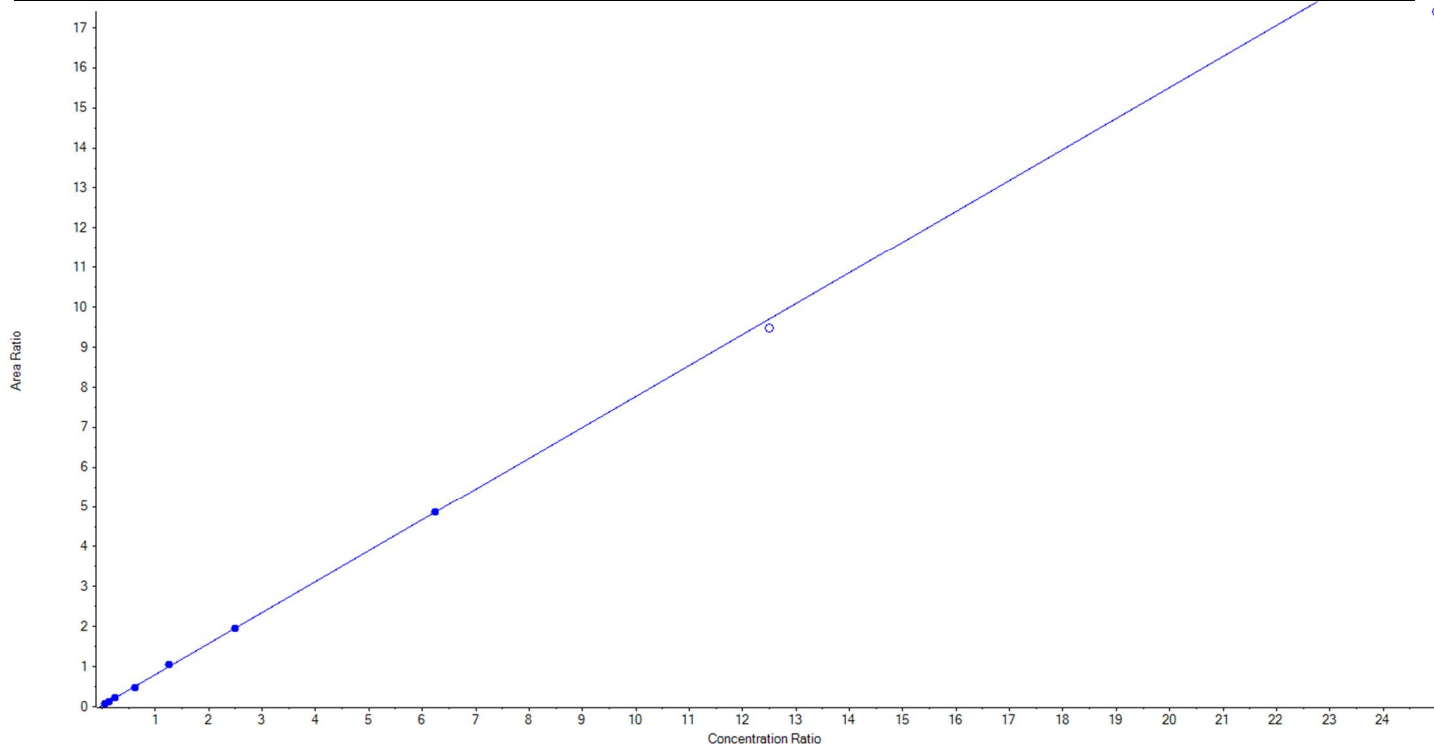
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.77411 x + 0.02839$  ( $r = 0.99956$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	26.974422	107.9
3	JX68	L2	True	50.00	44.415511	88.8
4	JX69	L3	True	100.00	104.862778	104.9
5	JX70	L4	True	250.00	235.290708	94.1
6	JX71	L5	True	500.00	526.418399	105.3
7	JX72	L6	True	1000.00	992.116995	99.2
8	JX73	L7	True	2500.00	2494.921186	99.8
9	JX74	L8	False	5000.00	4886.453739	97.7
10	JX75	L9	False	10000.00	8976.031693	89.8







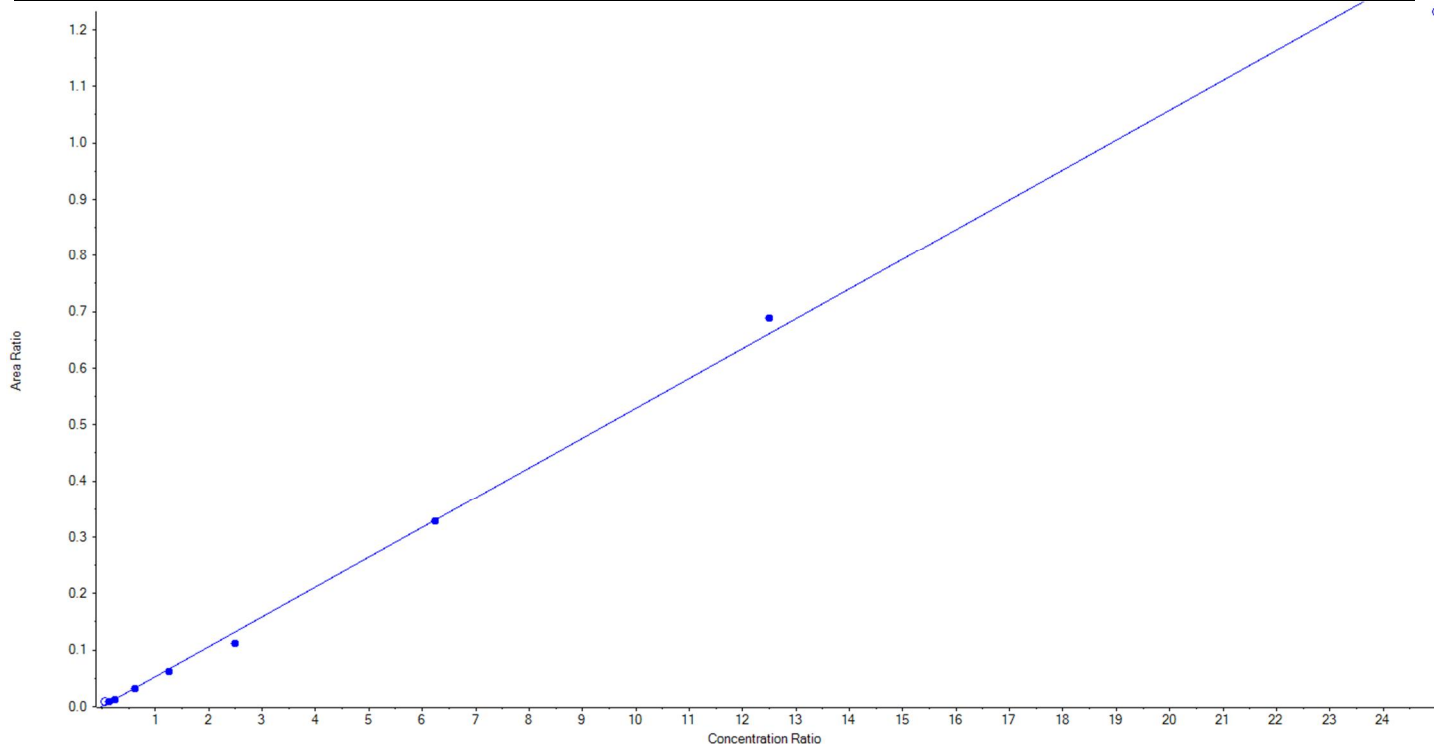
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:40 AM

<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0393_R
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05288 x + 1.72730e-4$  ( $r = 0.99760$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	61.454013	245.8
3	JX68	L2	True	50.00	62.258168	124.5
4	JX69	L3	True	100.00	96.211192	96.2
5	JX70	L4	True	250.00	246.407835	98.6
6	JX71	L5	True	500.00	465.379465	93.1
7	JX72	L6	True	1000.00	843.713651	84.4
8	JX73	L7	True	2500.00	2477.074244	99.1
9	JX74	L8	True	5000.00	5208.955444	104.2
10	JX75	L9	False	10000.00	9316.361301	93.2





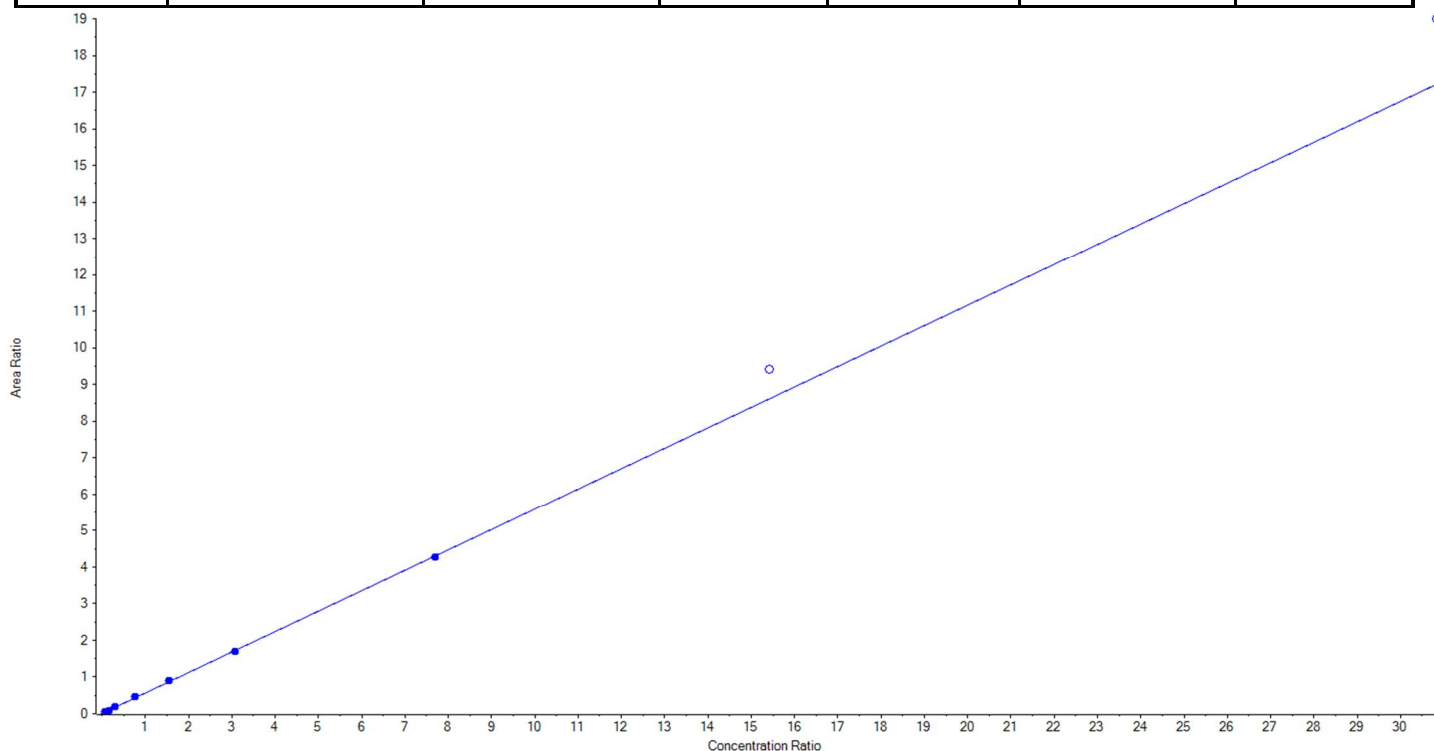
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:21 AM

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.55821 x + 0.00515$  (r = 0.99957) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.15	18.775246	84.8
4	JX68	L2	True	44.30	45.117487	101.9
5	JX69	L3	True	88.60	93.667819	105.7
6	JX70	L4	True	221.50	237.801266	107.4
7	JX71	L5	True	443.00	456.195177	103.0
8	JX72	L6	True	885.00	866.993779	98.0
9	JX73	L7	True	2212.50	2198.499226	99.4
10	JX74	L8	False	4425.00	4847.071438	109.5
11	JX75	L9	False	8850.00	9767.907580	110.4





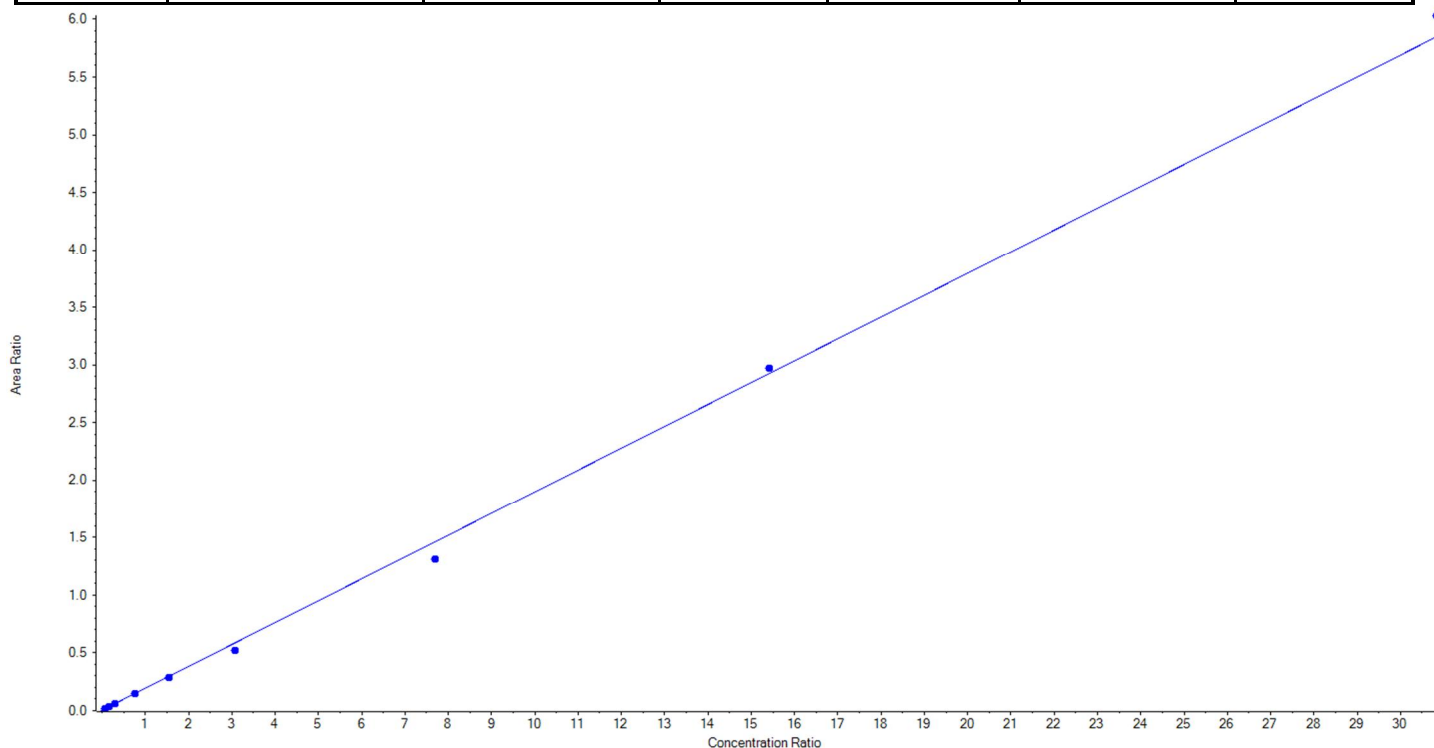
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:21 AM

<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.18953x + 0.00405$  ( $r = 0.99852$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.15	24.757178	111.8
4	JX68	L2	True	44.30	50.080799	113.1
5	JX69	L3	True	88.60	86.580741	97.7
6	JX70	L4	True	221.50	216.692907	97.8
7	JX71	L5	True	443.00	431.404582	97.4
8	JX72	L6	True	885.00	777.945074	87.9
9	JX73	L7	True	2212.50	1982.380924	89.6
10	JX74	L8	True	4425.00	4497.679922	101.6
11	JX75	L9	True	8850.00	9124.527872	103.1





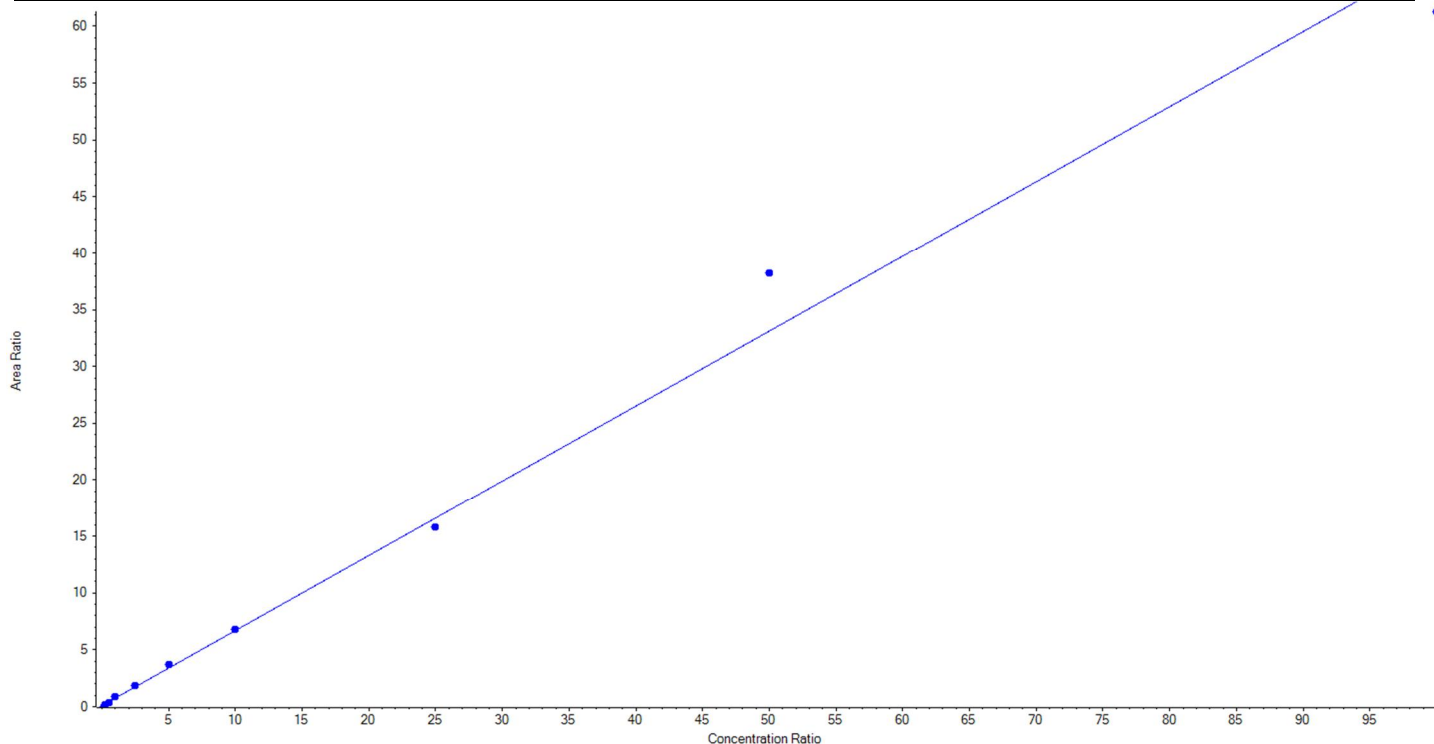
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:21 AM

<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.66048x + 0.09379$  ( $r = 0.99484$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	18.109551	72.4
4	JX68	L2	True	50.00	45.803066	91.6
5	JX69	L3	True	100.00	113.620585	113.6
6	JX70	L4	True	250.00	272.469682	109.0
7	JX71	L5	True	500.00	540.796777	108.2
8	JX72	L6	True	1000.00	1020.767488	102.1
9	JX73	L7	True	2500.00	2373.760968	95.0
10	JX74	L8	True	5000.00	5776.394702	115.5
11	JX75	L9	True	10000.00	9263.277182	92.6





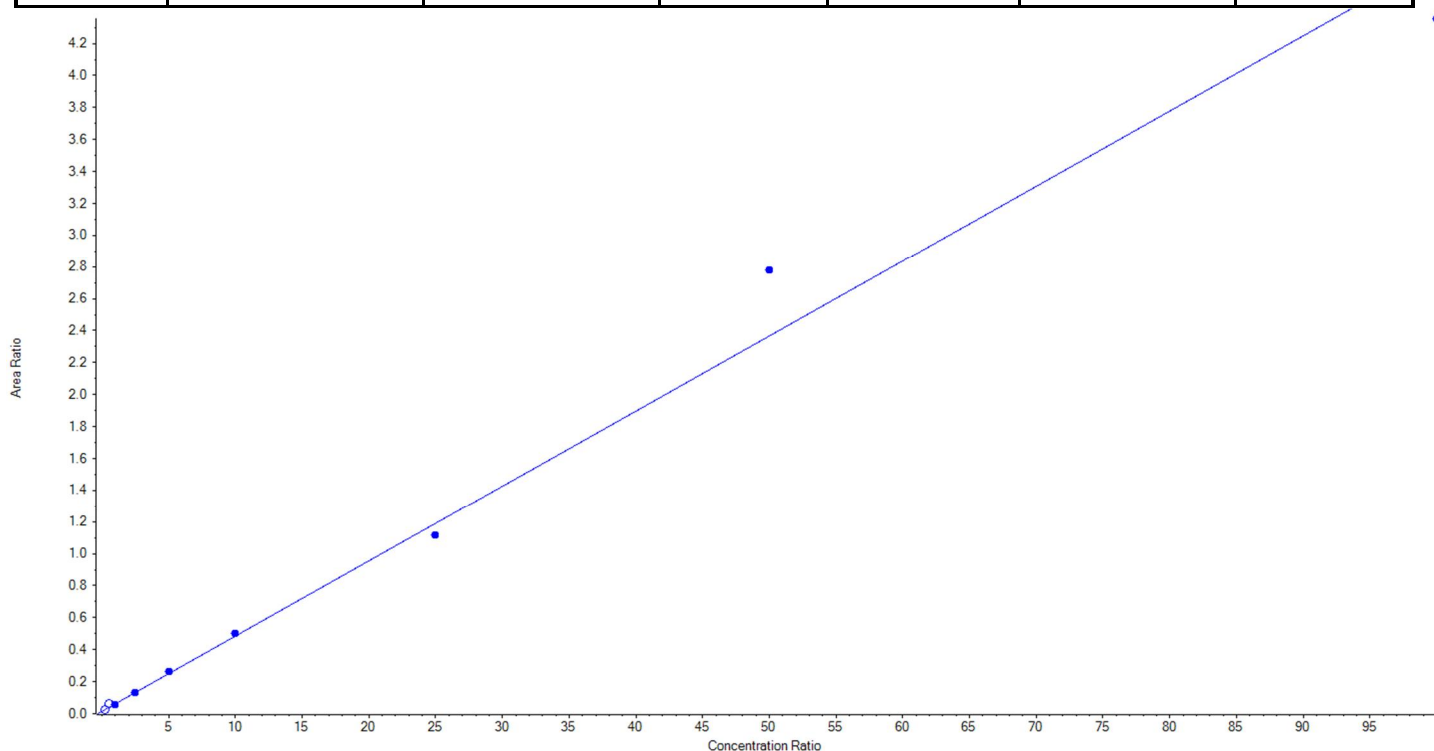
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04703 x + 0.01483$  ( $r = 0.99318$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	False	25.00	27.541377	110.2
4	JX68	L2	False	50.00	95.375354	190.8
5	JX69	L3	True	100.00	84.704087	84.7
6	JX70	L4	True	250.00	254.534174	101.8
7	JX71	L5	True	500.00	534.417017	106.9
8	JX72	L6	True	1000.00	1030.738956	103.1
9	JX73	L7	True	2500.00	2343.889800	93.8
10	JX74	L8	True	5000.00	5875.219259	117.5
11	JX75	L9	True	10000.00	9226.496706	92.3





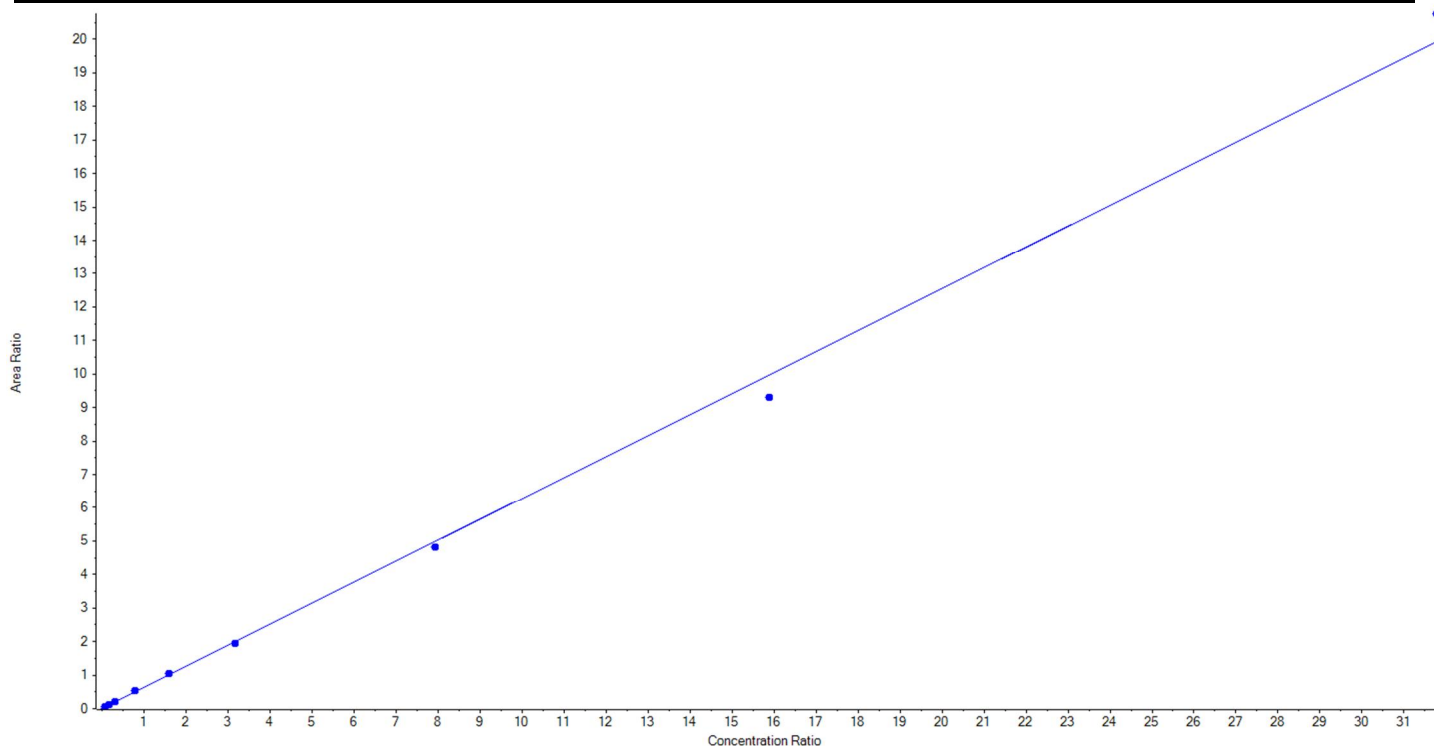
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62678x + 0.01086$  ( $r = 0.99874$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.80	22.209045	97.4
4	JX68	L2	True	45.60	44.296964	97.1
5	JX69	L3	True	91.20	94.256356	103.4
6	JX70	L4	True	228.00	247.477968	108.5
7	JX71	L5	True	456.00	468.077676	102.7
8	JX72	L6	True	912.00	884.313381	97.0
9	JX73	L7	True	2280.00	2199.388874	96.5
10	JX74	L8	True	4560.00	4254.412235	93.3
11	JX75	L9	True	9120.00	9501.167502	104.2





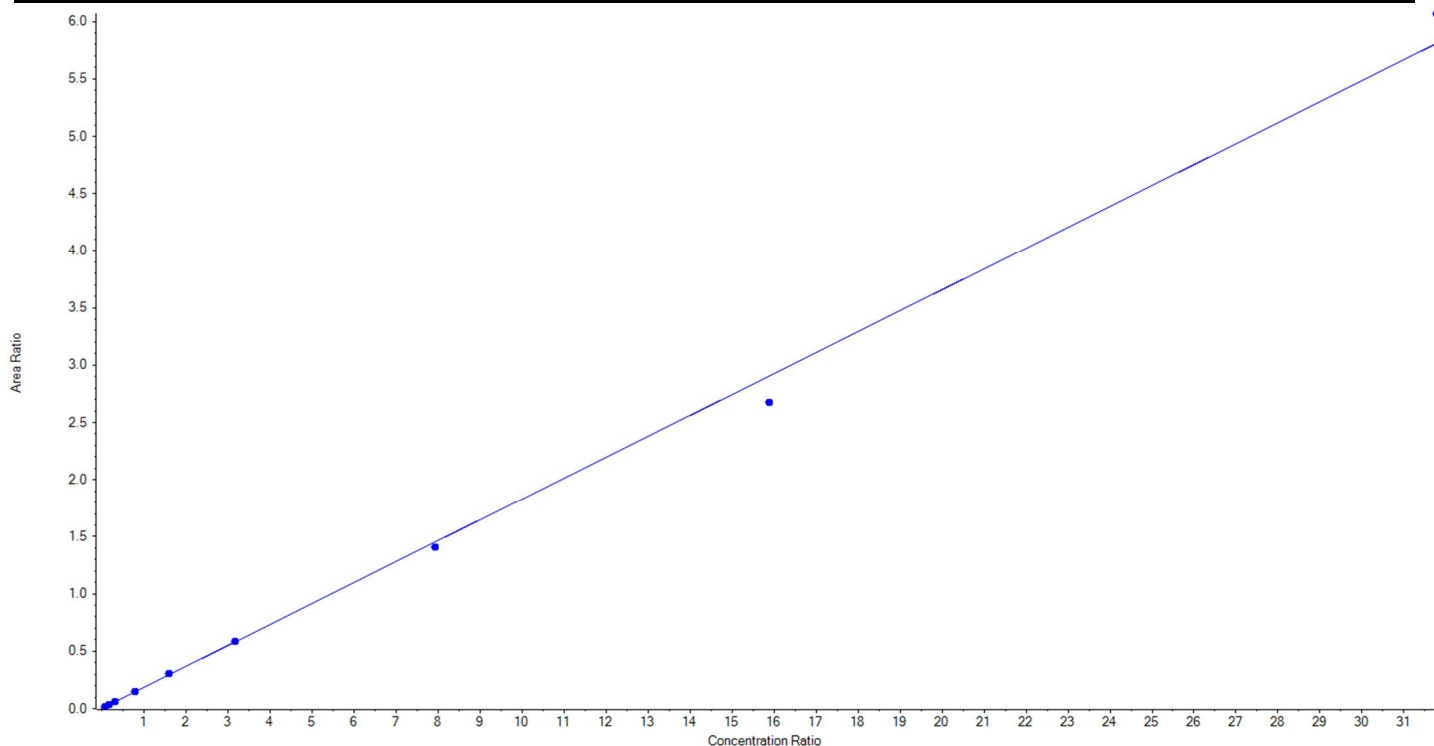
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.18272 x + 0.00231$  (r = 0.99843) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.80	19.309631	84.7
4	JX68	L2	True	45.60	48.133880	105.6
5	JX69	L3	True	91.20	99.239467	108.8
6	JX70	L4	True	228.00	234.269557	102.8
7	JX71	L5	True	456.00	477.113445	104.6
8	JX72	L6	True	912.00	916.247668	100.5
9	JX73	L7	True	2280.00	2205.955913	96.8
10	JX74	L8	True	4560.00	4190.742747	91.9
11	JX75	L9	True	9120.00	9524.587691	104.4





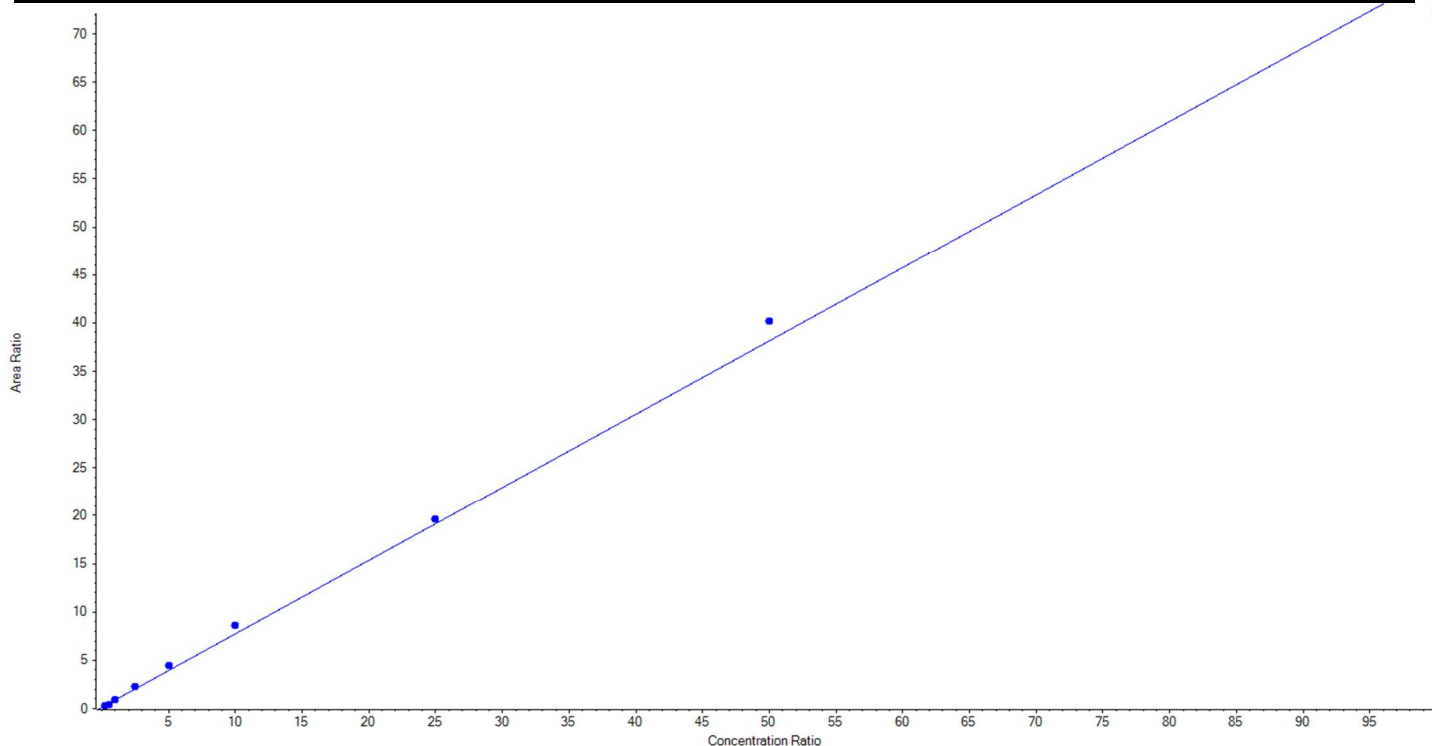
## Calibration Summary Report

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<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.75995x + 0.14949$  ( $r = 0.99795$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	17.669279	70.7
4	JX68	L2	True	50.00	41.032440	82.1
5	JX69	L3	True	100.00	107.482412	107.5
6	JX70	L4	True	250.00	281.031826	112.4
7	JX71	L5	True	500.00	564.661564	112.9
8	JX72	L6	True	1000.00	1121.031598	112.1
9	JX73	L7	True	2500.00	2556.682499	102.3
10	JX74	L8	True	5000.00	5270.600346	105.4
11	JX75	L9	True	10000.00	9464.808035	94.7







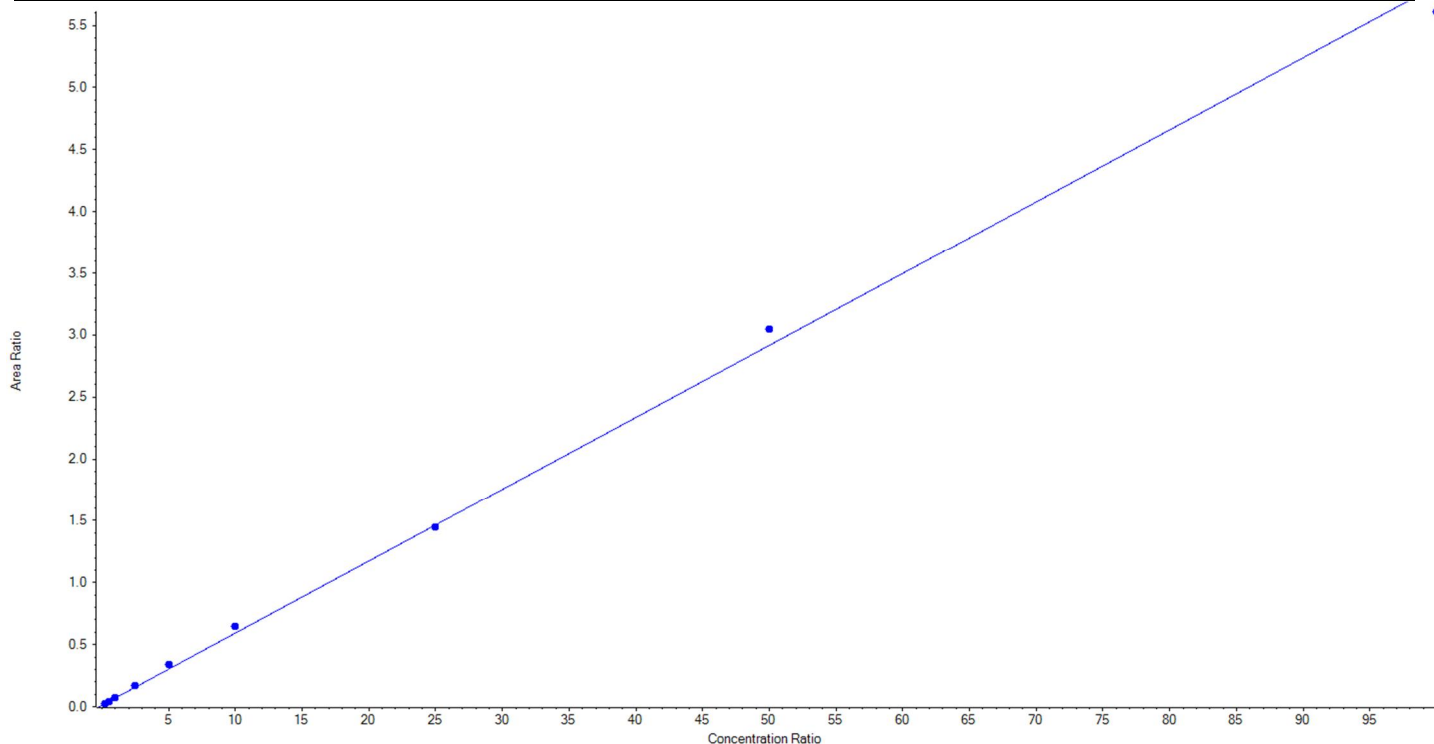
## Calibration Summary Report

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<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05809x + 0.01186$  ( $r = 0.99877$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	18.554357	74.2
4	JX68	L2	True	50.00	47.464618	94.9
5	JX69	L3	True	100.00	101.033304	101.0
6	JX70	L4	True	250.00	266.994994	106.8
7	JX71	L5	True	500.00	568.944404	113.8
8	JX72	L6	True	1000.00	1097.500827	109.8
9	JX73	L7	True	2500.00	2467.718004	98.7
10	JX74	L8	True	5000.00	5220.645372	104.4
11	JX75	L9	True	10000.00	9636.144119	96.4





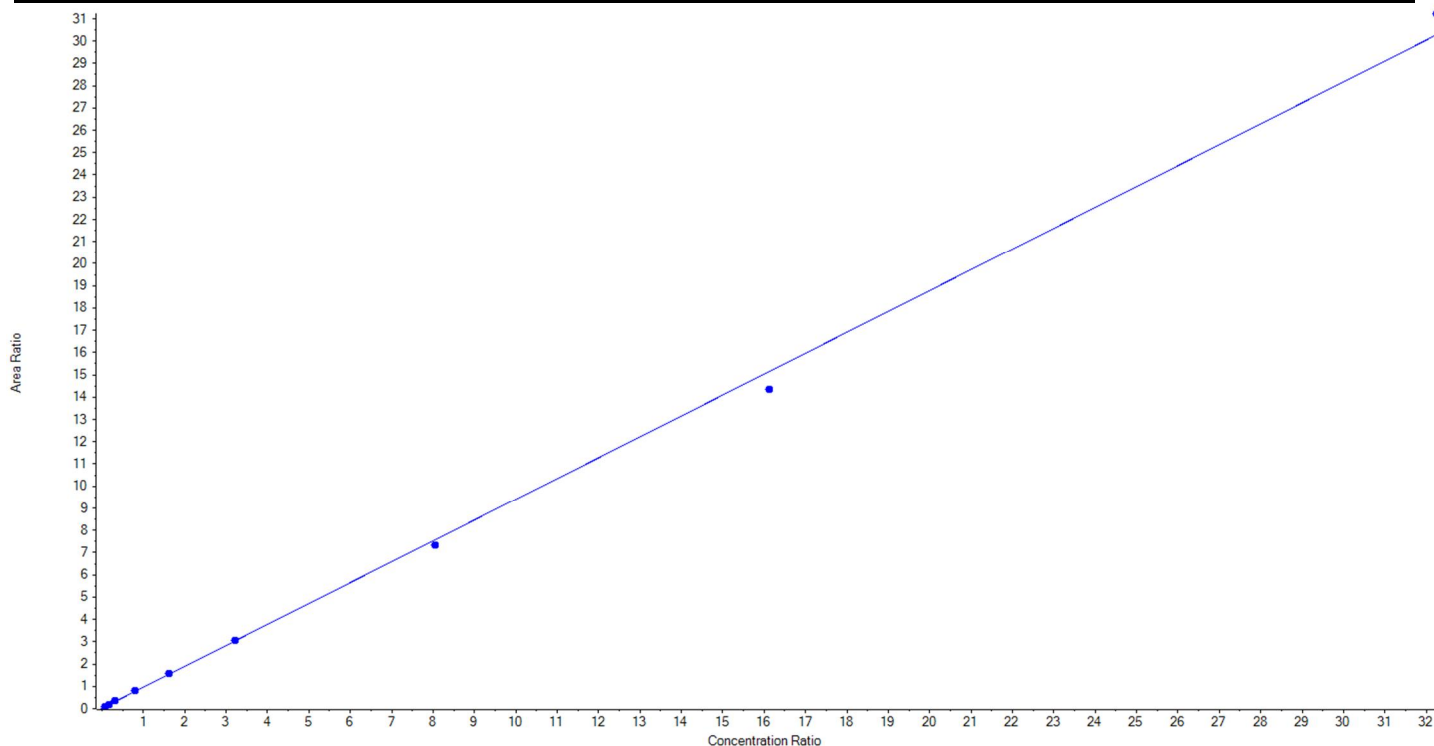
## Calibration Summary Report

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<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.93826 x + 0.02025$  (r = 0.99922) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	23.15	19.936401	86.1
4	JX68	L2	True	46.30	48.404389	104.6
5	JX69	L3	True	92.60	98.869110	106.8
6	JX70	L4	True	231.50	240.859519	104.0
7	JX71	L5	True	463.00	481.144427	103.9
8	JX72	L6	True	925.60	927.624030	100.2
9	JX73	L7	True	2314.00	2232.690618	96.5
10	JX74	L8	True	4628.00	4386.973132	94.8
11	JX75	L9	True	9256.00	9543.648375	103.1





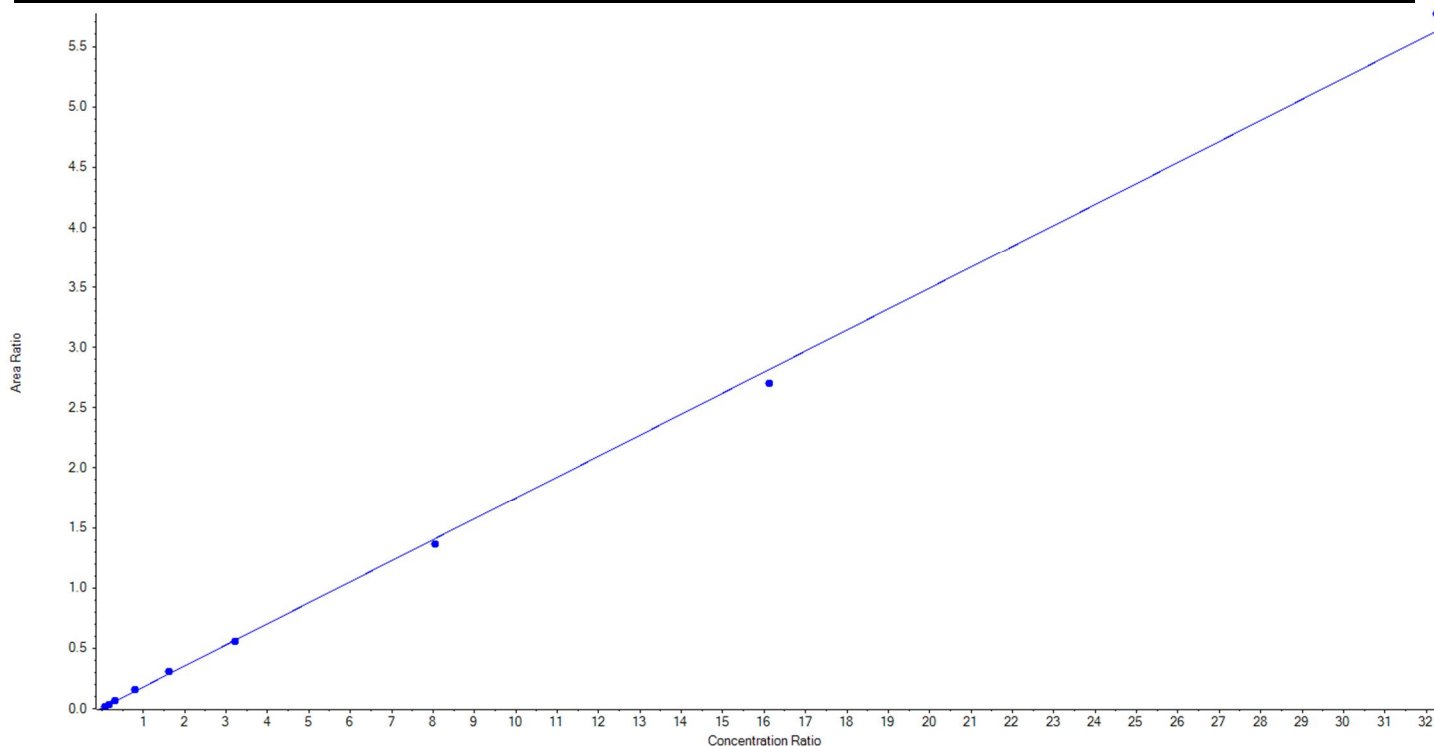
## Calibration Summary Report

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<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17436 x + 0.00551$  (r = 0.99927) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	23.15	17.208008	74.3
4	JX68	L2	True	46.30	48.957488	105.7
5	JX69	L3	True	92.60	101.163796	109.3
6	JX70	L4	True	231.50	257.585608	111.3
7	JX71	L5	True	463.00	494.392130	106.8
8	JX72	L6	True	925.60	905.697913	97.9
9	JX73	L7	True	2314.00	2231.752731	96.5
10	JX74	L8	True	4628.00	4434.564919	95.8
11	JX75	L9	True	9256.00	9488.827407	102.5





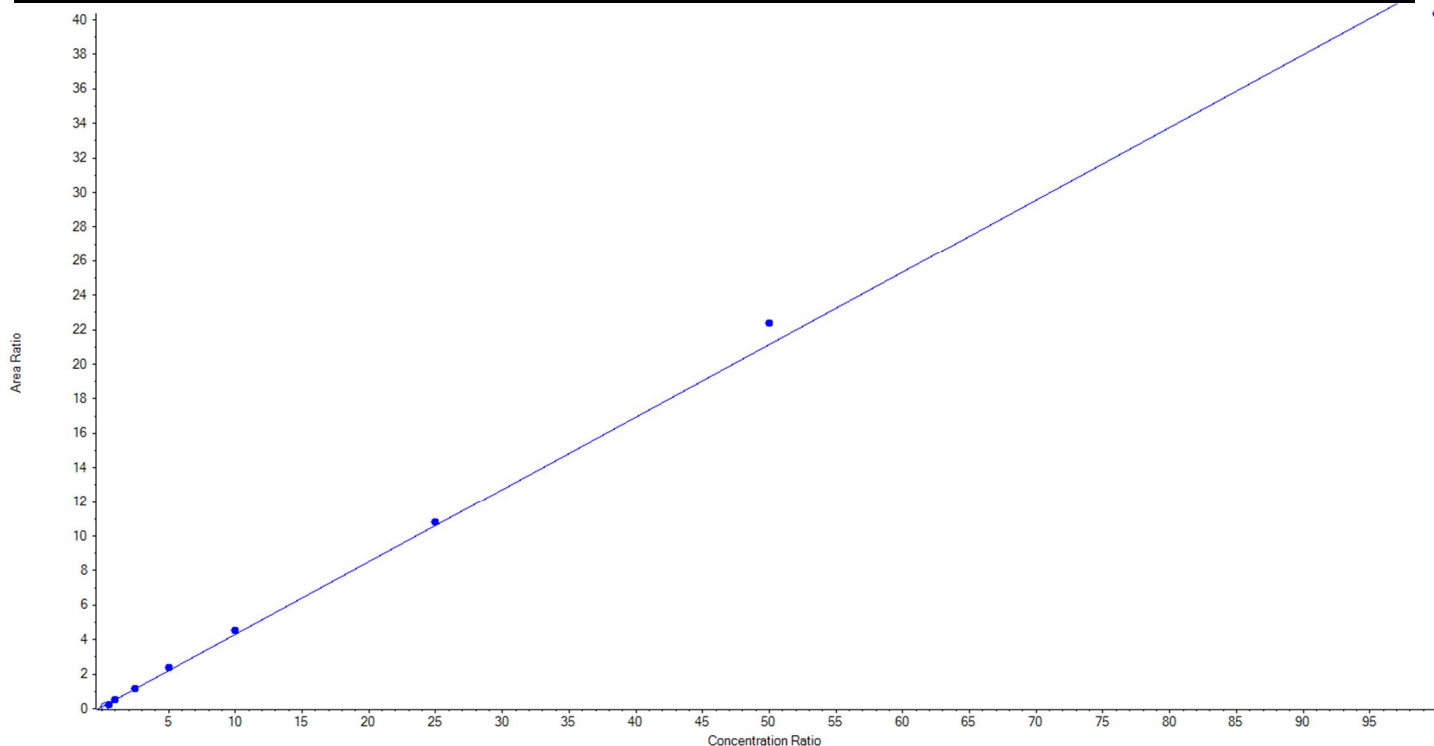
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 18/07/2018 9:19:21 AM

<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.42082 x + 0.09839$  (r = 0.99866) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	False	25.00	6.788515	27.2
4	JX68	L2	True	50.00	37.788680	75.6
5	JX69	L3	True	100.00	103.269113	103.3
6	JX70	L4	True	250.00	257.574769	103.0
7	JX71	L5	True	500.00	548.691836	109.7
8	JX72	L6	True	1000.00	1050.936442	105.1
9	JX73	L7	True	2500.00	2544.822346	101.8
10	JX74	L8	True	5000.00	5292.954606	105.9
11	JX75	L9	True	10000.00	9563.962208	95.6





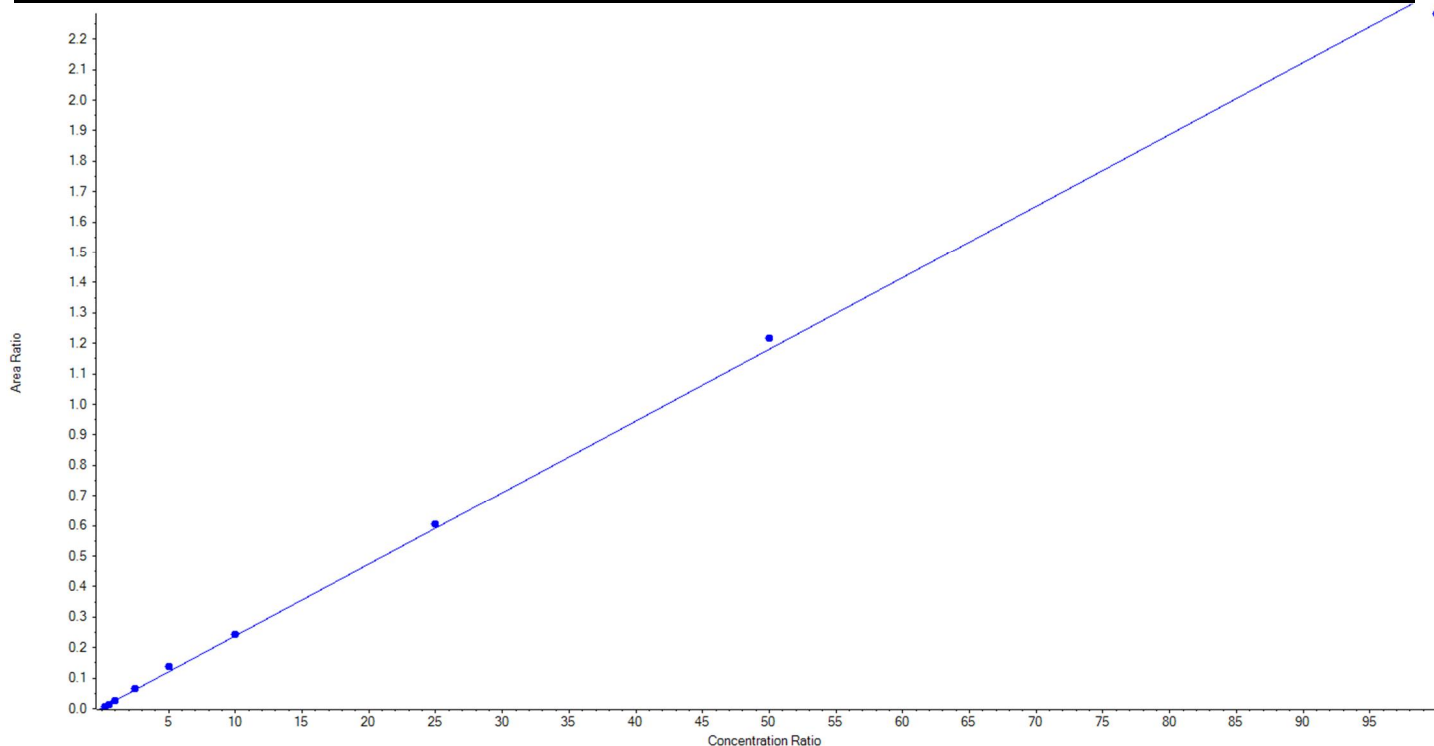
## Calibration Summary Report

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Printed: 18/07/2018 9:19:21 AM

<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	5500-06292018_371.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0393_B
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/29/2018 8:19:25 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02356 x + 0.00317$  (r = 0.99916) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	20.087157	80.4
4	JX68	L2	True	50.00	44.851549	89.7
5	JX69	L3	True	100.00	103.346649	103.4
6	JX70	L4	True	250.00	267.788332	107.1
7	JX71	L5	True	500.00	574.304713	114.9
8	JX72	L6	True	1000.00	1023.690575	102.4
9	JX73	L7	True	2500.00	2561.175383	102.5
10	JX74	L8	True	5000.00	5151.172051	103.0
11	JX75	L9	True	10000.00	9678.583591	96.8





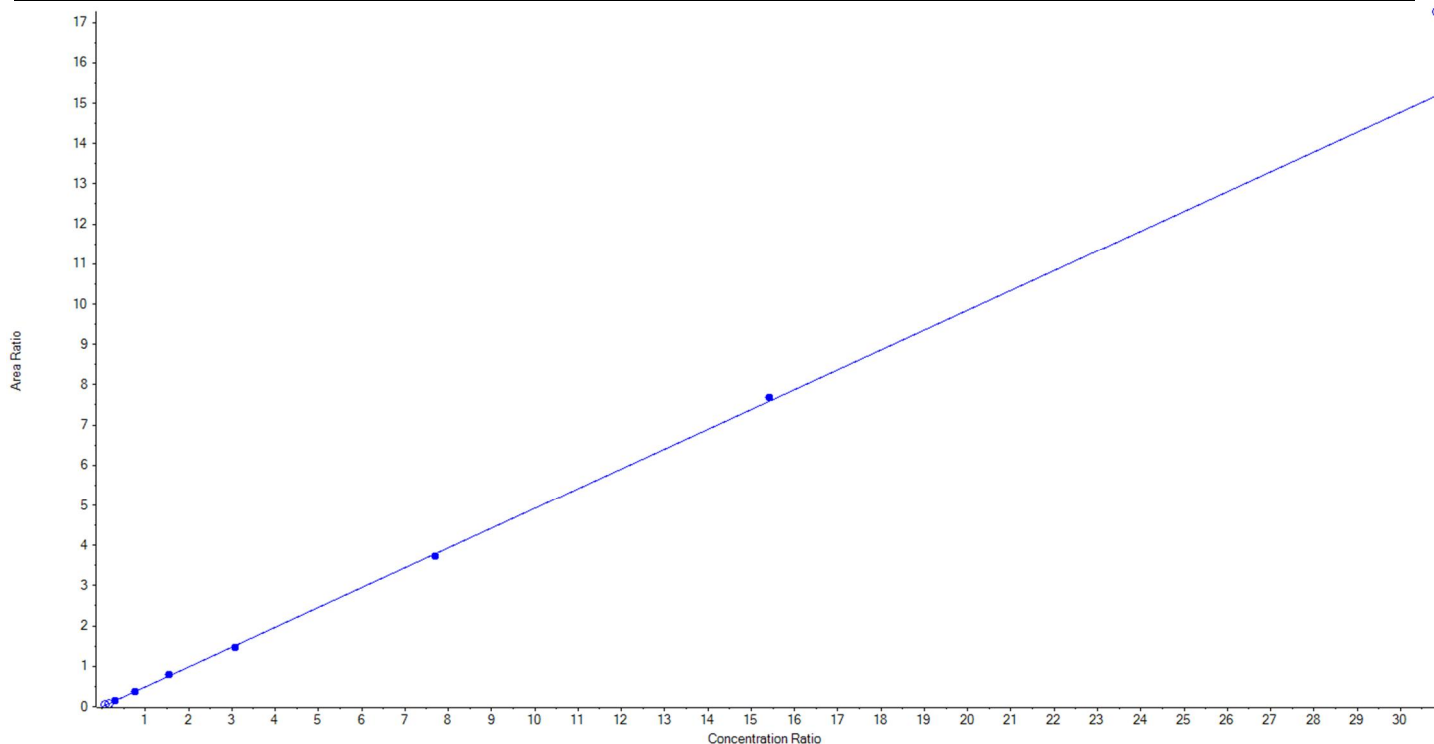
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.49263x + -0.00443$  ( $r = 0.99971$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	22.15	24.558397	110.9
3	JX68	L2	False	44.30	51.526051	116.3
4	JX69	L3	True	88.60	88.154630	99.5
5	JX70	L4	True	221.50	219.625243	99.2
6	JX71	L5	True	443.00	467.491955	105.5
7	JX72	L6	True	885.00	855.053094	96.6
8	JX73	L7	True	2212.50	2169.512533	98.1
9	JX74	L8	True	4425.00	4475.762545	101.2
10	JX75	L9	False	8850.00	10060.180740	113.7





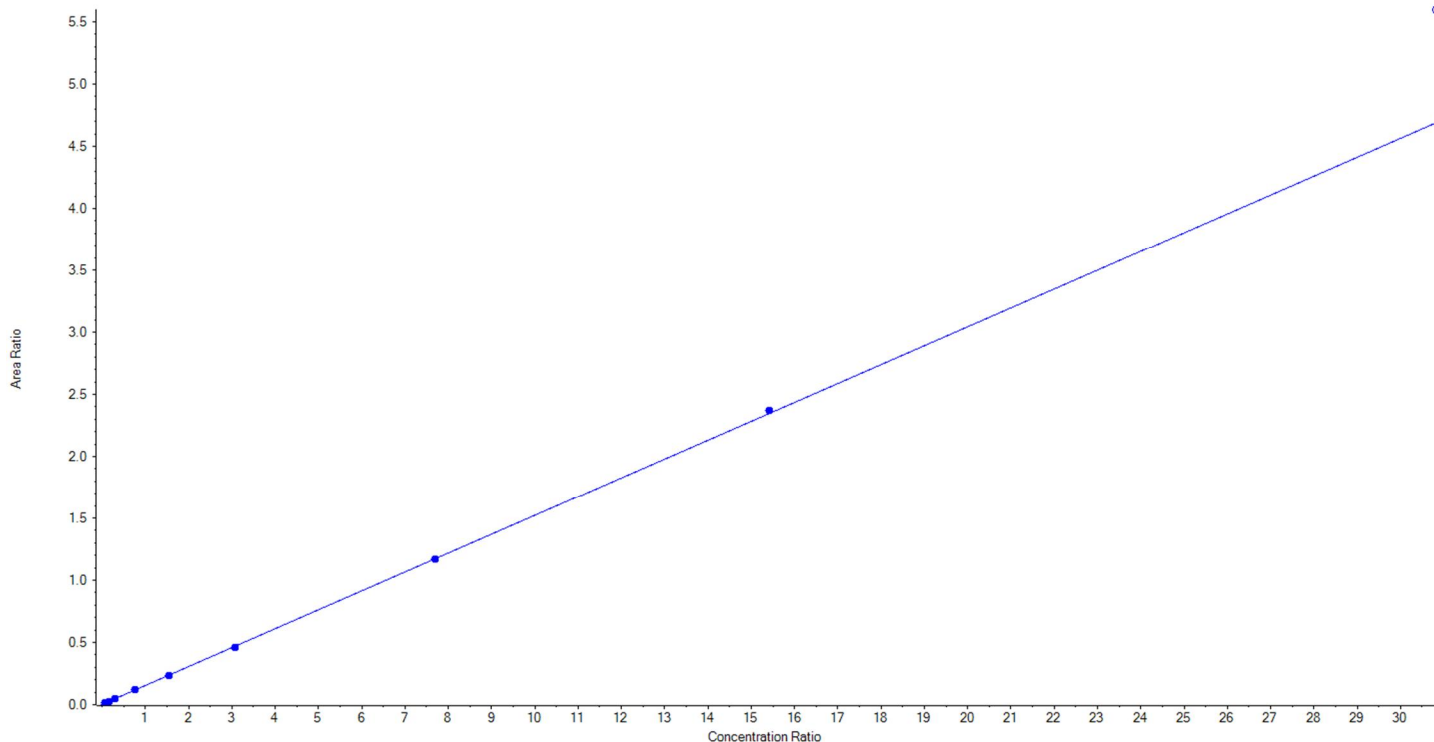
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.15205x + 0.00189$  (r = 0.99993) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	22.078177	99.7
3	JX68	L2	True	44.30	45.097944	101.8
4	JX69	L3	True	88.60	89.735364	101.3
5	JX70	L4	True	221.50	224.425951	101.3
6	JX71	L5	True	443.00	432.953986	97.7
7	JX72	L6	True	885.00	867.684649	98.0
8	JX73	L7	True	2212.50	2196.336569	99.3
9	JX74	L8	True	4425.00	4463.737360	100.9
10	JX75	L9	False	8850.00	10559.371971	119.3





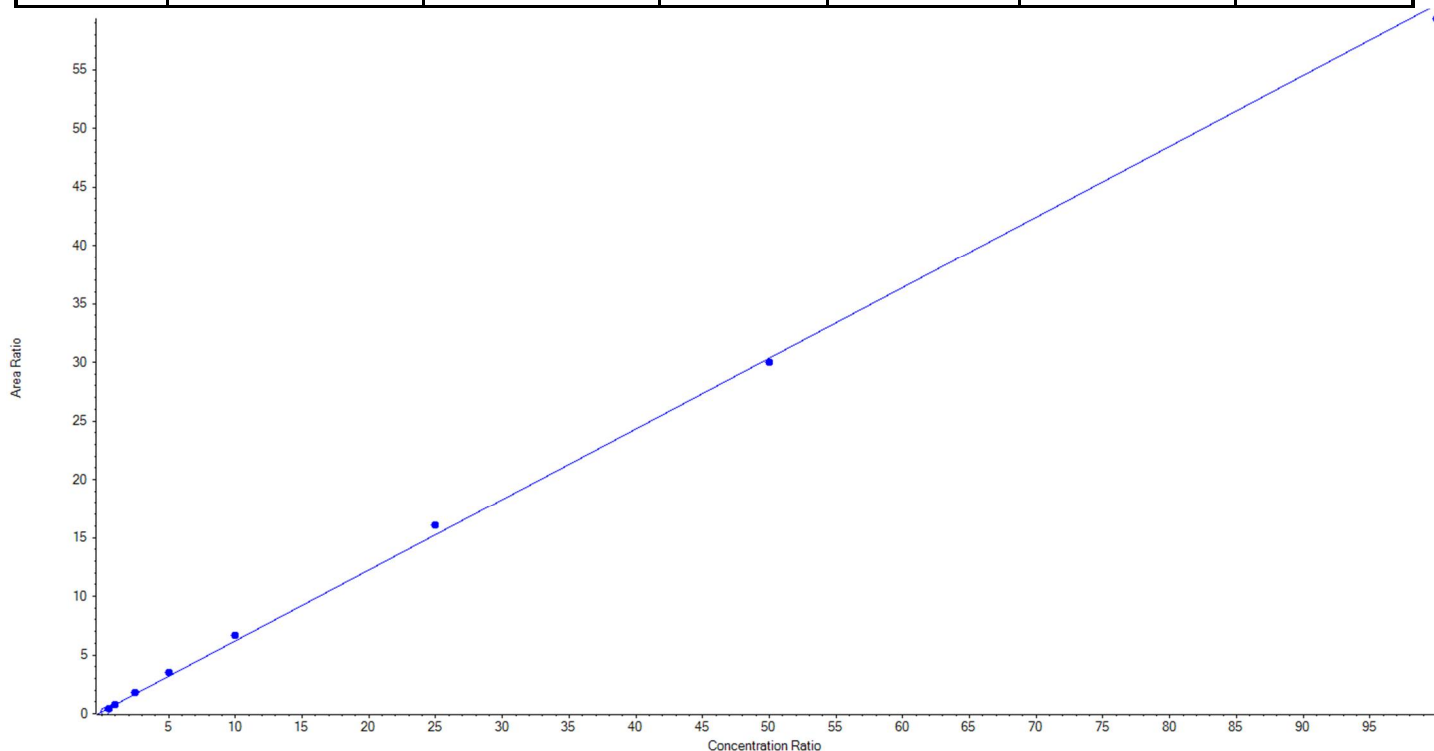
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.60376 x + 0.16754$  ( $r = 0.99921$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	6.221040	24.9
3	JX68	L2	True	50.00	36.555521	73.1
4	JX69	L3	True	100.00	97.884313	97.9
5	JX70	L4	True	250.00	274.136604	109.7
6	JX71	L5	True	500.00	550.107849	110.0
7	JX72	L6	True	1000.00	1073.400403	107.3
8	JX73	L7	True	2500.00	2631.250307	105.3
9	JX74	L8	True	5000.00	4937.173057	98.7
10	JX75	L9	True	10000.00	9799.491945	98.0







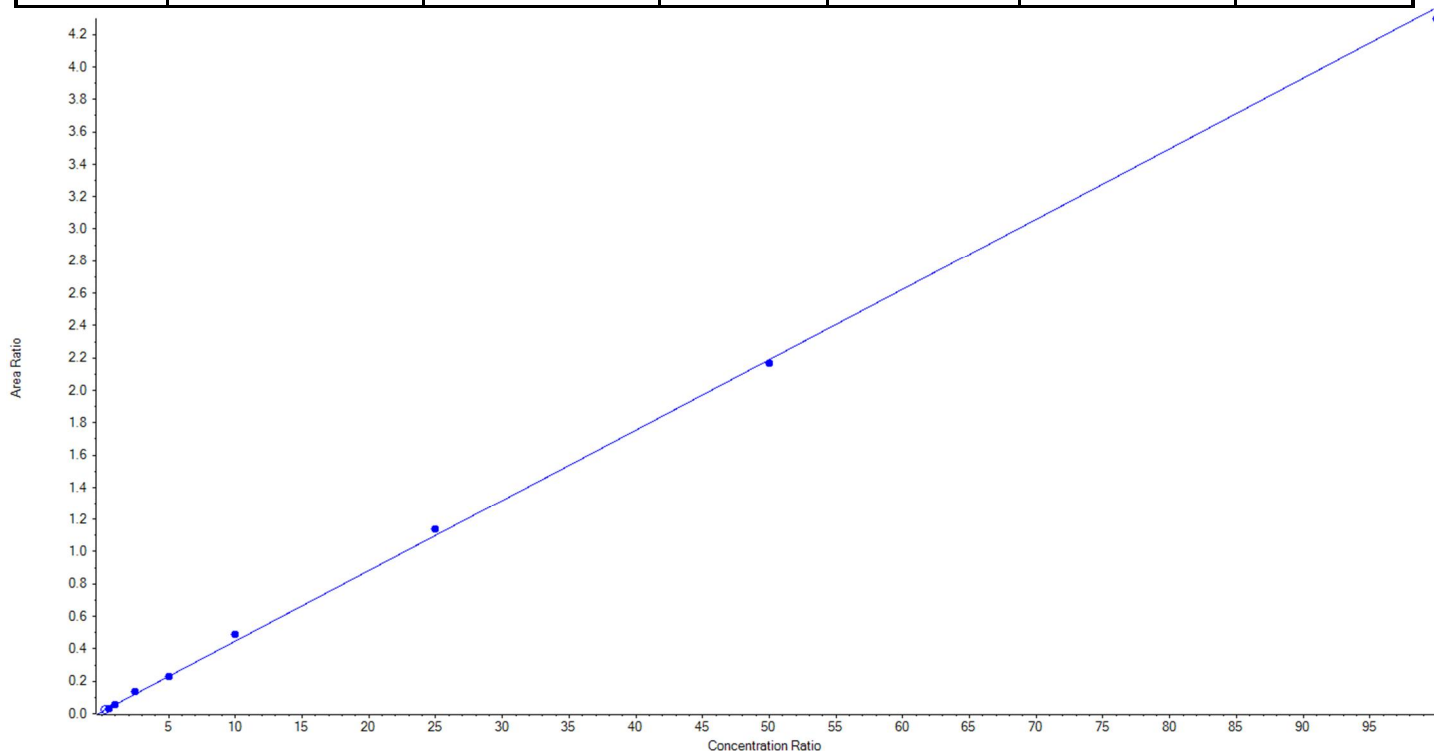
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04354 x + 0.01225$  (r = 0.99939) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	27.610473	110.4
3	JX68	L2	True	50.00	40.800110	81.6
4	JX69	L3	True	100.00	93.689645	93.7
5	JX70	L4	True	250.00	283.876316	113.6
6	JX71	L5	True	500.00	503.764398	100.8
7	JX72	L6	True	1000.00	1093.458444	109.4
8	JX73	L7	True	2500.00	2589.162890	103.6
9	JX74	L8	True	5000.00	4954.188694	99.1
10	JX75	L9	True	10000.00	9841.059504	98.4





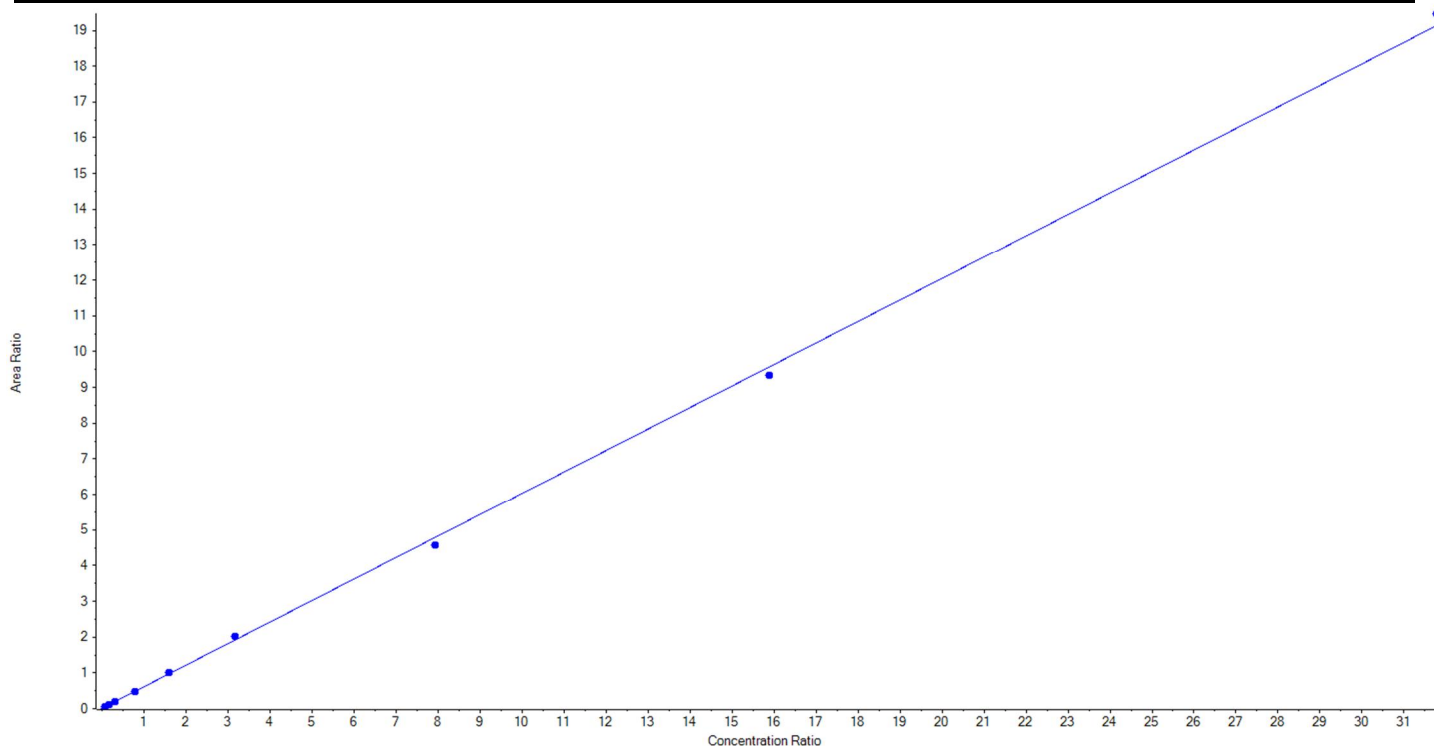
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.60178x + 0.01237$  (r = 0.99958) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.965206	96.3
3	JX68	L2	True	45.60	45.865987	100.6
4	JX69	L3	True	91.20	92.862788	101.8
5	JX70	L4	True	228.00	223.458459	98.0
6	JX71	L5	True	456.00	470.479402	103.2
7	JX72	L6	True	912.00	962.944566	105.6
8	JX73	L7	True	2280.00	2168.776435	95.1
9	JX74	L8	True	4560.00	4452.716571	97.7
10	JX75	L9	True	9120.00	9276.530586	101.7





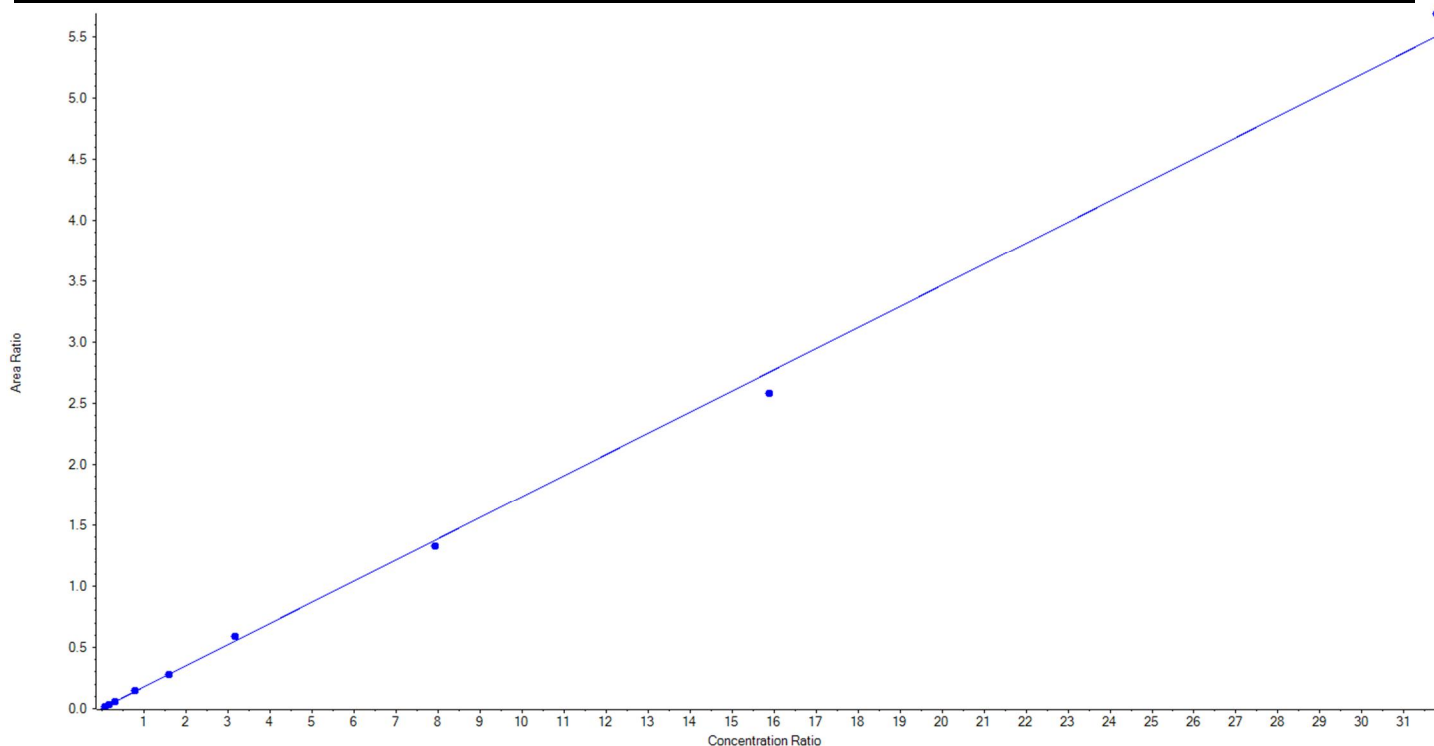
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17315x + 0.00357$  ( $r = 0.99895$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.778684	95.5
3	JX68	L2	True	45.60	44.140835	96.8
4	JX69	L3	True	91.20	95.765669	105.0
5	JX70	L4	True	228.00	233.509455	102.4
6	JX71	L5	True	456.00	459.657462	100.8
7	JX72	L6	True	912.00	968.083293	106.2
8	JX73	L7	True	2280.00	2194.051869	96.2
9	JX74	L8	True	4560.00	4274.612021	93.7
10	JX75	L9	True	9120.00	9424.000712	103.3





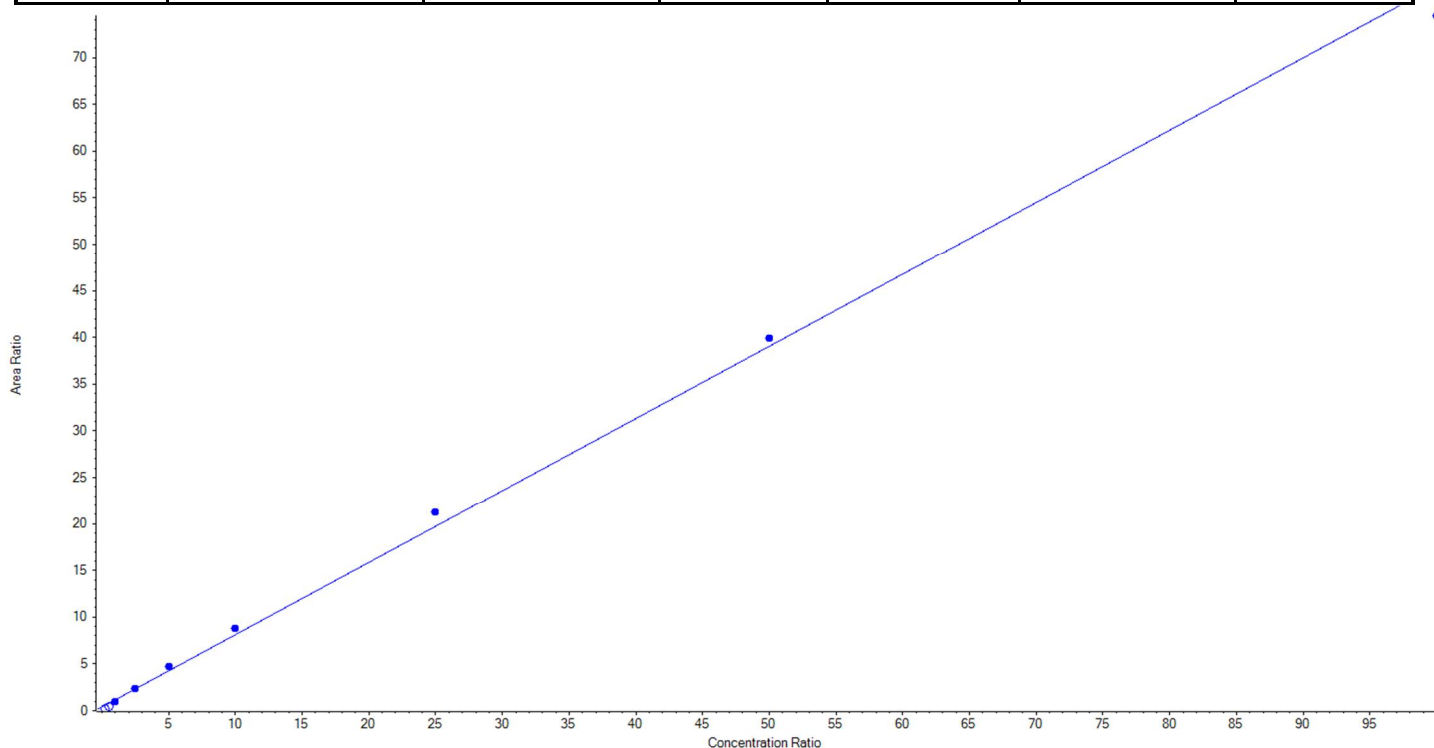
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.77302 x + 0.39276$  (r = 0.99837) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	9.762813	19.5
4	JX69	L3	True	100.00	74.716660	74.7
5	JX70	L4	True	250.00	251.569752	100.6
6	JX71	L5	True	500.00	552.950333	110.6
7	JX72	L6	True	1000.00	1081.102492	108.1
8	JX73	L7	True	2500.00	2698.731567	108.0
9	JX74	L8	True	5000.00	5109.656883	102.2
10	JX75	L9	True	10000.00	9581.272313	95.8





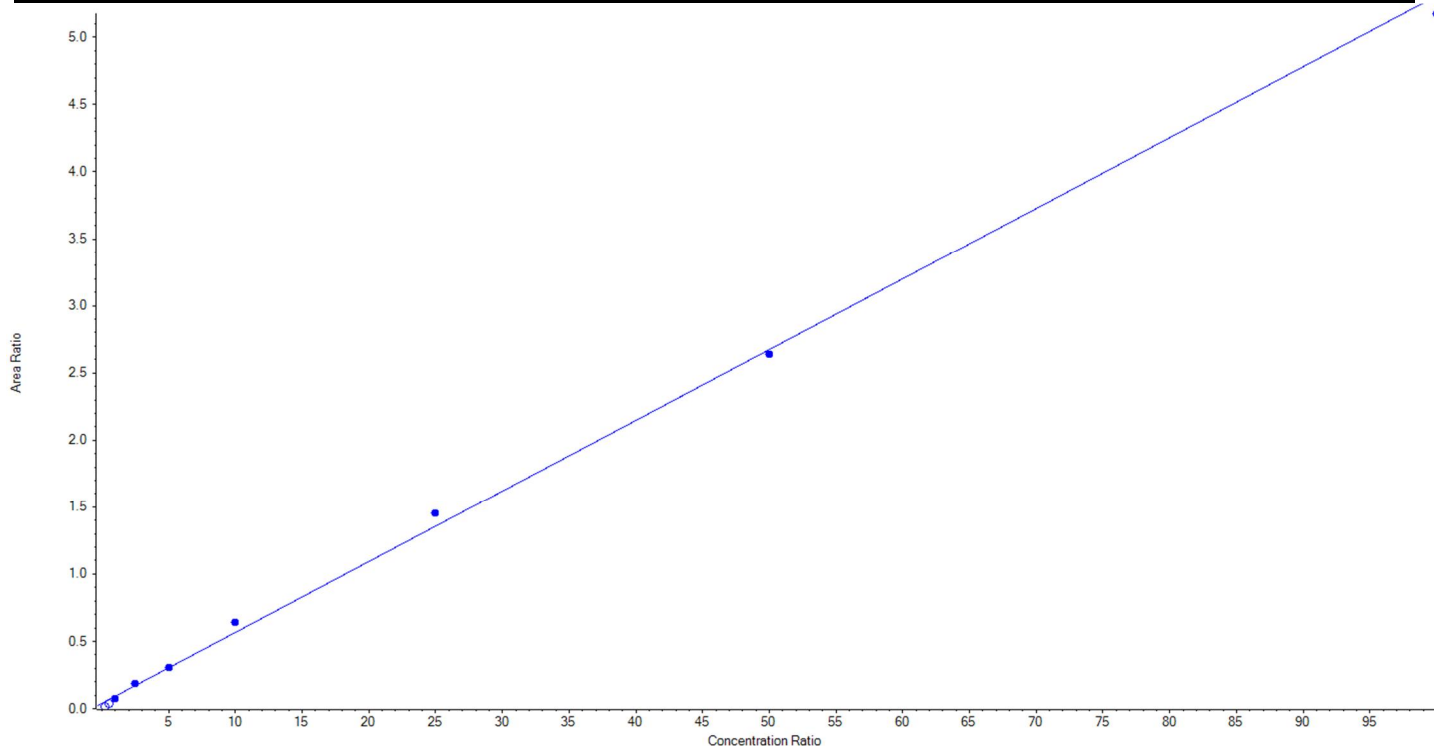
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05268 x + 0.03964$  (r = 0.99845) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	< 0	N/A
4	JX69	L3	True	100.00	70.351988	70.4
5	JX70	L4	True	250.00	275.348901	110.1
6	JX71	L5	True	500.00	511.875631	102.4
7	JX72	L6	True	1000.00	1139.423420	113.9
8	JX73	L7	True	2500.00	2679.379966	107.2
9	JX74	L8	True	5000.00	4927.958365	98.6
10	JX75	L9	True	10000.00	9745.661728	97.5





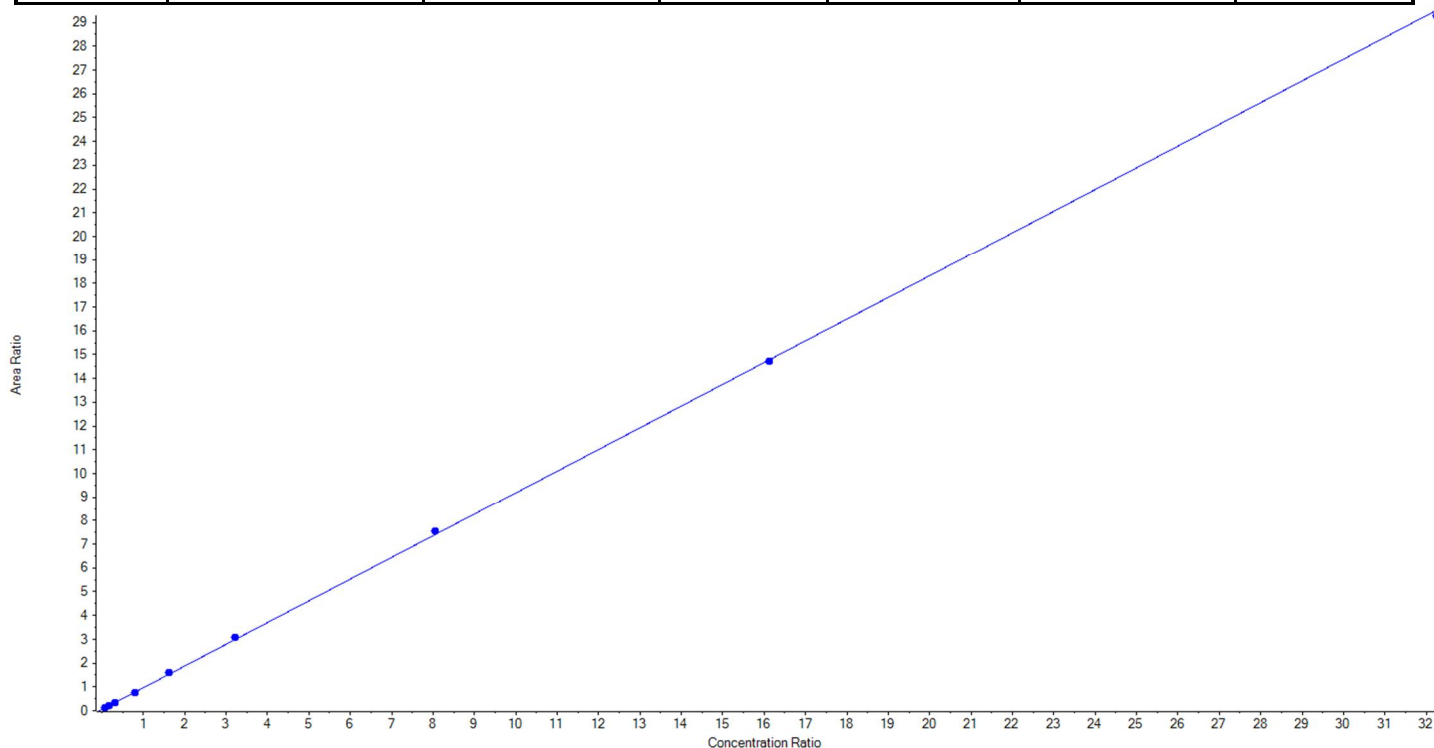
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.91372 x + 0.04855$  (r = 0.99989) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	23.15	22.234208	96.0
3	JX68	L2	True	46.30	44.391423	95.9
4	JX69	L3	True	92.60	93.799624	101.3
5	JX70	L4	True	231.50	227.481160	98.3
6	JX71	L5	True	463.00	485.941424	105.0
7	JX72	L6	True	925.60	949.980384	102.6
8	JX73	L7	True	2314.00	2361.511883	102.1
9	JX74	L8	True	4628.00	4613.191157	99.7
10	JX75	L9	True	9256.00	9181.618737	99.2





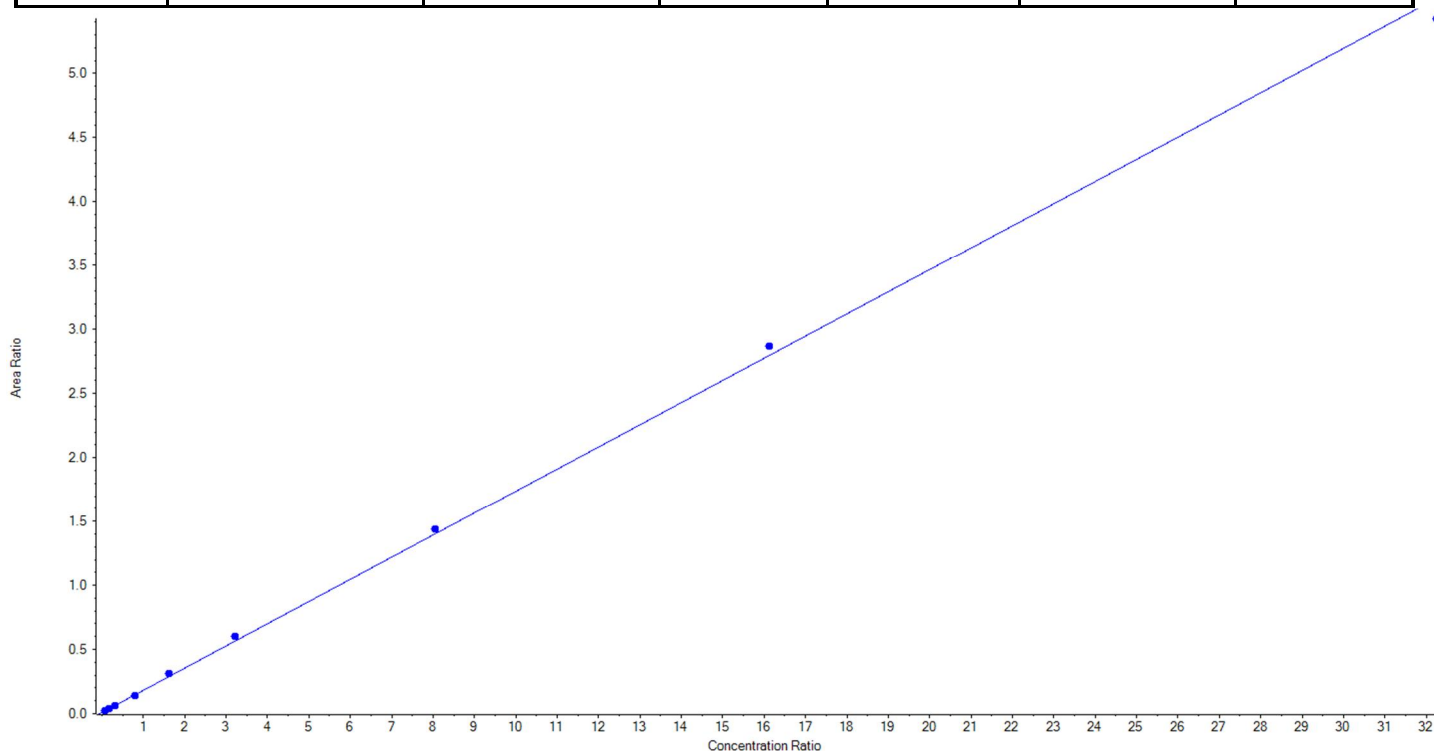
## Calibration Summary Report

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Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17289x + 0.00905$  ( $r = 0.99937$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	23.15	21.012726	90.8
3	JX68	L2	True	46.30	45.328768	97.9
4	JX69	L3	True	92.60	91.066590	98.3
5	JX70	L4	True	231.50	218.922020	94.6
6	JX71	L5	True	463.00	506.774492	109.5
7	JX72	L6	True	925.60	988.962568	106.9
8	JX73	L7	True	2314.00	2370.036975	102.4
9	JX74	L8	True	4628.00	4745.948308	102.6
10	JX75	L9	True	9256.00	8992.097554	97.2





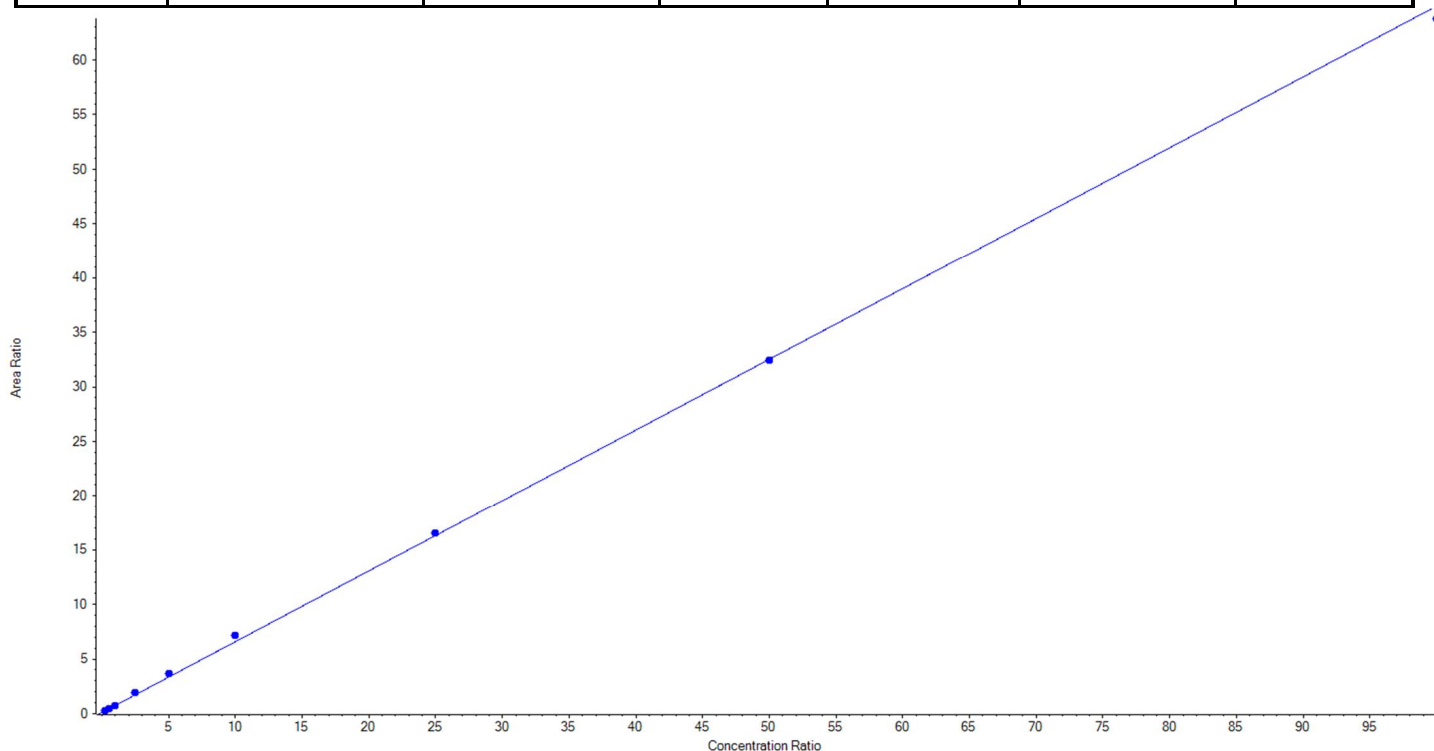
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/07/2018 9:44:30 AM

<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.64829x + 0.11119$  ( $r = 0.99943$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	19.143347	76.6
3	JX68	L2	True	50.00	47.422750	94.9
4	JX69	L3	True	100.00	99.633558	99.6
5	JX70	L4	True	250.00	277.979701	111.2
6	JX71	L5	True	500.00	546.098198	109.2
7	JX72	L6	True	1000.00	1091.044997	109.1
8	JX73	L7	True	2500.00	2538.038889	101.5
9	JX74	L8	True	5000.00	4985.359246	99.7
10	JX75	L9	True	10000.00	9820.279314	98.2







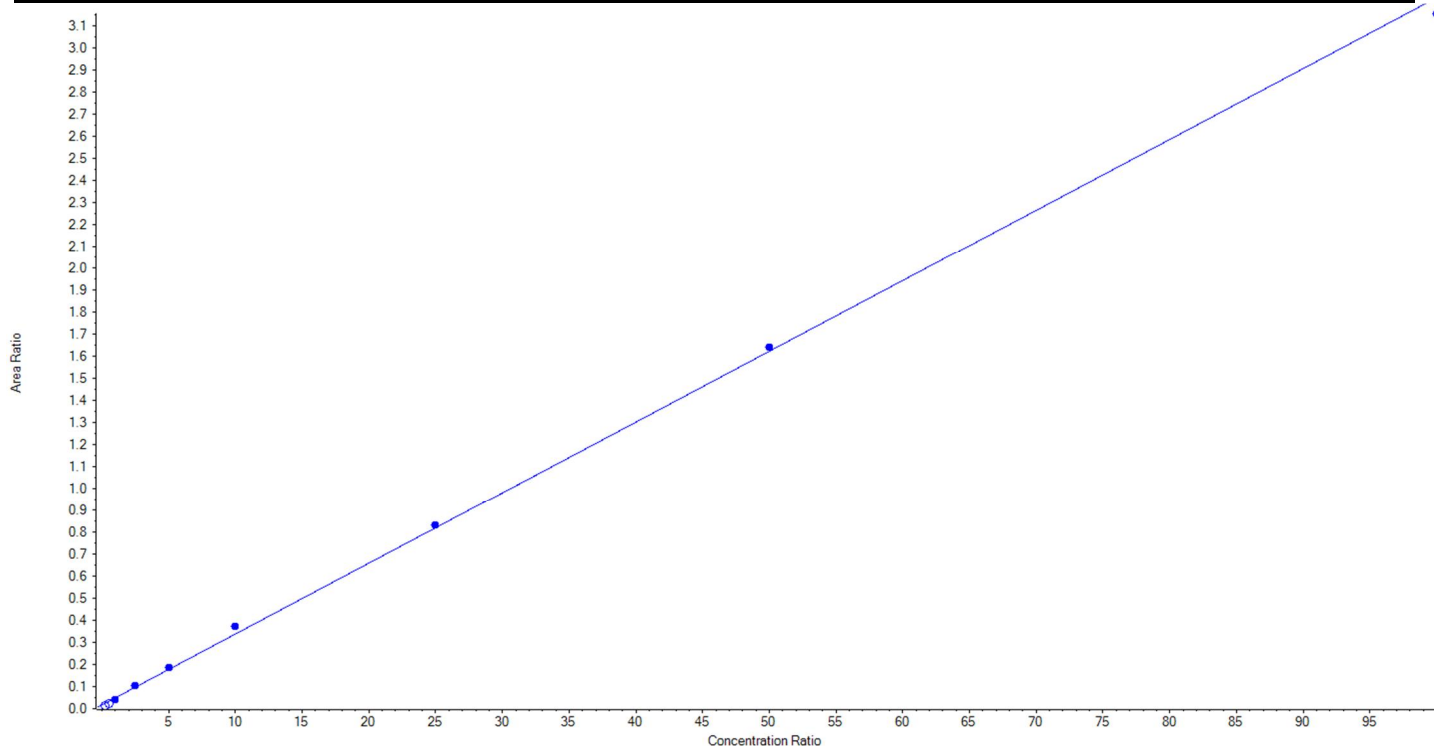
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	07182019_5-0371.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0393_MSD
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	7/18/2018 10:11:16 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03211x + 0.01714$  ( $r = 0.99920$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	11.749020	23.5
4	JX69	L3	True	100.00	75.561743	75.6
5	JX70	L4	True	250.00	267.669392	107.1
6	JX71	L5	True	500.00	532.999990	106.6
7	JX72	L6	True	1000.00	1103.307666	110.3
8	JX73	L7	True	2500.00	2537.675913	101.5
9	JX74	L8	True	5000.00	5060.484598	101.2
10	JX75	L9	True	10000.00	9772.300698	97.7



<b>Sample Name</b>	JX67	<b>Injection Vial</b>	2
<b>Sample ID</b>	L1	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:05:43	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_DW
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.439	0.341	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.078	0.072	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.037	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.309	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.082	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.90	PFNA	0.406	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.181	0.184	ü
PFDA_1	513.0 / 469.0	3.25	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.079	0.041	
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.56	PFUnA	0.059	0.048	ü
PFDaA_1	613.0 / 569.0	3.85	PFDaA			
PFDaA_2	613.0 / 319.0	3.85	PFDaA	0.171	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.621	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.103	0.065	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.55		N/A	N/A	ü

Sample Name	JX68	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:14:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.403	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.076	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.288	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.078	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.284	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.159	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.048	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.070	0.048	ü
PFDaA_1	613.0 / 569.0	3.85	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.087	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.481	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.074	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX69	<b>Injection Vial</b>	4
<b>Sample ID</b>	L3	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:23:38	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_DW
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.346	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.297	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.069	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.304	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.182	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.055	0.048	ü
PFDaA_1	613.0 / 569.0	3.85	PFDaA			
PFDaA_2	613.0 / 319.0	3.85	PFDaA	0.155	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.613	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.056	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX70	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:32:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.325	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.075	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.281	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.308	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.193	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.056	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.153	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.574	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX71	<b>Injection Vial</b>	6
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:41:29	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_DW
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.316	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.023	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.295	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.071	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.289	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.186	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.056	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.663	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.059	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX72	<b>Injection Vial</b>	7
<b>Sample ID</b>	L6	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:50:24	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_DW
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.296	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.072	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.296	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.048	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.640	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.057	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX73	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:59:20	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_DW
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.302	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.022	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.292	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.292	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.192	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFAUnA_1	563.0 / 519.0	3.55	PFAUnA			
PFAUnA_2	563.0 / 269.0	3.55	PFAUnA	0.043	0.048	ü
PFADoA_1	613.0 / 569.0	3.84	PFADoA			
PFADoA_2	613.0 / 319.0	3.84	PFADoA	0.160	0.161	ü
PFATrDA_1	663.0 / 619.0	4.09	PFATrDA			
PFATrDA_2	663.0 / 169.0	4.09	PFATrDA	0.069	0.069	ü
PFATeDA_1	713.0 / 669.0	4.31	PFATeDA			
PFATeDA_2	713.0 / 169.0	4.31	PFATeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.620	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü



Sample Name	JX74	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:08:14	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.308	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.285	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.074	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.293	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.639	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.073	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX75	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:17:08	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.290	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.291	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.183	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.83	PFDaA	0.159	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.627	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.071	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JX67	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:05:43	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.439	0.341	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.078	0.072	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.037	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.309	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.082	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.90	PFNA	0.406	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.181	0.184	ü
PFDA_1	513.0 / 469.0	3.25	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.079	0.041	
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.56	PFUnA	0.059	0.048	ü
PFDaA_1	613.0 / 569.0	3.85	PFDaA			
PFDaA_2	613.0 / 319.0	3.85	PFDaA	0.171	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.621	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.103	0.065	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.55		N/A	N/A	ü

Sample Name	JX68	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:14:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.403	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.076	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.288	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.078	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.284	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.159	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.048	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.070	0.048	ü
PFDaA_1	613.0 / 569.0	3.85	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.087	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.481	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.074	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX69	<b>Injection Vial</b>	4
<b>Sample ID</b>	L3	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:23:38	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_R
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.346	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.297	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.069	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.304	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.182	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.055	0.048	ü
PFDaA_1	613.0 / 569.0	3.85	PFDaA			
PFDaA_2	613.0 / 319.0	3.85	PFDaA	0.155	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.613	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.056	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX70	<b>Injection Vial</b>	5
<b>Sample ID</b>	L4	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:32:34	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_R
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.325	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.075	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.281	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.308	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.193	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.056	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.153	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.574	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX71	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:41:29	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.316	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.023	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.295	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.071	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.289	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.186	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.056	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.663	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.059	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX72	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:50:24	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.296	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.072	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.296	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.048	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.640	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.057	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü



Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:59:20	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.302	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.022	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.292	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.292	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.192	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.160	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.620	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JX74	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:08:14	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.308	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.285	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.074	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.293	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.84	PFDaA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.639	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.073	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

<b>Sample Name</b>	JX75	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:17:08	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_R
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.290	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.291	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.183	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDaA_1	613.0 / 569.0	3.84	PFDaA			
PFDaA_2	613.0 / 319.0	3.83	PFDaA	0.159	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.627	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.071	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

<b>Sample Name</b>	JX67	<b>Injection Vial</b>	3
<b>Sample ID</b>	L1	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T08:28:19	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.490	0.345	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.130	0.071	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.246	0.289	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.080	0.077	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.187	0.190	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.34	PFTeDA	0.062	0.056	ü

<b>Sample Name</b>	JX68	<b>Injection Vial</b>	4
<b>Sample ID</b>	L2	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T08:37:15	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.400	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.151	0.071	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.306	0.289	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.086	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.198	0.190	ü
PFTeDA_1	713.0 / 669.0	4.34	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.34	PFTeDA	0.053	0.056	ü

<b>Sample Name</b>	JX69	<b>Injection Vial</b>	5
<b>Sample ID</b>	L3	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T08:46:11	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.327	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.065	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.302	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.073	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.195	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.052	0.056	ü

<b>Sample Name</b>	JX70	<b>Injection Vial</b>	6
<b>Sample ID</b>	L4	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T08:55:07	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.315	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.275	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.073	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.201	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.056	0.056	ü

<b>Sample Name</b>	JX71	<b>Injection Vial</b>	7
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T09:04:02	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.324	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.073	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.296	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.077	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.192	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.058	0.056	ü



<b>Sample Name</b>	JX72	<b>Injection Vial</b>	8
<b>Sample ID</b>	L6	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T09:12:59	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.306	0.345	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.073	0.071	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.302	0.289	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.075	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.182	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.054	0.056	ü

<b>Sample Name</b>	JX73	<b>Injection Vial</b>	9
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T09:21:55	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.307	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.292	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.074	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.186	0.190	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.056	0.056	ü

<b>Sample Name</b>	JX74	<b>Injection Vial</b>	10
<b>Sample ID</b>	L8	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T09:30:50	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.315	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.073	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.287	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.076	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.188	0.190	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.054	0.056	ü

<b>Sample Name</b>	JX75	<b>Injection Vial</b>	11
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-29T09:39:45	<b>Data File</b>	5500-06292018_371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_B
<b>Sample Comment</b>			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.317	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.292	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.078	0.077	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.185	0.190	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.057	0.056	ü

<b>Sample Name</b>	JX67	<b>Injection Vial</b>	2
<b>Sample ID</b>	L1	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T22:20:13	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.360	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.118	0.072	
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.286	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.062	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.182	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.049	0.052	ü

<b>Sample Name</b>	JX68	<b>Injection Vial</b>	3
<b>Sample ID</b>	L2	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T22:29:10	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.307	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.077	0.072	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.278	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.072	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.192	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.050	0.052	ü

<b>Sample Name</b>	JX69	<b>Injection Vial</b>	4
<b>Sample ID</b>	L3	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T22:38:06	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.337	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.070	0.072	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.296	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.079	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.184	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.055	0.052	ü

<b>Sample Name</b>	JX70	<b>Injection Vial</b>	5
<b>Sample ID</b>	L4	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T22:47:03	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.324	0.319	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.075	0.072	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.300	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.079	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.182	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.054	0.052	ü



<b>Sample Name</b>	JX71	<b>Injection Vial</b>	6
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T22:55:59	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.290	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.066	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.281	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.066	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.197	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.052	0.052	ü

<b>Sample Name</b>	JX72	<b>Injection Vial</b>	7
<b>Sample ID</b>	L6	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T23:04:55	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.315	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.074	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.289	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.073	0.072	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.197	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.052	0.052	ü

<b>Sample Name</b>	JX73	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T23:13:52	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.313	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.071	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.291	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.068	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.190	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.050	0.052	ü

<b>Sample Name</b>	JX74	<b>Injection Vial</b>	9
<b>Sample ID</b>	L8	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T23:22:48	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.308	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.072	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.276	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.066	0.072	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.195	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.051	0.052	ü

<b>Sample Name</b>	JX75	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-07-18T23:31:46	<b>Data File</b>	07182019_5-0371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0393_MSD
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.324	0.319	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.072	0.072	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.292	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.070	0.072	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.185	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.050	0.052	ü

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	805.276200	885.00	90.99
PFBS_2	298.9 / 99.0	1.49	795.986368	885.00	89.94
PFHxA_1	313.0 / 269.0	1.77	996.404291	1000.00	99.64
PFHxA_2	313.0 / 119.0	1.77	997.489769	1000.00	99.75
PFHpA_1	363.0 / 319.0	2.14	1031.124835	1000.00	103.11
PFHpA_2	363.0 / 169.0	2.14	1161.534315	1000.00	116.15
PFHxS_1	399.0 / 80.0	2.15	920.448980	912.00	100.93
PFHxS_2	399.0 / 99.0	2.15	870.009843	912.00	95.40
PFOA_1	413.0 / 369.0	2.51	1050.976678	1000.00	105.10
PFOA_2	413.0 / 169.0	2.51	1048.582291	1000.00	104.86
PFNA_1	463.0 / 419.0	2.88	1000.643194	1000.00	100.06
PFNA_2	463.0 / 219.0	2.88	1035.420136	1000.00	103.54
PFOS_1	499.0 / 80.0	2.88	809.974713	925.60	87.51
PFOS_2	499.0 / 99.0	2.88	951.613036	925.60	102.81
PFDA_1	513.0 / 469.0	3.23	1068.328726	1000.00	106.83
PFDA_2	513.0 / 219.0	3.23	1022.246333	1000.00	102.22
PFUnA_1	563.0 / 519.0	3.55	1036.138808	1000.00	103.61
PFUnA_2	563.0 / 269.0	3.55	1023.503647	1000.00	102.35
PFDoA_1	613.0 / 569.0	3.83	1033.267977	1000.00	103.33
PFDoA_2	613.0 / 319.0	3.83	1036.887732	1000.00	103.69
PFTTrDA_1	663.0 / 619.0	4.08	1007.914002	1000.00	100.79
PFTTrDA_2	663.0 / 169.0	4.08	1068.145164	1000.00	106.81
PFTeDA_1	713.0 / 669.0	4.30	924.958865	1000.00	92.50
PFTeDA_2	713.0 / 169.0	4.30	990.767060	1000.00	99.08
NMeFOSAA_1	570.0 / 419.0	3.38	1288.934423	1000.00	128.89
NMeFOSAA_2	570.0 / 512.0	3.38	1103.628737	1000.00	110.36
NEtFOSAA_1	584.0 / 419.0	3.54	1241.276530	1000.00	124.13
NEtFOSAA_2	584.0 / 483.0	3.54	1261.461923	1000.00	126.15
13C2-PFHxA	315.0 / 270.0	1.76	102.268470	100.00	102.27
13C2-PFDA	515.0 / 470.0	3.22	104.026718	100.00	104.03
d5-EtFOSAA	589.0 / 419.0	3.53	467.050507	400.00	116.76

Sample Name	JX72 CCV	Injection Vial	54
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T17:25:48	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	820.942991	885.00	92.76
PFBS_2	298.9 / 99.0	1.49	844.116263	885.00	95.38
PFHxA_1	313.0 / 269.0	1.77	1069.238822	1000.00	106.92
PFHxA_2	313.0 / 119.0	1.77	1069.284888	1000.00	106.93
PFHpA_1	363.0 / 319.0	2.13	1046.899084	1000.00	104.69
PFHpA_2	363.0 / 169.0	2.13	1103.337812	1000.00	110.33
PFHxS_1	399.0 / 80.0	2.14	838.327615	912.00	91.92
PFHxS_2	399.0 / 99.0	2.14	859.064516	912.00	94.20
PFOA_1	413.0 / 369.0	2.50	1110.273806	1000.00	111.03
PFOA_2	413.0 / 169.0	2.50	1139.265420	1000.00	113.93
PFNA_1	463.0 / 419.0	2.88	1100.236718	1000.00	110.02
PFNA_2	463.0 / 219.0	2.88	1159.004111	1000.00	115.90
PFOS_1	499.0 / 80.0	2.87	919.033188	925.60	99.29
PFOS_2	499.0 / 99.0	2.87	946.475499	925.60	102.26
PFDA_1	513.0 / 469.0	3.22	1144.349205	1000.00	114.43
PFDA_2	513.0 / 219.0	3.22	1125.018056	1000.00	112.50
PFUnA_1	563.0 / 519.0	3.54	1129.333357	1000.00	112.93
PFUnA_2	563.0 / 269.0	3.54	1140.415022	1000.00	114.04
PFDoA_1	613.0 / 569.0	3.82	1103.098852	1000.00	110.31
PFDoA_2	613.0 / 319.0	3.82	1063.338251	1000.00	106.33
PFTTrDA_1	663.0 / 619.0	4.07	1086.512358	1000.00	108.65
PFTTrDA_2	663.0 / 169.0	4.07	1058.935473	1000.00	105.89
PFTeDA_1	713.0 / 669.0	4.29	1010.395915	1000.00	101.04
PFTeDA_2	713.0 / 169.0	4.29	1146.550779	1000.00	114.66
NMeFOSAA_1	570.0 / 419.0	3.37	993.277862	1000.00	99.33
NMeFOSAA_2	570.0 / 512.0	3.37	994.015107	1000.00	99.40
NEtFOSAA_1	584.0 / 419.0	3.53	1155.871877	1000.00	115.59
NEtFOSAA_2	584.0 / 483.0	3.53	1008.044021	1000.00	100.80
13C2-PFHxA	315.0 / 270.0	1.76	99.722851	100.00	99.72
13C2-PFDA	515.0 / 470.0	3.21	105.062624	100.00	105.06
d5-EtFOSAA	589.0 / 419.0	3.53	385.558852	400.00	96.39

Sample Name	JX71 CCV	Injection Vial	21
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T19:13:03	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	452.832376	443.00	102.22
PFBS_2	298.9 / 99.0	1.49	448.032477	443.00	101.14
PFHxA_1	313.0 / 269.0	1.77	530.169468	500.00	106.03
PFHxA_2	313.0 / 119.0	1.77	535.512464	500.00	107.10
PFHpA_1	363.0 / 319.0	2.13	524.785034	500.00	104.96
PFHpA_2	363.0 / 169.0	2.13	566.595517	500.00	113.32
PFHxS_1	399.0 / 80.0	2.15	473.009041	456.00	103.73
PFHxS_2	399.0 / 99.0	2.15	467.866806	456.00	102.60
PFOA_1	413.0 / 369.0	2.50	560.301760	500.00	112.06
PFOA_2	413.0 / 169.0	2.50	596.096814	500.00	119.22
PFNA_1	463.0 / 419.0	2.88	556.765697	500.00	111.35
PFNA_2	463.0 / 219.0	2.88	546.251417	500.00	109.25
PFOS_1	499.0 / 80.0	2.87	499.642439	463.00	107.91
PFOS_2	499.0 / 99.0	2.87	509.564584	463.00	110.06
PFDA_1	513.0 / 469.0	3.22	574.853507	500.00	114.97
PFDA_2	513.0 / 219.0	3.22	595.655493	500.00	119.13
PFUnA_1	563.0 / 519.0	3.54	574.231573	500.00	114.85
PFUnA_2	563.0 / 269.0	3.54	514.997665	500.00	103.00
PFDoA_1	613.0 / 569.0	3.82	562.050167	500.00	112.41
PFDoA_2	613.0 / 319.0	3.82	548.635081	500.00	109.73
PFTTrDA_1	663.0 / 619.0	4.07	528.703788	500.00	105.74
PFTTrDA_2	663.0 / 169.0	4.07	540.487982	500.00	108.10
PFTeDA_1	713.0 / 669.0	4.29	503.119002	500.00	100.62
PFTeDA_2	713.0 / 169.0	4.29	562.245574	500.00	112.45
NMeFOSAA_1	570.0 / 419.0	3.37	595.040714	500.00	119.01
NMeFOSAA_2	570.0 / 512.0	3.37	605.613669	500.00	121.12
NEtFOSAA_1	584.0 / 419.0	3.53	582.820588	500.00	116.56
NEtFOSAA_2	584.0 / 483.0	3.52	582.092178	500.00	116.42
13C2-PFHxA	315.0 / 270.0	1.76	100.675754	100.00	100.68
13C2-PFDA	515.0 / 470.0	3.21	105.729513	100.00	105.73
d5-EtFOSAA	589.0 / 419.0	3.52	433.950529	400.00	108.49



Sample Name	JX72 CCV	Injection Vial	31
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T20:51:24	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	866.166863	885.00	97.87
PFBS_2	298.9 / 99.0	1.49	845.929656	885.00	95.59
PFHxA_1	313.0 / 269.0	1.77	1110.146700	1000.00	111.01
PFHxA_2	313.0 / 119.0	1.77	1114.367468	1000.00	111.44
PFHpA_1	363.0 / 319.0	2.13	1084.675205	1000.00	108.47
PFHpA_2	363.0 / 169.0	2.13	1081.069510	1000.00	108.11
PFHxS_1	399.0 / 80.0	2.14	872.196855	912.00	95.64
PFHxS_2	399.0 / 99.0	2.14	857.850805	912.00	94.06
PFOA_1	413.0 / 369.0	2.50	1121.579020	1000.00	112.16
PFOA_2	413.0 / 169.0	2.50	1136.830502	1000.00	113.68
PFNA_1	463.0 / 419.0	2.88	1114.289558	1000.00	111.43
PFNA_2	463.0 / 219.0	2.88	1056.803545	1000.00	105.68
PFOS_1	499.0 / 80.0	2.87	909.033349	925.60	98.21
PFOS_2	499.0 / 99.0	2.87	913.466112	925.60	98.69
PFDA_1	513.0 / 469.0	3.22	1177.384628	1000.00	117.74
PFDA_2	513.0 / 219.0	3.22	1216.292183	1000.00	121.63
PFUnA_1	563.0 / 519.0	3.54	1158.866697	1000.00	115.89
PFUnA_2	563.0 / 269.0	3.53	1038.065993	1000.00	103.81
PFDoA_1	613.0 / 569.0	3.82	1145.412871	1000.00	114.54
PFDoA_2	613.0 / 319.0	3.82	1080.836127	1000.00	108.08
PFTTrDA_1	663.0 / 619.0	4.07	1124.100491	1000.00	112.41
PFTTrDA_2	663.0 / 169.0	4.07	1090.798917	1000.00	109.08
PFTeDA_1	713.0 / 669.0	4.29	1026.506111	1000.00	102.65
PFTeDA_2	713.0 / 169.0	4.28	1179.494860	1000.00	117.95
NMeFOSAA_1	570.0 / 419.0	3.37	1148.665622	1000.00	114.87
NMeFOSAA_2	570.0 / 512.0	3.37	1108.011542	1000.00	110.80
NEtFOSAA_1	584.0 / 419.0	3.53	1114.531757	1000.00	111.45
NEtFOSAA_2	584.0 / 483.0	3.53	1240.575776	1000.00	124.06
13C2-PFHxA	315.0 / 270.0	1.76	102.897180	100.00	102.90
13C2-PFDA	515.0 / 470.0	3.21	110.292007	100.00	110.29
d5-EtFOSAA	589.0 / 419.0	3.52	399.641378	400.00	99.91

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	805.276200	885.00	90.99
PFBS_2	298.9 / 99.0	1.49	795.986368	885.00	89.94
PFHxA_1	313.0 / 269.0	1.77	996.404291	1000.00	99.64
PFHxA_2	313.0 / 119.0	1.77	997.489769	1000.00	99.75
PFHpA_1	363.0 / 319.0	2.14	1031.124835	1000.00	103.11
PFHpA_2	363.0 / 169.0	2.14	1161.534315	1000.00	116.15
PFHxS_1	399.0 / 80.0	2.15	920.448980	912.00	100.93
PFHxS_2	399.0 / 99.0	2.15	870.009843	912.00	95.40
PFOA_1	413.0 / 369.0	2.51	1050.976678	1000.00	105.10
PFOA_2	413.0 / 169.0	2.51	1048.582291	1000.00	104.86
PFNA_1	463.0 / 419.0	2.88	1000.643194	1000.00	100.06
PFNA_2	463.0 / 219.0	2.88	1035.420136	1000.00	103.54
PFOS_1	499.0 / 80.0	2.88	809.974713	925.60	87.51
PFOS_2	499.0 / 99.0	2.88	951.613036	925.60	102.81
PFDA_1	513.0 / 469.0	3.23	1068.328726	1000.00	106.83
PFDA_2	513.0 / 219.0	3.23	1022.246333	1000.00	102.22
PFUnA_1	563.0 / 519.0	3.55	1036.138808	1000.00	103.61
PFUnA_2	563.0 / 269.0	3.55	1023.503647	1000.00	102.35
PFDoA_1	613.0 / 569.0	3.83	1033.267977	1000.00	103.33
PFDoA_2	613.0 / 319.0	3.83	1036.887732	1000.00	103.69
PFTrDA_1	663.0 / 619.0	4.08	1007.914002	1000.00	100.79
PFTrDA_2	663.0 / 169.0	4.08	1068.145164	1000.00	106.81
PFTeDA_1	713.0 / 669.0	4.30	958.601170	1000.00	95.86
PFTeDA_2	713.0 / 169.0	4.30	990.767060	1000.00	99.08
NMeFOSAA_1	570.0 / 419.0	3.38	1288.934423	1000.00	128.89
NMeFOSAA_2	570.0 / 512.0	3.38	1103.628737	1000.00	110.36
NEtFOSAA_1	584.0 / 419.0	3.54	1170.910760	1000.00	117.09
NEtFOSAA_2	584.0 / 483.0	3.54	1261.461923	1000.00	126.15
13C2-PFHxA	315.0 / 270.0	1.76	102.268470	100.00	102.27
13C2-PFDA	515.0 / 470.0	3.22	104.026718	100.00	104.03
d5-EtFOSAA	589.0 / 419.0	3.53	467.050507	400.00	116.76

Sample Name	JX71 CCV	Injection Vial	14
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-28T14:28:49	Data File	06282018_05-0371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	433.351850	443.00	97.82
PFBS_2	298.9 / 99.0	1.49	417.893795	443.00	94.33
PFHxA_1	313.0 / 269.0	1.77	555.617023	500.00	111.12
PFHxA_2	313.0 / 119.0	1.77	526.023129	500.00	105.20
PFHpA_1	363.0 / 319.0	2.14	537.352952	500.00	107.47
PFHpA_2	363.0 / 169.0	2.13	598.834968	500.00	119.77
PFHxS_1	399.0 / 80.0	2.15	467.750364	456.00	102.58
PFHxS_2	399.0 / 99.0	2.15	464.332695	456.00	101.83
PFOA_1	413.0 / 369.0	2.51	552.859799	500.00	110.57
PFOA_2	413.0 / 169.0	2.51	578.090082	500.00	115.62
PFNA_1	463.0 / 419.0	2.88	573.018197	500.00	114.60
PFNA_2	463.0 / 219.0	2.88	577.658820	500.00	115.53
PFOS_1	499.0 / 80.0	2.88	479.839819	463.00	103.64
PFOS_2	499.0 / 99.0	2.88	485.560903	463.00	104.87
PFDA_1	513.0 / 469.0	3.23	575.672785	500.00	115.13
PFDA_2	513.0 / 219.0	3.23	619.293466	500.00	123.86
PFUnA_1	563.0 / 519.0	3.54	596.407032	500.00	119.28
PFUnA_2	563.0 / 269.0	3.54	558.486019	500.00	111.70
PFDoA_1	613.0 / 569.0	3.83	607.126162	500.00	121.43
PFDoA_2	613.0 / 319.0	3.83	590.945496	500.00	118.19
PFTTrDA_1	663.0 / 619.0	4.07	570.645793	500.00	114.13
PFTTrDA_2	663.0 / 169.0	4.07	578.647779	500.00	115.73
PFTeDA_1	713.0 / 669.0	4.29	558.799524	500.00	111.76
PFTeDA_2	713.0 / 169.0	4.29	593.120207	500.00	118.62
NMeFOSAA_1	570.0 / 419.0	3.37	577.267534	500.00	115.45
NMeFOSAA_2	570.0 / 512.0	3.38	526.535835	500.00	105.31
NEtFOSAA_1	584.0 / 419.0	3.53	544.605522	500.00	108.92
NEtFOSAA_2	584.0 / 483.0	3.52	722.621022	500.00	144.52
13C2-PFHxA	315.0 / 270.0	1.76	97.291270	100.00	97.29
13C2-PFDA	515.0 / 470.0	3.22	106.652543	100.00	106.65
d5-EtFOSAA	589.0 / 419.0	3.53	414.574420	400.00	103.64

Confirmation column

Sample Name	JX73 CCV	Injection Vial	22
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-28T15:40:09	Data File	06282018_05-0371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_R
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	1995.102832	2212.50	90.17
PFBS_2	298.9 / 99.0	1.49	2027.640702	2212.50	91.64
PFHxA_1	313.0 / 269.0	1.77	2396.977737	2500.00	95.88
PFHxA_2	313.0 / 119.0	1.77	2381.858294	2500.00	95.27
PFHpA_1	363.0 / 319.0	2.13	2455.109754	2500.00	98.20
PFHpA_2	363.0 / 169.0	2.13	2594.635110	2500.00	103.79
PFHxS_1	399.0 / 80.0	2.15	2045.925351	2280.00	89.73
PFHxS_2	399.0 / 99.0	2.15	2091.682564	2280.00	91.74
PFOA_1	413.0 / 369.0	2.51	2483.846209	2500.00	99.35
PFOA_2	413.0 / 169.0	2.51	2540.168706	2500.00	101.61
PFNA_1	463.0 / 419.0	2.88	2520.200144	2500.00	100.81
PFNA_2	463.0 / 219.0	2.88	2426.506875	2500.00	97.06
PFOS_1	499.0 / 80.0	2.88	2221.437136	2314.00	96.00
PFOS_2	499.0 / 99.0	2.88	2181.399719	2314.00	94.27
PFDA_1	513.0 / 469.0	3.23	2706.841983	2500.00	108.27
PFDA_2	513.0 / 219.0	3.23	2497.551298	2500.00	99.90
PFUnA_1	563.0 / 519.0	3.54	2620.874110	2500.00	104.83
PFUnA_2	563.0 / 269.0	3.54	2479.854358	2500.00	99.19
PFDoA_1	613.0 / 569.0	3.83	2579.611502	2500.00	103.18
PFDoA_2	613.0 / 319.0	3.82	2540.177613	2500.00	101.61
PFTrDA_1	663.0 / 619.0	4.07	2464.557370	2500.00	98.58
PFTrDA_2	663.0 / 169.0	4.07	2563.203514	2500.00	102.53
PFTeDA_1	713.0 / 669.0	4.29	2422.618971	2500.00	96.90
PFTeDA_2	713.0 / 169.0	4.28	2648.785600	2500.00	105.95
NMeFOSAA_1	570.0 / 419.0	3.37	2626.074017	2500.00	105.04
NMeFOSAA_2	570.0 / 512.0	3.37	2777.822474	2500.00	111.11
NEtFOSAA_1	584.0 / 419.0	3.53	2621.410401	2500.00	104.86
NEtFOSAA_2	584.0 / 483.0	3.53	2387.296538	2500.00	95.49
13C2-PFHxA	315.0 / 270.0	1.76	100.646228	100.00	100.65
13C2-PFDA	515.0 / 470.0	3.21	111.890432	100.00	111.89
d5-EtFOSAA	589.0 / 419.0	3.53	476.934570	400.00	119.23

Sample Name	JX66 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-29T09:48:41	Data File	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_B
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.50	863.465774	885.00	97.57
PFBS_2	298.9 / 99.0	1.50	816.684769	885.00	92.28
PFHxA_1	313.0 / 269.0	1.78	955.325047	1000.00	95.53
PFHxA_2	313.0 / 119.0	1.78	916.334104	1000.00	91.63
PFHxS_1	399.0 / 80.0	2.16	916.180415	912.00	100.46
PFHxS_2	399.0 / 99.0	2.16	917.534867	912.00	100.61
PFOA_1	413.0 / 369.0	2.52	1063.175961	1000.00	106.32
PFOA_2	413.0 / 169.0	2.52	1063.929802	1000.00	106.39
PFOS_1	499.0 / 80.0	2.89	833.470925	925.60	90.05
PFOS_2	499.0 / 99.0	2.89	937.856173	925.60	101.32
PFTeDA_1	713.0 / 669.0	4.32	984.674503	1000.00	98.47
PFTeDA_2	713.0 / 169.0	4.31	965.547241	1000.00	96.55

Sample Name	JX72	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-29T11:18:47	Data File	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_B
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.50	835.526325	885.00	94.41
PFBS_2	298.9 / 99.0	1.49	767.566406	885.00	86.73
PFHxA_1	313.0 / 269.0	1.78	1021.931002	1000.00	102.19
PFHxA_2	313.0 / 119.0	1.78	961.295561	1000.00	96.13
PFHxS_1	399.0 / 80.0	2.16	870.852119	912.00	95.49
PFHxS_2	399.0 / 99.0	2.16	886.292458	912.00	97.18
PFOA_1	413.0 / 369.0	2.52	1115.926274	1000.00	111.59
PFOA_2	413.0 / 169.0	2.52	1103.750471	1000.00	110.38
PFOS_1	499.0 / 80.0	2.89	885.853743	925.60	95.71
PFOS_2	499.0 / 99.0	2.89	902.576193	925.60	97.51
PFTeDA_1	713.0 / 669.0	4.31	1025.053299	1000.00	102.51
PFTeDA_2	713.0 / 169.0	4.31	1087.811703	1000.00	108.78

Sample Name	JX66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-07-18T23:40:44	Data File	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_MSD
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	812.824453	885.00	91.84
PFBS_2	298.9 / 99.0	1.51	803.090653	885.00	90.74
PFHxA_1	313.0 / 269.0	1.80	986.593702	1000.00	98.66
PFHxA_2	313.0 / 119.0	1.79	965.551775	1000.00	96.56
PFHxS_1	399.0 / 80.0	2.18	838.582328	912.00	91.95
PFHxS_2	399.0 / 99.0	2.18	792.812251	912.00	86.93
PFOA_1	413.0 / 369.0	2.54	1050.863577	1000.00	105.09
PFOA_2	413.0 / 169.0	2.54	1043.386988	1000.00	104.34
PFOS_1	499.0 / 80.0	2.91	826.831468	925.60	89.33
PFOS_2	499.0 / 99.0	2.91	906.585719	925.60	97.95
PFTeDA_1	713.0 / 669.0	4.35	1005.717484	1000.00	100.57
PFTeDA_2	713.0 / 169.0	4.35	964.339104	1000.00	96.43

Sample Name	JX72 CCV	Injection Vial	14
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-07-19T00:07:35	Data File	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_MSD
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	848.984177	885.00	95.93
PFBS_2	298.9 / 99.0	1.51	824.842950	885.00	93.20
PFHxA_1	313.0 / 269.0	1.80	1013.705912	1000.00	101.37
PFHxA_2	313.0 / 119.0	1.79	1035.236757	1000.00	103.52
PFHxS_1	399.0 / 80.0	2.18	848.202728	912.00	93.00
PFHxS_2	399.0 / 99.0	2.18	844.419416	912.00	92.59
PFOA_1	413.0 / 369.0	2.54	1031.970985	1000.00	103.20
PFOA_2	413.0 / 169.0	2.54	978.950189	1000.00	97.90
PFOS_1	499.0 / 80.0	2.91	935.250344	925.60	101.04
PFOS_2	499.0 / 99.0	2.91	921.826656	925.60	99.59
PFTeDA_1	713.0 / 669.0	4.34	995.154269	1000.00	99.52
PFTeDA_2	713.0 / 169.0	4.34	1009.939691	1000.00	100.99



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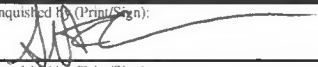
## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days			Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster							
Project Name: WE04 Project No.: 112G08005-WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>			Preservation Trizma		COC #							
Time Zone: Eastern					Analysis PFAS EPA 537 14 analytes		Page# 1 of 1							
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.									
NAWC-053118-RW-256 <i>J6290</i>	5/31/2018	8:10	G	DW	2	X								
NAWC-053118-FRB-256 <i>91</i>	5/31/2018	8:05	G	DW	2	X								Field Reagent Blank
NAWC-053118-RW-126 <i>92</i>	5/31/2018	8:40	G	DW	2	X								
NAWC-053118-FRB-126 <i>93</i>	5/31/2018	8:35	G	DW	2	X								Field Reagent Blank
WGNA-053118-DUP-38 <i>94</i>	5/31/2018	7:00	G	DW	2	X								DUPLICATE
WGNA-053118-RW-4850 <i>95</i>	5/31/2018	9:40	G	DW	6	X								MS/MSD
WGNA-053118-FRB-4850 <i>96</i>	5/31/2018	9:35	G	DW	2	X								Field Reagent Blank
NAWC-053118-RW-311 <i>97</i>	5/31/2018	12:10	G	DW	2	X								
NAWC-053118-FRB-311 <i>98</i>	5/31/2018	12:05	G	DW	2	X								Field Reagent Blank
NAWC-053118-RW-265 <i>99</i>	5/31/2018	16:10	G	DW	2	X								
NAWC-053118-FRB-265 <i>J6300</i>	5/31/2018	16:05	G	DW	2	X								Field Reagent Blank
Receipt Temperature:(°C) <i>1.6</i>		Samples Intact: <i>Yes</i> - No			Samples on Ice: <i>Yes</i> - No			Receipt Comments:						
Relinquished by (Print/Sign): <i>Mary Kay Bond</i>		Company: Tetra Tech		Date/Time: 05/31/2018 18:00		Received by (Print/Sign): <i>Matt Schwemitz Mb</i>		Company: Battelle		Date/Time: <i>6-1-18 1030</i>				
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:				
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:				
Comments: FedEx Tracking # 772365765386														

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## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		<b>Project Manager: Jonathan Thorn</b> Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com		Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster	
Project Name: WE04 Project No.: 112G08005-WE04		Turnaround Time (TAT) Requested: 21 days Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>		Preservative Trizma		COC #	
Time Zone: Eastern		Analysis PEAS EPA 537 14 analytes		Page# 1 of 1			
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		
NAWC-060418-RW-230 J6582	6/4/2018	8:10	G	DW	2	X	
NAWC-060418-FRB-230 J6583	6/4/2018	8:05	G	DW	2	X	Field Reagent Blank
NAWC-060418-RW-309 J6584	6/4/2018	8:40	G	DW	2	X	
NAWC-060418-FRB-309 J6585	6/4/2018	8:35	G	DW	2	X	Field Reagent Blank
NAWC-060418-RW-293 J6586	6/4/2018	9:40	G	DW	2	X	
NAWC-060418-FRB-293 J6587	6/4/2018	9:35	G	DW	2	X	Field Reagent Blank
NAWC-060418-RW-038 J6588	6/4/2018	9:55	G	DW	2	X	
NAWC-060418-FRB-038 J6589	6/4/2018	9:50	G	DW	2	X	Field Reagent Blank
NAWC-060418-RW-039 J6590	6/4/2018	10:10	G	DW	2	X	
NAWC-060418-FRB-039 J6591	6/4/2018	10:05	G	DW	2	X	Field Reagent Blank
Receipt Temperature:(°C) 0.9		Samples Intact: Yes - No		Samples on Ice: Yes - No		Receipt Comments:	
Relinquished by (Print/Sign): 	Company: Tetra Tech	Date/Time: 06/04/2018 16:00	Received by (Print/Sign): Matt Schumite MS	Company: Battelle	Date/Time: 6-5-18 1100		
Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:		
Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:		
Comments: FedEx Tracking # 7723 7412 3139							

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## Chain-of-Custody

<u>Client Contact Information</u> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn				Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster															
Project Name: WE04		Turnaround Time (TAT) Requested: 21 days				Preservative Trizma		COC #															
Project No.: 112G08005-WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>																					
Time Zone: Eastern		Sample Date		Sample Time		Sample Type		Matrix		Total # of Cont.		Analysis PFAS EPA 537 14 analytes		Page# 1 of 1									
Sample Identification																							
WGNA-060718-RW-0488		6/7/2018		12:40		G DW		2		2		X		JL627									
WGNA-060718-FRB-0488		6/7/2018		12:35		G DW		2		2		X		JL638 Field Reagent Blank									
NAWC-060718-RW-175		6/7/2018		13:10		G DW		2		2		X		JL639									
NAWC-060718-FRB-175		6/7/2018		13:05		G DW		2		2		X		JL640 Field Reagent Blank									
WGNA-060718-DUP-39		6/7/2018		7:00		G DW		2		2		X		JL641 DUPLICATE									
WGNA-060718-RW-0626		6/7/2018		14:10		G DW		2		2		X		JL642									
WGNA-060718-FRB-0626		6/7/2018		14:05		G DW		2		2		X		JL643 Field Reagent Blank									
Receipt Temperature: (°C) 0.6°C Therm. 2		Samples Intact: Yes No				Samples on Ice Yes No				Receipt Comments:													
Relinquished by (Print/Sign):		Company: Tetra Tech		Date/Time: 06/07/2018 16:00		Received by (Print/Sign): Jonathan Thorn		Company: Battelle		Date/Time: 6/8/2018 10:36													
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:													
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:													
Comments: FedEx Tracking # 7724 1753 4658																							

① Ice melt = 0.6°C  
temp blank = 23°C  
JTS 6/8/2018

**QA/QC Summary  
Batch 18-0360**

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0148
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/31/2018	6/1/2018	1.6
6/4/2018	6/5/2018	0.9
6/7/2018	6/8/2018	2.3

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	Field samples associated with these FRB samples are extracted in SDG 18-0393.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500.  There are no ion ratio exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/14/2018	6/14, 15, and 21/2018

**QA/QC Summary**  
**Batch 18-0360**

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
$\leq 1/3$ the MRL	No exceedances noted. No comments.
Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD $\leq 30\%$	No exceedances noted. MS/MSD samples were not processed with this batch of field reagent blank samples.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD $\leq 20\%$ , 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R <sup>2</sup> >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted. No comments.

**QA/QC Summary**  
**Batch 18-0360**

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.
Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value Low point 50-150% of true value	No exceedances noted.
	No comments.



Norwell Operations  
 141 Longwater Drive, Suite 202  
 Norwell, Massachusetts 02061  
 Telephone: 781-681-5400

July 13<sup>th</sup>, 2018

This data package has been revised to include the following updates to the reporting format:

- Use of LOD values for non-detected values (in place of the MDL value that was used in the original report).
- Use of sample specific MDL, LOD, and LOQ values (adjusted for dilution and sample size variations as compared to the MDL, LOD, and LOQ studies)

In addition to non-detect (“U” qualified) data changing to use the sample specific LOD value (not included in the table below), the information in the following table changed from the original report to the new report. The reason for these changes is the variation in sample size for individual samples when using sample specific values. This table includes information on all SDG updated and resubmitted on 7/13/2018.

SDG	Lab Sample ID	Client ID	Analyte	New Result	New Qual	Old Result	Old Qual
18-0299	J5972-FS	WGNA-050118-RW-3178	PFHpA	2.25		2.25	J
18-0313	J6148-FS	NAWC-050718-RW-316	PFNA	2.26		2.26	J
18-0313	J6150-FS	NAWC-050718-RW-180	PFDA	0.37	J	0.39	U
18-0323	J6209-FS	NAWC-051018-FRB-177	PFOA	0.38	J	0.38	U
18-0343	J6264-FS	WGNA-052918-RW-3978	PFNA	2.34		2.34	J
18-0343	J6273-FS	NAWC-053018-RW-231	PFHxS	37.20	JD	37.20	D
18-0343	J6275-FS	WGNA-053018-RW-3933	PFNA	2.35		2.35	J
18-0343	J6285-FS	NAWC-053018-RW-196	PFHxS	2.31		2.31	J
18-0360	J6583-FS	NAWC-060418-FRB-230	PFHxS	0.33	J	1.00	U
18-0360	J6643-FS	WGNA-060718-FRB-0626	PFOS	2.48	B	2.48	J

The original data tables have been moved to the unused data section of this complete data package. For SDG 18-0313, the original MQO report and case narrative were moved to the unused data section of the full data package.



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project Number: 100117920-WE04  
 Preparation Batch: 18-0360  
 Data Set: DP-18-0148  
 Test Code: Master\_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	NA	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None





It can be done

## BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

<b>Project Title:</b>	Naval Air Station Joint Reserve Base Wi	<b>Data Set Number:</b>	DP-18-0148
<b>Project Number:</b>	100117920-WE04	<b>Prep Batch Number:</b>	18-0360
<b>Entered By:</b>	Denise Schumitz	<b>Entered On:</b>	06/22/2018
<b>Test Code (Matrix Type):</b>	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).  
DMS 6/22/2018

JV72 is not being used in methods 18-0360\_DW for 13C2-PFHxA, PFHpA, PFOA, PFHxA, PFNA, PFDA, PFUnA, PFDoA, PFTTrDA and PFTeDA. There is no impact on the data once this point is removed from the calibration.  
DMS 6/22/2018

Sample J6638 is N qualified on the IS are report because it does not meet the IS area range for the second criteria only.  
DMS 6/22/2018

The confirmation ion ratio was above 50% RPD for the selected samples in 18-0360\_DW, however, the detected concentrations were below the LOQ or below the detection limits with the following exceptions: JV64 (PFHpA)  
DMS 6/22/2018

J6300 did not meet the passing criteria for 13C2-PFHxA. The sample was re-aliquoted and run with a new calibration yielding passing results that are being reported.  
DMS 6/26/2018

J6643 was re-aliquoted and run as confirmation for the concentration found in the sample for PFOS. The rerun of the sample is being reported.  
DMS 6/26/2018

**Task Leader Approval:**

**Supervisor Approval:**

**PM Approval:**

Digitally signed by Jonathan Thorn

Date: 2018.06.26 15:52:09 -04'00'



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0360  
 Data Set: DP-18-0148

	CQ924PB-FS (Procedural Blank)	CQ925LCS-FS (Laboratory Control Sample)	J6291-FS (NAWC-053118-FRB-256)	J6293-FS (NAWC-053118-FRB-126)	J6296-FS (WGNA-053118-FRB-4850)	J6298-FS (NAWC-053118-FRB-311)	J6300-FS (NAWC-053118-FRB-265)
PFHxA	-	L	-	-	-	-	-
PFHpA	-	L	-	-	-	-	-
PFOA	-	L	-	-	-	-	-
PFNA	-	L	-	-	-	-	-
PFDA	-	L	-	-	-	-	-
PFUnA	-	L	-	-	-	-	-
PFDoA	-	L	-	-	-	-	-
PFTrDA	-	L	-	-	-	-	-
PFTeDA	-	L	-	-	-	-	-
NMeFOSAA	-	L	-	-	-	-	-
NEtFOSAA	-	L	-	-	-	-	-
PFBS	-	L	-	-	-	-	-
PFHxS	-	L/Br	-	-	-	-	-
PFOS	L/Br	L/Br	-	-	-	-	-

"L": Linear  
 "Br": branched  
 "L/Br": Linear/Branched  
 "-": Not detected



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0360  
 Data Set: DP-18-0:

	J6583-FS (NAWC-060418-FRB-230)	J6585-FS (NAWC-060418-FRB-309)	J6587-FS (NAWC-060418-FRB-293)	J6589-FS (NAWC-060418-FRB-038)	J6591-FS (NAWC-060418-FRB-039)	J6638-FS (WGNA-060718-FRB-0488)	J6640-FS (NAWC-060718-FRB-175)	J6643-FS (WGNA-060718-FRB-0626)
PFHxA	-	-	-	-	-	-	-	-
PFHpA	-	-	-	-	-	-	-	-
PFOA	-	-	-	-	-	-	-	-
PFNA	-	-	-	-	-	-	-	-
PFDA	-	-	-	-	-	-	-	-
PFUnA	-	-	-	-	-	-	-	-
PFDaA	-	-	-	-	-	-	-	-
PFTTrDA	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-
PFBS	-	-	-	-	-	-	-	-
PFHxS	-	-	-	-	-	-	-	-
PFOS	-	-	-	-	-	-	-	-

"L": Linear  
 "Br": branched  
 "L/Br": Linear/Branched  
 "-": Not detected



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	Procedural Blank			
Battelle ID	CQ924PB-FS			
Sample Type	PB			
Collection Date	06/14/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	0.46 J	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	112
13C2-PFDA	104
d5-EtFOSAA	102



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID	Laboratory Control Sample					
Battelle ID	CQ925LCS-FS					
Sample Type	LCS					
Collection Date	06/14/2018					
Extraction Date	06/14/2018					
Analysis Date	06/15/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	10.23	10.00	102		70	130
PFHpA	9.73	10.00	97		70	130
PFOA	9.91	10.00	99		70	130
PFNA	9.88	10.00	99		70	130
PFDA	9.75	10.00	98		70	130
PFUnA	10.29	10.00	103		70	130
PFDoA	9.61	10.00	96		70	130
PFTTrDA	9.24	10.00	92		70	130
PFTeDA	12.63	10.00	126		70	130
NMeFOSAA	10.39	10.00	104		70	130
NEtFOSAA	11.44	10.00	114		70	130
PFBS	7.96	8.85	90		70	130
PFHxS	8.79	9.45	93		70	130
PFOS	9.89	9.55	104		70	130
<b>Surrogate Recoveries (%)</b>						
13C2-PFHxA	111					
13C2-PFDA	106					
d5-EtFOSAA	95					

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	6/14/18 16:59	13C4-PFOS	178,124.80	-
JV65	L2	6/14/18 17:08	13C4-PFOS	174,455.63	-
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	-
JV67	L4	6/14/18 17:26	13C4-PFOS	188,900.92	-
JV68	L5	6/14/18 17:35	13C4-PFOS	189,484.28	-
JV69	L6	6/14/18 17:44	13C4-PFOS	195,004.08	-
JV70	L7	6/14/18 17:53	13C4-PFOS	162,112.37	-
JV71	L8	6/14/18 18:02	13C4-PFOS	177,778.90	-
JV72	L9	6/14/18 18:11	13C4-PFOS	190,664.46	6.8

PASS

Average 181,300.99 Lower 90,650.50 Upper 271,951.49

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	13C4-PFOS	178,124.80	90,650.50	271,951.49		113,478.66	226,957.32	
JV65	L2	6/14/18 17:08	13C4-PFOS	174,455.63	90,650.50	271,951.49		113,478.66	226,957.32	
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	90,650.50	271,951.49		113,478.66	226,957.32	
JV67	L4	6/14/18 17:26	13C4-PFOS	188,900.92	90,650.50	271,951.49		113,478.66	226,957.32	
JV68	L5	6/14/18 17:35	13C4-PFOS	189,484.28	90,650.50	271,951.49		113,478.66	226,957.32	
JV69	L6	6/14/18 17:44	13C4-PFOS	195,004.08	90,650.50	271,951.49		113,478.66	226,957.32	
JV70	L7	6/14/18 17:53	13C4-PFOS	162,112.37	90,650.50	271,951.49		113,478.66	226,957.32	
JV71	L8	6/14/18 18:02	13C4-PFOS	177,778.90	90,650.50	271,951.49		113,478.66	226,957.32	
JV72	L9	6/14/18 18:11	13C4-PFOS	190,664.46	90,650.50	271,951.49		113,478.66	226,957.32	
JV63 ICC	ICC	6/14/18 18:20	13C4-PFOS	185,743.83	90,650.50	271,951.49		113,478.66	226,957.32	
JV69 CCV	L6 CCV	6/15/18 18:07	13C4-PFOS	160,791.11	90,650.50	271,951.49		113,478.66	226,957.32	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	13C4-PFOS	153,276.44	90,650.50	271,951.49		113,478.66	226,957.32	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	13C4-PFOS	137,187.84	90,650.50	271,951.49		113,478.66	226,957.32	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	13C4-PFOS	137,603.16	90,650.50	271,951.49		113,478.66	226,957.32	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	13C4-PFOS	158,147.22	90,650.50	271,951.49		113,478.66	226,957.32	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	13C4-PFOS	166,537.97	90,650.50	271,951.49		113,478.66	226,957.32	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	13C4-PFOS	164,251.54	90,650.50	271,951.49		113,478.66	226,957.32	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	13C4-PFOS	147,104.92	90,650.50	271,951.49		113,478.66	226,957.32	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	13C4-PFOS	130,126.84	90,650.50	271,951.49		113,478.66	226,957.32	
JV70 CCV	L7 CCV	6/15/18 19:36	13C4-PFOS	154,051.72	90,650.50	271,951.49		113,478.66	226,957.32	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	13C4-PFOS	167,211.94	90,650.50	271,951.49		107,836.20	215,672.41	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	13C4-PFOS	148,352.40	90,650.50	271,951.49		107,836.20	215,672.41	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	13C4-PFOS	140,222.24	90,650.50	271,951.49		107,836.20	215,672.41	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	13C4-PFOS	155,020.40	90,650.50	271,951.49		107,836.20	215,672.41	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	13C4-PFOS	119,165.05	90,650.50	271,951.49		107,836.20	215,672.41	
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	13C4-PFOS	153,768.49	90,650.50	271,951.49		107,836.20	215,672.41	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	13C4-PFOS	139,575.43	90,650.50	271,951.49		107,836.20	215,672.41	
JV69 CCV	L6 CCV	6/15/18 20:57	13C4-PFOS	172,319.61	90,650.50	271,951.49		107,836.20	215,672.41	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	6/14/18 16:59	13C2-PFOA	59,540.47	-
JV65	L2	6/14/18 17:08	13C2-PFOA	56,704.74	-
JV66	L3	6/14/18 17:17	13C2-PFOA	58,565.02	-
JV67	L4	6/14/18 17:26	13C2-PFOA	65,673.27	-
JV68	L5	6/14/18 17:35	13C2-PFOA	65,593.19	-
JV69	L6	6/14/18 17:44	13C2-PFOA	63,757.89	-
JV70	L7	6/14/18 17:53	13C2-PFOA	59,126.70	-
JV71	L8	6/14/18 18:02	13C2-PFOA	64,124.72	7.4

PASS

Average      Lower      Upper  
 61,635.75    30,817.88    92,453.63

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	13C2-PFOA	59,540.47	30,817.88	92,453.63		41,388.69	82,777.38	
JV65	L2	6/14/18 17:08	13C2-PFOA	56,704.74	30,817.88	92,453.63		41,388.69	82,777.38	
JV66	L3	6/14/18 17:17	13C2-PFOA	58,565.02	30,817.88	92,453.63		41,388.69	82,777.38	
JV67	L4	6/14/18 17:26	13C2-PFOA	65,673.27	30,817.88	92,453.63		41,388.69	82,777.38	
JV68	L5	6/14/18 17:35	13C2-PFOA	65,593.19	30,817.88	92,453.63		41,388.69	82,777.38	
JV69	L6	6/14/18 17:44	13C2-PFOA	63,757.89	30,817.88	92,453.63		41,388.69	82,777.38	
JV70	L7	6/14/18 17:53	13C2-PFOA	59,126.70	30,817.88	92,453.63		41,388.69	82,777.38	
JV71	L8	6/14/18 18:02	13C2-PFOA	64,124.72	30,817.88	92,453.63		41,388.69	82,777.38	
JV63 ICC	ICC	6/14/18 18:20	13C2-PFOA	60,459.81	30,817.88	92,453.63		41,388.69	82,777.38	
JV69 CCV	L6 CCV	6/15/18 18:07	13C2-PFOA	53,318.22	30,817.88	92,453.63		41,388.69	82,777.38	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	13C2-PFOA	49,887.99	30,817.88	92,453.63		41,388.69	82,777.38	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	13C2-PFOA	43,174.48	30,817.88	92,453.63		41,388.69	82,777.38	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	13C2-PFOA	44,324.28	30,817.88	92,453.63		41,388.69	82,777.38	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	13C2-PFOA	54,209.58	30,817.88	92,453.63		41,388.69	82,777.38	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	13C2-PFOA	57,359.73	30,817.88	92,453.63		41,388.69	82,777.38	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	13C2-PFOA	54,245.57	30,817.88	92,453.63		41,388.69	82,777.38	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	13C2-PFOA	48,215.90	30,817.88	92,453.63		41,388.69	82,777.38	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	13C2-PFOA	42,702.48	30,817.88	92,453.63		41,388.69	82,777.38	
JV70 CCV	L7 CCV	6/15/18 19:36	13C2-PFOA	51,004.28	30,817.88	92,453.63		41,388.69	82,777.38	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	13C2-PFOA	54,720.69	30,817.88	92,453.63		35,703.00	71,405.99	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	13C2-PFOA	52,352.48	30,817.88	92,453.63		35,703.00	71,405.99	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	13C2-PFOA	46,725.20	30,817.88	92,453.63		35,703.00	71,405.99	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	13C2-PFOA	53,563.52	30,817.88	92,453.63		35,703.00	71,405.99	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	13C2-PFOA	42,284.90	30,817.88	92,453.63		35,703.00	71,405.99	
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	13C2-PFOA	54,874.94	30,817.88	92,453.63		35,703.00	71,405.99	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	13C2-PFOA	44,551.69	30,817.88	92,453.63		35,703.00	71,405.99	
JV69 CCV	L6 CCV	6/15/18 20:57	13C2-PFOA	59,194.17	30,817.88	92,453.63		35,703.00	71,405.99	

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	6/14/18 16:59	d3-MeFOSAA	28,199.07	-
JV65	L2	6/14/18 17:08	d3-MeFOSAA	27,617.84	-
JV66	L3	6/14/18 17:17	d3-MeFOSAA	27,497.23	-
JV67	L4	6/14/18 17:26	d3-MeFOSAA	27,927.14	-
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,948.30	-
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,393.70	-
JV70	L7	6/14/18 17:53	d3-MeFOSAA	28,365.86	-
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,149.34	-
JV72	L9	6/14/18 18:11	d3-MeFOSAA	34,369.99	19.7

PASS

Average 29,385.39 Lower 14,692.70 Upper 44,078.09

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	d3-MeFOSAA	28,199.07	14,692.70	44,078.09		19,856.10	39,712.20	
JV65	L2	6/14/18 17:08	d3-MeFOSAA	27,617.84	14,692.70	44,078.09		19,856.10	39,712.20	
JV66	L3	6/14/18 17:17	d3-MeFOSAA	27,497.23	14,692.70	44,078.09		19,856.10	39,712.20	
JV67	L4	6/14/18 17:26	d3-MeFOSAA	27,927.14	14,692.70	44,078.09		19,856.10	39,712.20	
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,948.30	14,692.70	44,078.09		19,856.10	39,712.20	
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,393.70	14,692.70	44,078.09		19,856.10	39,712.20	
JV70	L7	6/14/18 17:53	d3-MeFOSAA	28,365.86	14,692.70	44,078.09		19,856.10	39,712.20	
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,149.34	14,692.70	44,078.09		19,856.10	39,712.20	
JV72	L9	6/14/18 18:11	d3-MeFOSAA	34,369.99	14,692.70	44,078.09		19,856.10	39,712.20	
JV63 ICC	ICC	6/14/18 18:20	d3-MeFOSAA	29,722.33	14,692.70	44,078.09		19,856.10	39,712.20	
JV69 CCV	L6 CCV	6/15/18 18:07	d3-MeFOSAA	31,457.94	14,692.70	44,078.09		19,856.10	39,712.20	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	d3-MeFOSAA	27,679.61	14,692.70	44,078.09		19,856.10	39,712.20	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	d3-MeFOSAA	23,558.27	14,692.70	44,078.09		19,856.10	39,712.20	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	d3-MeFOSAA	25,723.79	14,692.70	44,078.09		19,856.10	39,712.20	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	d3-MeFOSAA	31,260.08	14,692.70	44,078.09		19,856.10	39,712.20	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	d3-MeFOSAA	28,907.64	14,692.70	44,078.09		19,856.10	39,712.20	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	d3-MeFOSAA	30,737.26	14,692.70	44,078.09		19,856.10	39,712.20	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	d3-MeFOSAA	23,515.20	14,692.70	44,078.09		19,856.10	39,712.20	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	d3-MeFOSAA	22,163.18	14,692.70	44,078.09		19,856.10	39,712.20	
JV70 CCV	L7 CCV	6/15/18 19:36	d3-MeFOSAA	32,544.08	14,692.70	44,078.09		19,856.10	39,712.20	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	d3-MeFOSAA	25,531.62	14,692.70	44,078.09		22,780.86	45,561.71	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	d3-MeFOSAA	26,484.83	14,692.70	44,078.09		22,780.86	45,561.71	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	d3-MeFOSAA	22,915.14	14,692.70	44,078.09		22,780.86	45,561.71	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	d3-MeFOSAA	24,928.25	14,692.70	44,078.09		22,780.86	45,561.71	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	d3-MeFOSAA	21,240.41	14,692.70	44,078.09		22,780.86	45,561.71	N
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	d3-MeFOSAA	28,180.65	14,692.70	44,078.09		22,780.86	45,561.71	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	d3-MeFOSAA	25,337.67	14,692.70	44,078.09		22,780.86	45,561.71	
JV69 CCV	L6 CCV	6/15/18 20:57	d3-MeFOSAA	33,029.07	14,692.70	44,078.09		22,780.86	45,561.71	



Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/14/2018 5:53:22 PM	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.51	1.02	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.81	1.19	0.8 – 1.5

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/14/2018 5:53:22 PM	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	31	>10
PFBS_2	298.9 / 99.0	1.51	30	>10
PFHxA_1	313.0 / 269.0	1.81	26	>10
PFHxA_2	313.0 / 119.0	1.80	22	>10
PFHpA_1	363.0 / 319.0	2.18	33	>10
PFHpA_2	363.0 / 169.0	2.18	28	>10
PFHxS_1	399.0 / 80.0	2.19	29	>10
PFHxS_2	399.0 / 99.0	2.19	31	>10
PFOA_1	413.0 / 369.0	2.56	31	>10
PFOA_2	413.0 / 169.0	2.56	32	>10
PFNA_1	463.0 / 419.0	2.94	28	>10
PFNA_2	463.0 / 219.0	2.94	33	>10
PFOS_1	499.0 / 80.0	2.93	31	>10
PFOS_2	499.0 / 99.0	2.93	27	>10
PFDA_1	513.0 / 469.0	3.29	33	>10
PFDA_2	513.0 / 219.0	3.29	41	>10
PFUnA_1	563.0 / 519.0	3.61	27	>10
PFUnA_2	563.0 / 269.0	3.61	33	>10
PFDaA_1	613.0 / 569.0	3.89	35	>10
PFDaA_2	613.0 / 319.0	3.89	31	>10
PFTrDA_1	663.0 / 619.0	4.15	32	>10
PFTrDA_2	663.0 / 169.0	4.14	35	>10
PFTeDA_1	713.0 / 669.0	4.37	61	>10
PFTeDA_2	713.0 / 169.0	4.36	50	>10
NMeFOSAA_1	570.0 / 419.0	3.44	40	>10
NMeFOSAA_2	570.0 / 512.0	3.44	38	>10
NEtFOSAA_1	584.0 / 419.0	3.60	37	>10
NEtFOSAA_2	584.0 / 483.0	3.59	46	>10
13C2-PFHxA	315.0 / 270.0	1.80	37	>10
13C2-PFDA	515.0 / 470.0	3.28	24	>10
d5-EtFOSAA	589.0 / 419.0	3.59	33	>10

Mass Spectral Acquisition Rate  
Report

Created with Analyst Reporter  
Printed: 22/06/2018 11:10:23 AM

<b>Sample Name</b>	JV70	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/21/2018 9:17:46 PM	<b>Data File</b>	06212018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0360_DW_A
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFOS_1	499.0 / 80.0	2.93	31	>10
PFOS_2	499.0 / 99.0	2.93	27	>10



## Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.80	1.13	3.39	11
PFHpA	375-85-9	11.18	1.28	3.84	11
PFOA	335-67-1	11.23	1.23	3.69	11
PFNA	375-95-1	11.07	1.19	3.57	11
PFDA	335-76-2	11.07	1.26	3.78	11
PFUnA	2058-94-8	10.94	1.46	4.38	11
PFDoA	307-55-1	10.66	1.71	5.13	11
PFTTrDA	72629-94-8	10.59	1.66	4.98	11
PFTeDA	376-06-7	11.90	1.38	4.14	11
NMeFOSAA	2355-31-9	10.80	0.92	2.76	11
NEtFOSAA	2991-50-6	10.27	1.03	3.09	11
PFBS	375-73-5	8.92	1.32	3.96	11
PFHxS	355-46-4	10.41	1.33	3.99	11
PFOS	1763-23-1	9.82	1.19	3.57	11

# BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
<b>PFHxA</b>	307-24-4	0.22	0.5	2.5	2.5
<b>PFHpA</b>	375-85-9	0.34	1.0	2.5	2.5
<b>PFOA</b>	335-67-1	0.38	1.0	2.5	2.5
<b>PFNA</b>	375-95-1	0.37	1.0	2.5	2.5
<b>PFDA</b>	335-76-2	0.39	1.0	2.5	2.5
<b>PFUnA</b>	2058-94-8	0.38	1.0	2.5	2.5
<b>PFDoA</b>	307-55-1	0.42	1.0	2.5	2.5
<b>PFTTrDA</b>	72629-94-8	0.42	1.0	2.5	2.5
<b>PFTeDA</b>	376-06-7	0.73	1.5	2.5	2.5
<b>NMeFOSAA</b>	2355-31-9	0.42	1.0	2.5	2.5
<b>NEtFOSAA</b>	2991-50-6	0.44	1.0	2.5	2.5
<b>PFBS</b>	375-73-5	0.21	0.5	2.5	2.5
<b>PFHxS</b>	3871-99-6	0.34	1.0	2.5	2.5
<b>PFOS</b>	1763-23-1	0.30	1.0	2.5	2.5

*Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation*

## Analytical Transitions for PFAS in drinking water

## SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
<b>PFHxA</b>	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
<b>PFHpA</b>	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
<b>PFOA</b>	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
<b>PFNA</b>	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
<b>PFDA</b>	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
<b>PFUnA</b>	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
<b>PFDoA</b>	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
<b>PFTTrDA</b>	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
<b>PFTeDA</b>	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
<b>NMeFOSAA</b>	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
<b>NEtFOSAA</b>	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
<b>PFBS</b>	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
<b>PFHxS</b>	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
<b>PFOS</b>	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
<b><sup>13</sup>C<sub>2</sub>-PFHxA</b>	NA	SIS	315.0 / 270.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFDA</b>	NA	SIS	515.0 / 470.0	NA
<b>d<sub>5</sub>-EtFOSAA</b>	NA	SIS	589.0 / 419.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFOA</b>	NA	IS	415.0 / 270.0	NA
<b><sup>13</sup>C<sub>4</sub>-PFOS</b>	NA	IS	503.0 / 80.0	NA
<b>d<sub>3</sub>-MeFOSAA</b>	NA	IS	573.0 / 419.0	NA



## Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF <sup>1</sup>	Sample Size (L)	Sample Equivalent (ng/L) <sup>2</sup>
25	1	1	0.250	0.1
50	1	1	0.250	0.2
100	1	1	0.250	0.4
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
5,000	1	1	0.250	20.0
10,000	1	1	0.250	40.0

<sup>1</sup> - base level dilution as part of the extraction procedure

<sup>2</sup> - calculated equivalent of a sample based on the ICAL concentration



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# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Mass calibration and tune check

## QTRAP 5500 Preventive Maintenance Checklist

<b>Preventive Maintenance Date:</b>	22-Feb-2017
<b>Request ID:</b>	3683
<b>Company Name:</b>	Battelle Memorial Institute
<b>Instrument ID:</b>	X60666
<b>Instrument Model:</b>	QTRAP 5500
<b>Instrument Serial Number:</b>	AU23051004

**PASS**       **FAIL**

**Any failure will lead to an automatic Service Call being open to investigate fault.**

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Performed By:**           Kaustubh Dhayagude                **Date:**           22-Feb-2017          

**Approved By :** \_\_\_\_\_      **Date:** \_\_\_\_\_



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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

**PRE PM PPG PERFORMANCE EVALUATION:**

- Consult Customer concerning the unit overall performance.
- Check Logbook for Services recently performed.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading ( x 10 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 <sup>-5</sup> Torr

- Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
  - No degradation or Sensitivity drop
- Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
  - No degradation or Sensitivity drop

**Pre PM PPG Test:** Perform each of the following tests. Optimize ion source position only. The specifications listed for these Pre PM tests are guidelines only, not required to be met.

- Perform Q1 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 175.133	1.64 e6	Read Only	0.8095	Read Only
Q1 500.380	2.40 e7	Read Only	0.8592	Read Only
Q1 906.673	2.86 e7	Read Only	0.9633	Read Only

- Perform Q3 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 175.133	1.26 e6	Read Only	0.6252	Read Only
Q3 500.380	2.19 e7	Read Only	0.7275	Read Only
Q3 906.673	3.02 e7	Read Only	0.7662	Read Only

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: : 19.51% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	7.43 e7	Read Only	0.9981	Read Only
MS/MS 195.1	1.45 e7	Read Only	0.6582	Read Only

Perform Q1 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	1.43 e7	Read Only	0.7330	Read Only

Perform Q3 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.22 e7	Read Only	0.8138	Read Only

Perform Product Ion scan using NEG PPG 3e-5M. Record 10 mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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Phone: 1.866.854.7988

**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

**PREVENTIVE MAINTENANCE CHECKLIST:**

- Check Cooling Fans for Turbo Pumps while MS is ON.
- Check QJet and QPS tuning voltage for reference.
- Record AC input Voltage while MS is OFF: \_\_\_\_\_ (200-240VAC).  
If Out-of-Range, notify customer.
- Clean Interface
- Curtain Plate
  - Orifice Plate
  - QJet
  - Q0 Rods.
- Replace Roughing Pump Oil.
- Inspect Oil Exhaust Filter, if Applicable.  N/A
- Clean and inspect built-in divert valve if used.  N/A
- Check Multiplier Voltage, optimize if necessary.
- Replace four Air Filters at the bottom of the mass spectrometer.
- Pump down overnight if possible.  N/A
- Perform Maintenance on Turbo V source.
- Replace Electrode, if necessary.  N/A
- Check Turbo heaters resistances.
- Check if Temperature is reached at 500C with TIS Probe installed.
- Check if Temperature is reached at 500C with APCI Probe installed.  N/A

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

**POST PM PPG PERFORMANCE TESTS:**

- Set-up Sample for Infusion.
- Check spray and adjust sprayer's position of the TIS source.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading ( x 10 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 <sup>-5</sup> Torr

- Perform Q1 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2 <sup>e6</sup>	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 <sup>e6</sup>	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 <sup>e7</sup>	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 <sup>e7</sup>	0.7656	0.6 to 0.8

- Perform Q3 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2 <sup>e6</sup>	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0 <sup>e6</sup>	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4 <sup>e7</sup>	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8 <sup>e7</sup>	0.7118	0.6 to 0.8

- Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.

Transmission Efficiency: 16.93% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.74 e7	N/A	0.7667	Read Only
MS/MS 195.1	9.72 e6	N/A	0.6751	Read Only

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform Q1 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width Value	Width Specs
			Value	Spec		
Q1 933.636	10	10	1.31 e7	$\geq 1.0^{e7}$	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	$\geq 4.0^{e7}$	0.6740	0.6 to 0.8

Perform Q3 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width Value	Width Specs
			Value	Spec		
Q3 933.636	10	10	1.70 e7	$\geq 8.0^{e6}$	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	$\geq 4.0^{e7}$	0.7292	0.6 to 0.8

Perform Product Ion scan using NEG PPG 3e-5M.

Mass	Scan Rate	Mca	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.33 e6	Read Only	0.6387	Read Only

Perform ER POS 118.087 and 922.01 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	8.08 e6	$\geq 7.2^{e6}$	0.1302	<0.35
ER 922.010	0.05	3.89 e7	$\geq 2.8^{e6}$	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	$\geq 2.4^{e7}$	0.3740	<0.65
ER 922.010	0.05	2.37 e8	$\geq 6.8^{e7}$	0.5407	<0.65

Perform ER NEG 431.982 and 601.978 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	1.05 e8	$\geq 4.4^{e7}$	0.1840	<0.35
ER 601.978	0.05	7.74 e7	$\geq 5.6^{e7}$	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	$\geq 1.2^{e8}$	0.4382	<0.65
ER 601.978	0.05	2.55 e8	$\geq 1.6^{e8}$	0.6205	<0.65

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**QTRAP 5500****LC/MS/MS Detector System**

Appendix ZEFPM003-2L

- Perform EPI POS 397.2 using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Q0 Trapping OFF		Q0 Trapping ON	
		Intensity	Spec	Intensity	Spec
EPI 397.2	10000	> 3.5 e6	≥2.0 e6	> 4.0 e7	≥6.4 e6

- Perform MS3 POS full scan Fragmentation ON & OFF using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
<input type="checkbox"/> 236 OR <input checked="" type="checkbox"/> 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10 <sup>e6</sup>

**REVIEW:**

- Attach all spectrums printouts to this procedure.
- If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
- Empty tuning cache folder, if necessary.  N/A
- Update Service Work Order status
- Fill and replace PM Label.

**END OF PREVENTIVE MAINTENANCE CHECKLIST****Document history:**

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE IDENTIFICATION PAGE**

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-  
WE04

**18-0360**

**WE04 PFAS Analysis**

**DW**

<b>Sample ID</b>	<b>Description</b>
CQ924PB-FS	Procedural Blank
CQ925LCS-FS	Laboratory Control Sample
J6291-FS	NAWC-053118-FRB-256
J6293-FS	NAWC-053118-FRB-126
J6296-FS	WGNA-053118-FRB-4850
J6298-FS	NAWC-053118-FRB-311
J6300-FS	NAWC-053118-FRB-265
J6583-FS	NAWC-060418-FRB-230
J6585-FS	NAWC-060418-FRB-309
J6587-FS	NAWC-060418-FRB-293
J6589-FS	NAWC-060418-FRB-038
J6591-FS	NAWC-060418-FRB-039
J6638-FS	WGNA-060718-FRB-0488
J6640-FS	NAWC-060718-FRB-175
J6643-FS	WGNA-060718-FRB-0626

Samples Assigned By:

Jonathan Thorn

Date :

June 11, 2018

Comments:



It can be done

## BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0360****WE04 PFAS Analysis****DW**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ924PB-FS	Procedural Blank	250.0	NA	--	06/14/18 SAS
CQ925LCS-FS	Laboratory Control Sample	250.0	NA	--	06/14/18 SAS
J6291-FS	NAWC-053118-FRB-256	260.0	1	C	06/14/18 SAS
J6293-FS	NAWC-053118-FRB-126	265.0	1	C	06/14/18 SAS
J6296-FS	WGNA-053118-FRB-4850	265.0	1	C	06/14/18 SAS
J6298-FS	NAWC-053118-FRB-311	265.0	1	C	06/14/18 SAS
J6300-FS	NAWC-053118-FRB-265	265.0	1	C	06/14/18 SAS
J6583-FS	NAWC-060418-FRB-230	260.0	1	C	06/14/18 SAS
J6585-FS	NAWC-060418-FRB-309	250.0	1	C	06/14/18 SAS
J6587-FS	NAWC-060418-FRB-293	250.0	1	C	06/14/18 SAS
J6589-FS	NAWC-060418-FRB-038	265.0	1	C	06/14/18 SAS
J6591-FS	NAWC-060418-FRB-039	265.0	1	C	06/14/18 SAS
J6638-FS	WGNA-060718-FRB-0488	255.0	1	C	06/14/18 SAS
J6640-FS	NAWC-060718-FRB-175	255.0	1	C	06/14/18 SAS
J6643-FS	WGNA-060718-FRB-0626	255.0	1	C	06/14/18 SAS

**Comments:**

Sample ID:	Comments:
CQ924PB-FS	1.27g Trizma(180502-01) weighed on BAL-009
CQ925LCS-FS	1.27g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date :

June 11, 2018

\* - "C" = Sample is Consumed





It can be done

## BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0360****WE04 PFAS Analysis****DW**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ924PB-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
CQ925LCS-FS	JV41	LCS/MS	1	50	06/14/18 SAS	JCT	NA
CQ925LCS-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6291-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6293-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6296-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6298-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6300-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6583-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6585-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6587-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6589-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6591-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6638-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6640-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6643-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA

**Syringes/Pipettes Used:**

Std ID	Type	Syr/Pip
JV41	Pipette	I0793912B
JV60	Pipette	I0793912B



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0360****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CQ924PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
CQ925LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6291-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6293-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6296-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6298-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6300-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6300-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/21/18 LMG	NA
J6583-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6585-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6587-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6589-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6591-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6638-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6640-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6643-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6643-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/21/18 LMG	NA

\* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/14/2018 4:50:52 PM	5-0371.dam	06142018.wiff
2	JV64	L1	6/14/2018 4:59:48 PM	5-0371.dam	06142018.wiff
3	JV65	L2	6/14/2018 5:08:44 PM	5-0371.dam	06142018.wiff
4	JV66	L3	6/14/2018 5:17:40 PM	5-0371.dam	06142018.wiff
5	JV67	L4	6/14/2018 5:26:35 PM	5-0371.dam	06142018.wiff
6	JV68	L5	6/14/2018 5:35:30 PM	5-0371.dam	06142018.wiff
7	JV69	L6	6/14/2018 5:44:26 PM	5-0371.dam	06142018.wiff
8	JV70	L7	6/14/2018 5:53:22 PM	5-0371.dam	06142018.wiff
9	JV71	L8	6/14/2018 6:02:19 PM	5-0371.dam	06142018.wiff
10	JV72	L9	6/14/2018 6:11:15 PM	5-0371.dam	06142018.wiff
11	JV63 ICC	ICC	6/14/2018 6:20:10 PM	5-0371.dam	06142018.wiff
23	JV69 CCV	L6 CCV	6/15/2018 6:07:22 PM	5-0371.dam	06142018.wiff
1	MeOH	Solvent	6/15/2018 6:16:16 PM	5-0371.dam	06142018.wiff
24	CQ924PB-FS(0)	Procedural Blank	6/15/2018 6:25:12 PM	5-0371.dam	06142018.wiff
25	CQ925LCS-FS(0)	Laboratory Control Sample	6/15/2018 6:34:09 PM	5-0371.dam	06142018.wiff
26	J6291-FS(0)	NAWC-053118-FRB-256	6/15/2018 6:43:04 PM	5-0371.dam	06142018.wiff
27	J6293-FS(0)	NAWC-053118-FRB-126	6/15/2018 6:52:00 PM	5-0371.dam	06142018.wiff
28	J6296-FS(0)	WGNA-053118-FRB-4850	6/15/2018 7:00:56 PM	5-0371.dam	06142018.wiff
29	J6298-FS(0)	NAWC-053118-FRB-311	6/15/2018 7:09:53 PM	5-0371.dam	06142018.wiff
30	J6300-FS(0)	NAWC-053118-FRB-265	6/15/2018 7:18:48 PM	5-0371.dam	06142018.wiff
31	J6583-FS(0)	NAWC-060408-FRB-230	6/15/2018 7:27:44 PM	5-0371.dam	06142018.wiff
32	JV70 CCV	L7 CCV	6/15/2018 7:36:43 PM	5-0371.dam	06142018.wiff
1	MeOH	Solvent	6/15/2018 7:45:41 PM	5-0371.dam	06142018.wiff
33	J6585-FS(0)	NAWC-060408-FRB-309	6/15/2018 7:54:39 PM	5-0371.dam	06142018.wiff
34	J6587-FS(0)	NAWC-060408-FRB-293	6/15/2018 8:03:34 PM	5-0371.dam	06142018.wiff
35	J6589-FS(0)	NAWC-060408-FRB-038	6/15/2018 8:12:30 PM	5-0371.dam	06142018.wiff
36	J6591-FS(0)	NAWC-060408-FRB-	6/15/2018 8:21:24	5-0371.dam	06142018.wiff

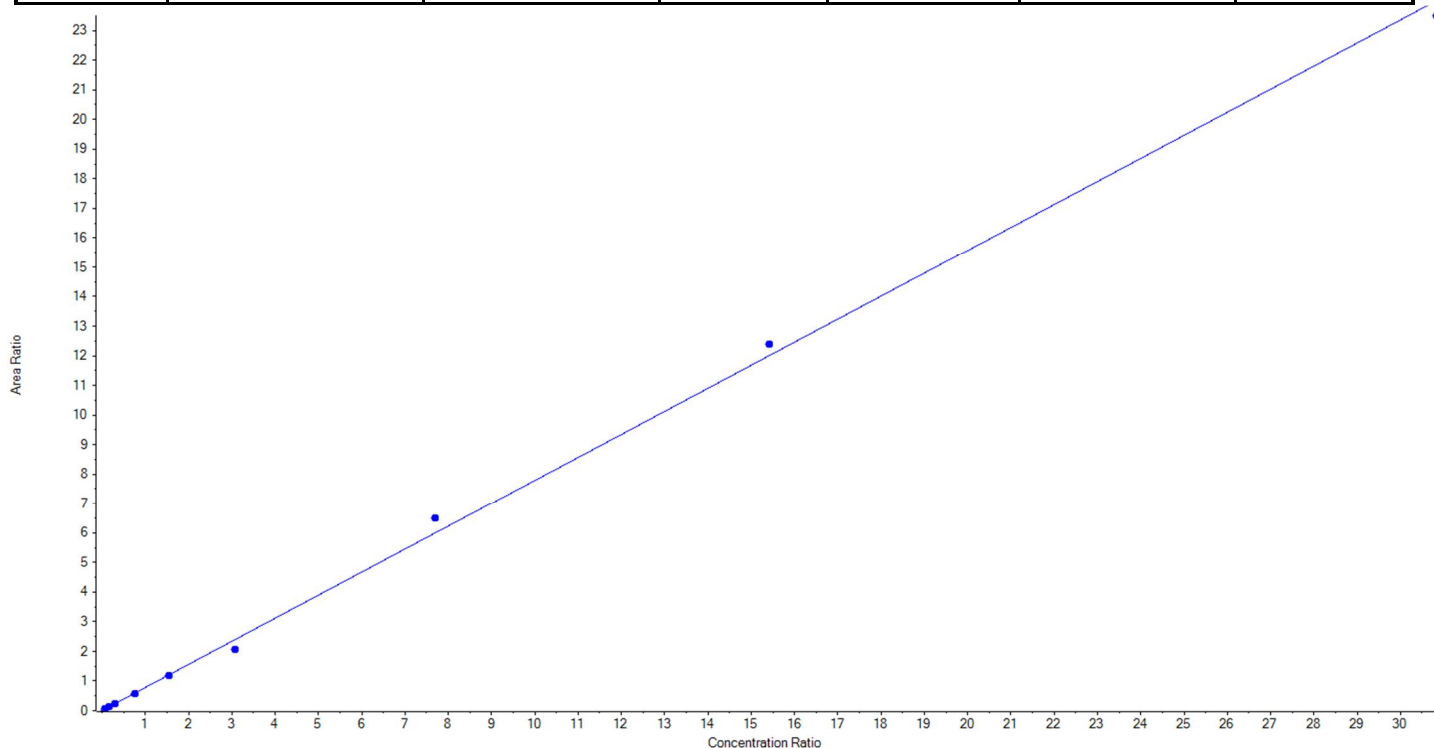
Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		039	PM		
37	J6638-FS(0)	WGNA-060718-FRB-0488	6/15/2018 8:30:19 PM	5-0371.dam	06142018.wiff
38	J6640-FS(0)	NAWC-060718-FRB-175	6/15/2018 8:39:15 PM	5-0371.dam	06142018.wiff
39	J6643-FS(0)	WGNA-060718-FRB-0626	6/15/2018 8:48:11 PM	5-0371.dam	06142018.wiff
40	JV69 CCV	L6 CCV	6/15/2018 8:57:07 PM	5-0371.dam	06142018.wiff

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MEOH		6/21/2018 8:15:15 AM	5-0371.dam	06212018.wiff
2	JV64		6/21/2018 8:24:11 AM	5-0371.dam	06212018.wiff
3	JV65		6/21/2018 8:33:07 AM	5-0371.dam	06212018.wiff
4	JV66		6/21/2018 8:42:03 AM	5-0371.dam	06212018.wiff
5	JV67		6/21/2018 8:50:59 AM	5-0371.dam	06212018.wiff
6	JV68		6/21/2018 8:59:55 AM	5-0371.dam	06212018.wiff
7	JV69		6/21/2018 9:08:50 AM	5-0371.dam	06212018.wiff
8	JV70		6/21/2018 9:17:46 AM	5-0371.dam	06212018.wiff
9	JV71		6/21/2018 9:26:43 AM	5-0371.dam	06212018.wiff
10	JV72		6/21/2018 9:35:40 AM	5-0371.dam	06212018.wiff
11	JV63 ICC		6/21/2018 9:44:36 AM	5-0371.dam	06212018.wiff
1	MEOH		6/21/2018 9:53:32 AM	5-0371.dam	06212018.wiff
22	J6300-FS(0)		6/21/2018 10:02:27 AM	5-0371.dam	06212018.wiff
23	J6643-FS(0)		6/21/2018 10:11:23 AM	5-0371.dam	06212018.wiff
7	JV69		6/21/2018 10:20:17 AM	5-0371.dam	06212018.wiff

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.77839x + 0.00401$  (r = 0.99869) (weighting: 1 / x)

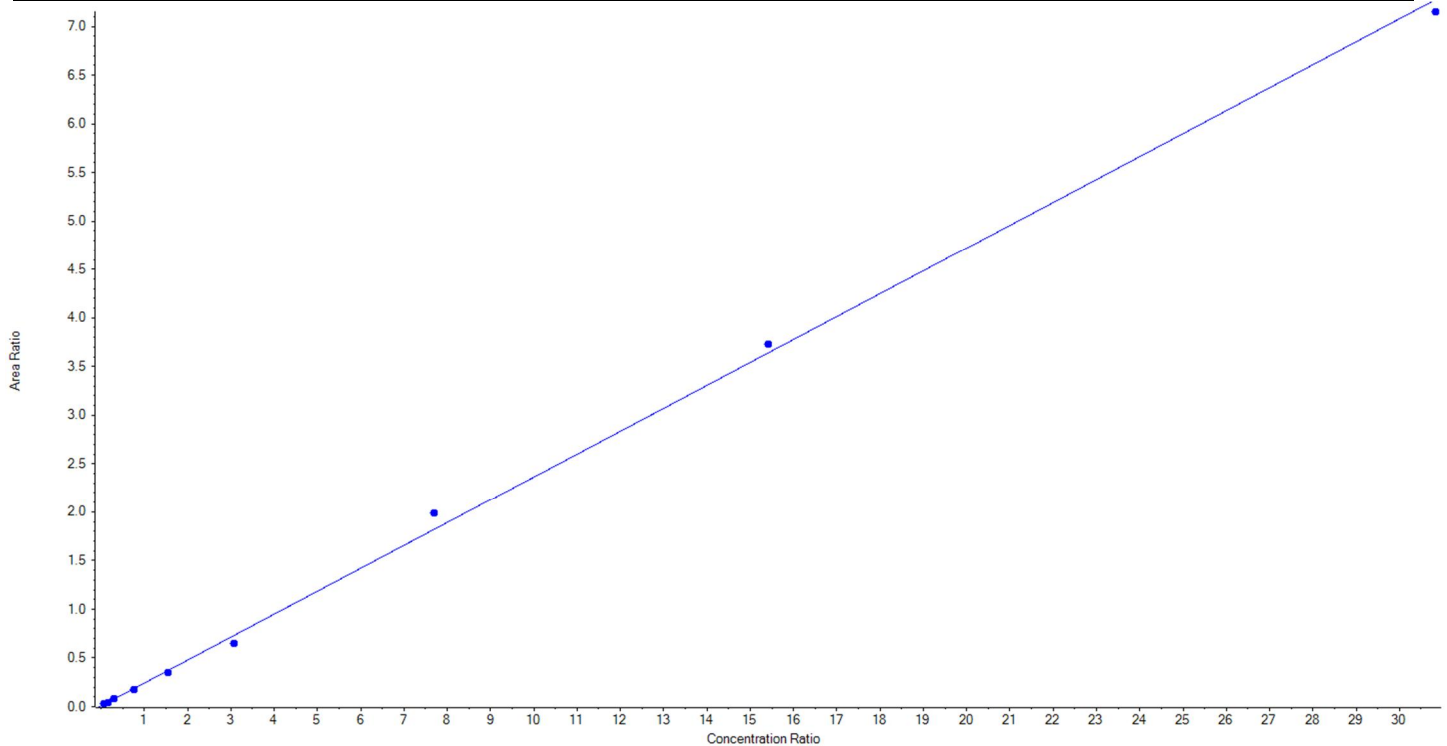
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	24.666173	111.4
3	JV65	L2	True	44.30	44.259714	99.9
4	JV66	L3	True	88.60	89.494205	101.0
5	JV67	L4	True	221.50	209.706842	94.7
6	JV68	L5	True	443.00	431.309708	97.4
7	JV69	L6	True	885.00	762.049217	86.1
8	JV70	L7	True	2212.50	2398.828571	108.4
9	JV71	L8	True	4425.00	4570.588925	103.3
10	JV72	L9	True	8850.00	8661.146644	97.9



<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.23574 x + 0.00605$  (r = 0.99879) (weighting: 1 / x)

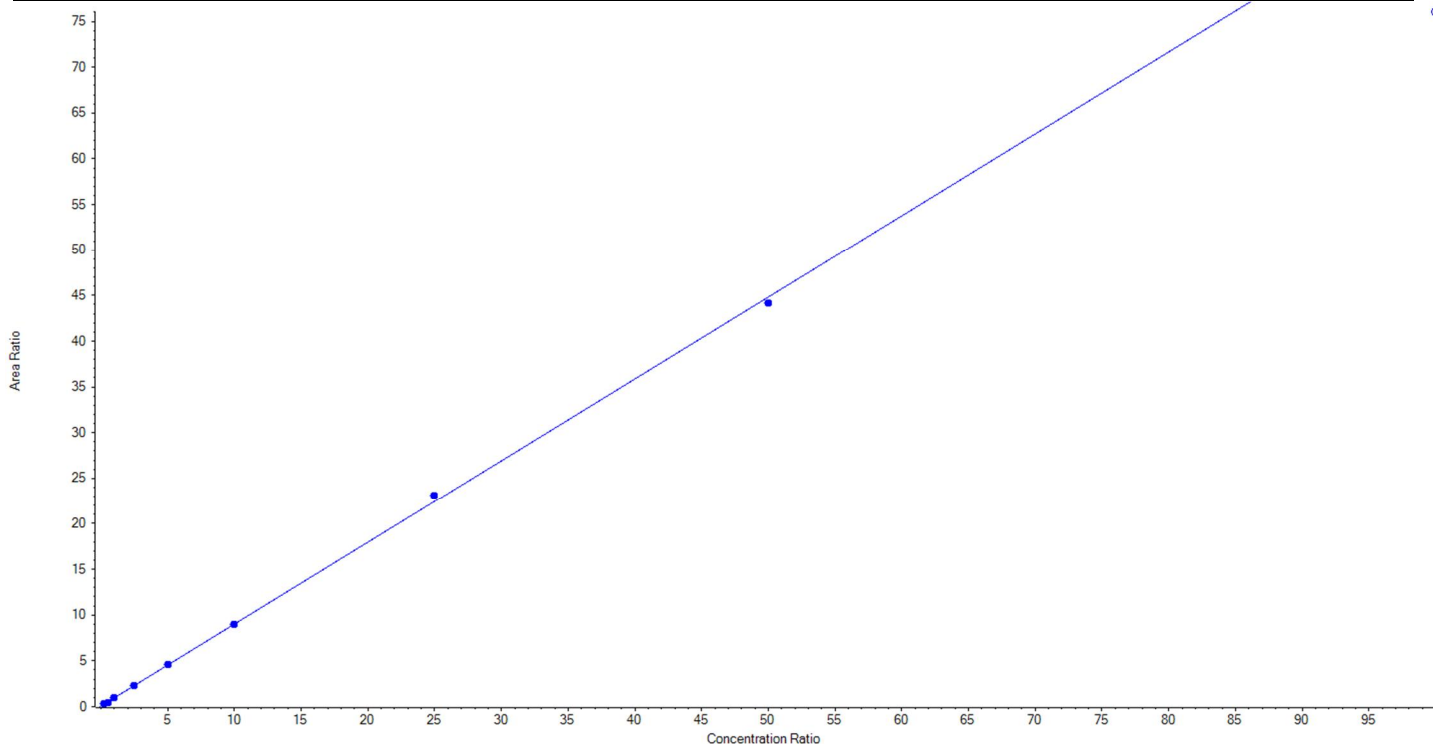
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	27.536713	124.3
3	JV65	L2	True	44.30	41.731203	94.2
4	JV66	L3	True	88.60	87.509544	98.8
5	JV67	L4	True	221.50	201.132833	90.8
6	JV68	L5	True	443.00	417.410406	94.2
7	JV69	L6	True	885.00	780.428998	88.2
8	JV70	L7	True	2212.50	2407.544452	108.8
9	JV71	L8	True	4425.00	4531.606434	102.4
10	JV72	L9	True	8850.00	8697.149416	98.3



<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.89489x + 0.07012$  (r = 0.99974) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	27.758747	111.0
3	JV65	L2	True	50.00	43.372821	86.8
4	JV66	L3	True	100.00	100.860463	100.9
5	JV67	L4	True	250.00	246.776329	98.7
6	JV68	L5	True	500.00	507.810763	101.6
7	JV69	L6	True	1000.00	995.836146	99.6
8	JV70	L7	True	2500.00	2572.545694	102.9
9	JV71	L8	True	5000.00	4930.039038	98.6
10	JV72	L9	False	10000.00	8489.472182	84.9

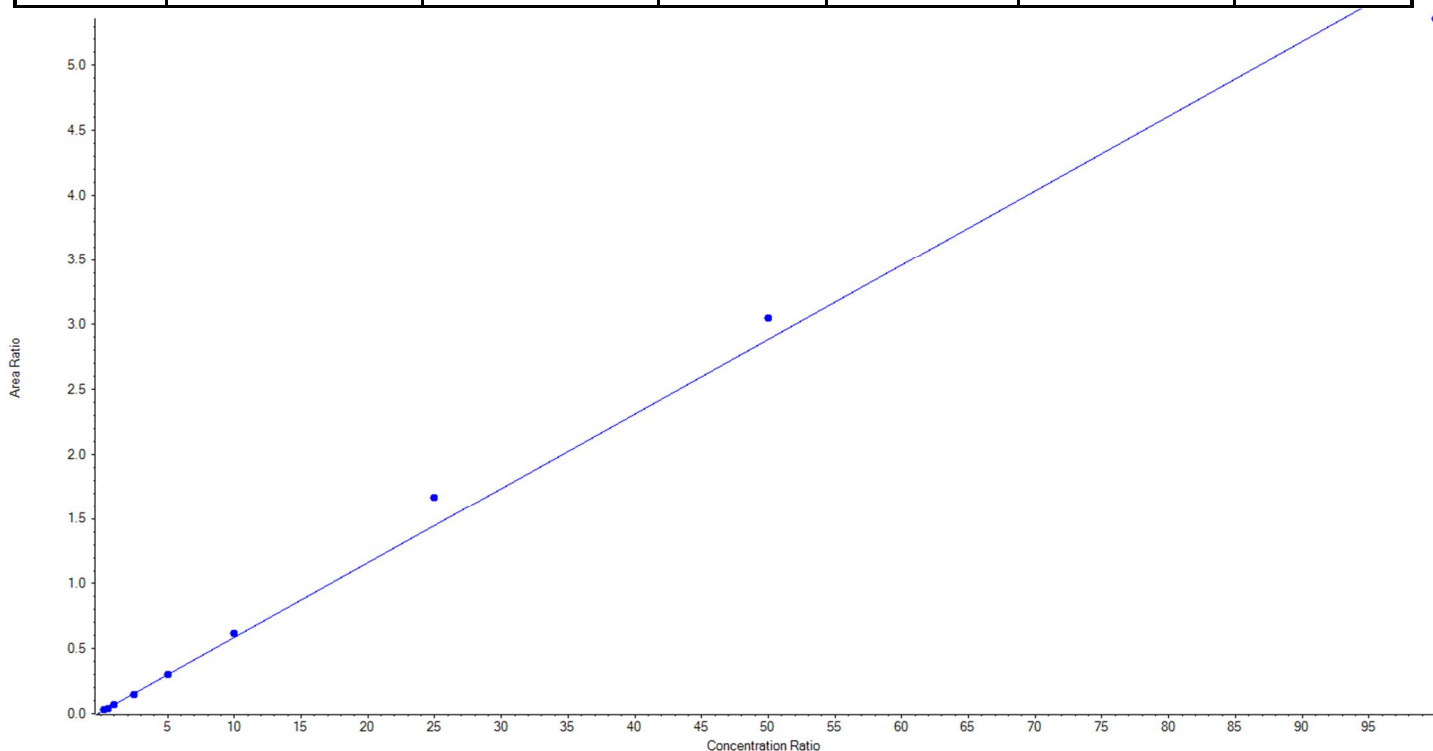




<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05745 x + 0.01250$  (r = 0.99653) (weighting: 1 / x)

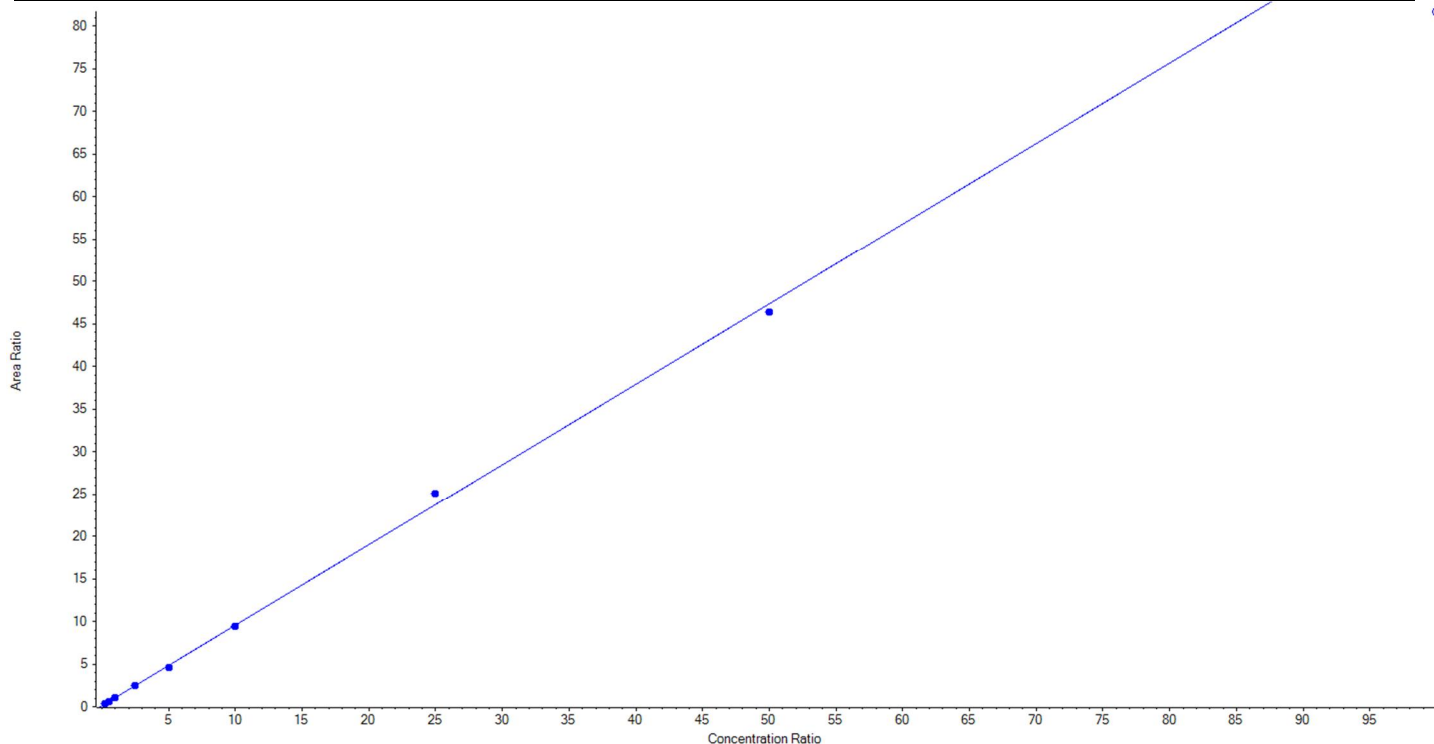
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.082375	104.3
3	JV65	L2	True	50.00	42.916072	85.8
4	JV66	L3	True	100.00	97.178176	97.2
5	JV67	L4	True	250.00	233.831403	93.5
6	JV68	L5	True	500.00	500.848102	100.2
7	JV69	L6	True	1000.00	1048.145230	104.8
8	JV70	L7	True	2500.00	2883.357143	115.3
9	JV71	L8	True	5000.00	5288.277488	105.8
10	JV72	L9	True	10000.00	9304.364012	93.0



<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.94432x + 0.11531$  (r = 0.99932) (weighting: 1 / x)

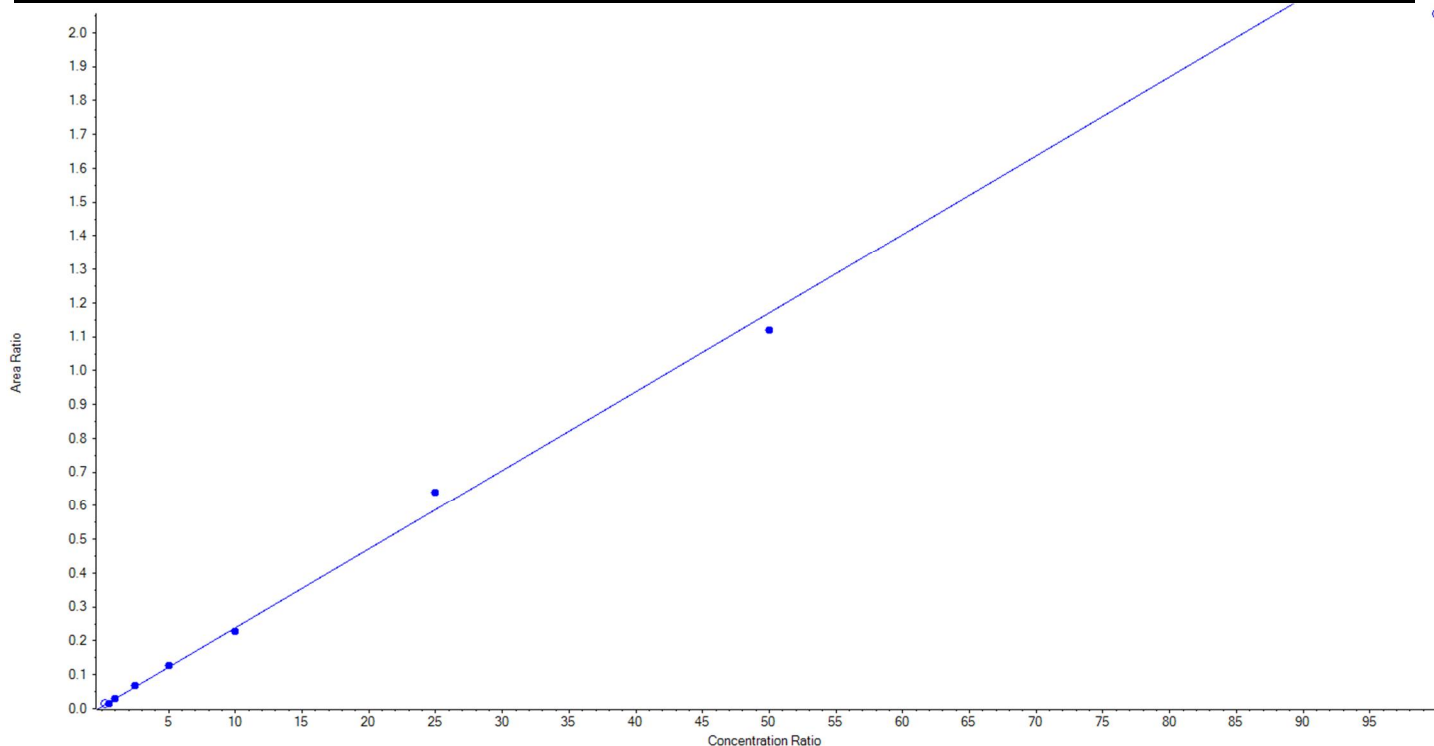
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.759139	103.0
3	JV65	L2	True	50.00	51.556182	103.1
4	JV66	L3	True	100.00	97.624196	97.6
5	JV67	L4	True	250.00	246.212850	98.5
6	JV68	L5	True	500.00	478.933727	95.8
7	JV69	L6	True	1000.00	982.303729	98.2
8	JV70	L7	True	2500.00	2643.621233	105.7
9	JV71	L8	True	5000.00	4898.988945	98.0
10	JV72	L9	False	10000.00	8636.023065	86.4



<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02330 x + 0.00588$  (r = 0.99792) (weighting: 1 / x)

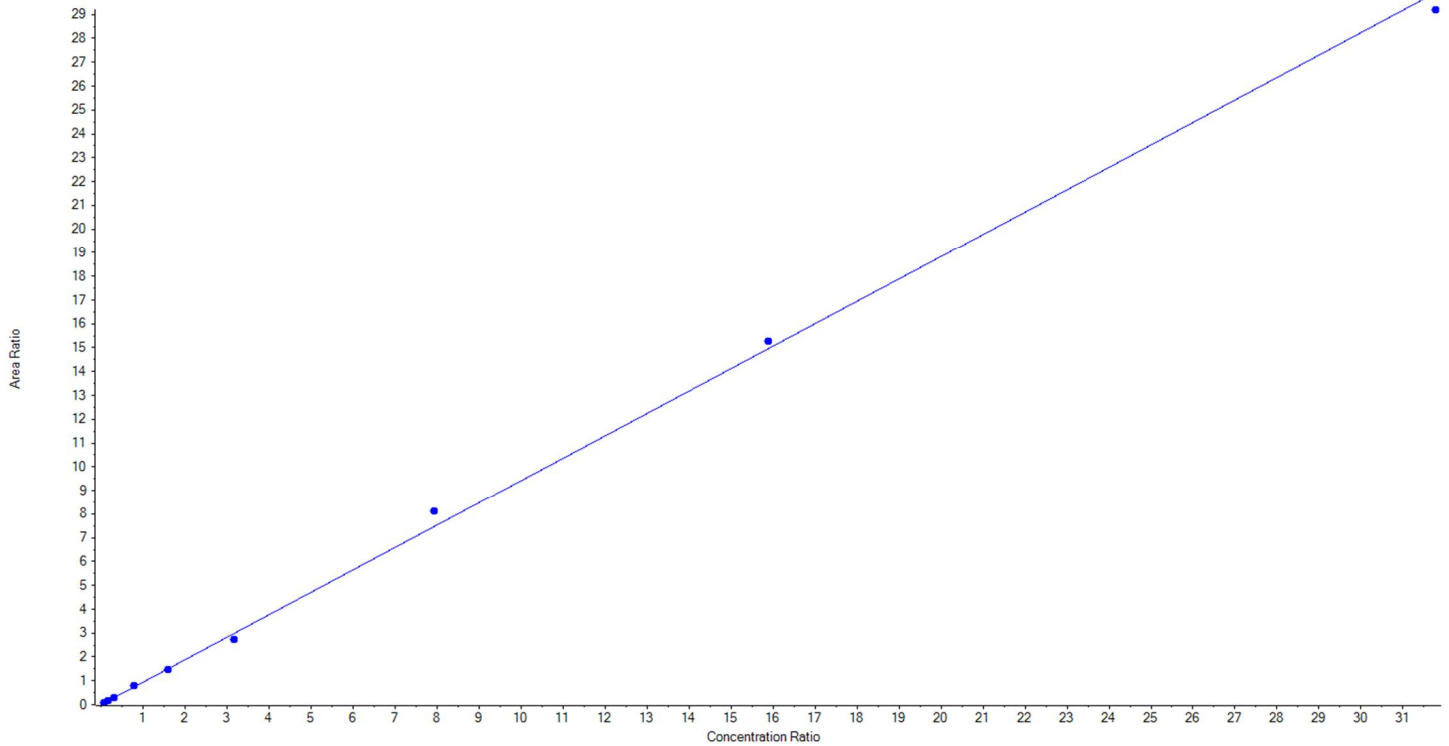
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	39.243799	157.0
3	JV65	L2	True	50.00	43.480197	87.0
4	JV66	L3	True	100.00	103.234444	103.2
5	JV67	L4	True	250.00	261.112839	104.5
6	JV68	L5	True	500.00	524.272465	104.9
7	JV69	L6	True	1000.00	958.231420	95.8
8	JV70	L7	True	2500.00	2724.450945	109.0
9	JV71	L8	True	5000.00	4785.217689	95.7
10	JV72	L9	False	10000.00	8798.438815	88.0



<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.94141 x + 0.00116$  (r = 0.99905) (weighting: 1 / x)

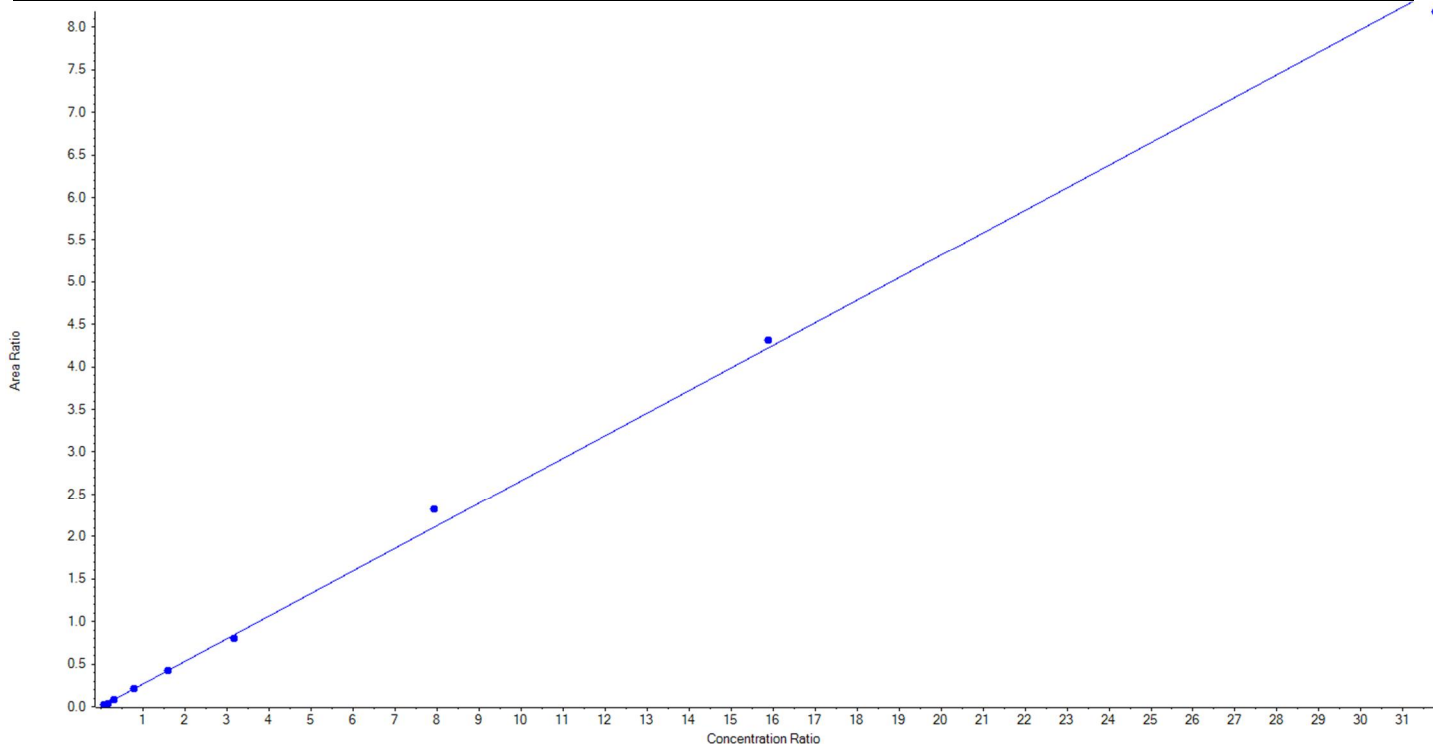
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	22.944645	100.6
3	JV65	L2	True	45.60	45.210339	99.2
4	JV66	L3	True	91.20	87.679621	96.1
5	JV67	L4	True	228.00	240.222187	105.4
6	JV68	L5	True	456.00	450.225539	98.7
7	JV69	L6	True	912.00	835.126278	91.6
8	JV70	L7	True	2280.00	2480.199044	108.8
9	JV71	L8	True	4560.00	4652.662654	102.0
10	JV72	L9	True	9120.00	8901.329694	97.6



<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.26575 x + 3.61678e-4$  (r = 0.99889) (weighting: 1 / x)

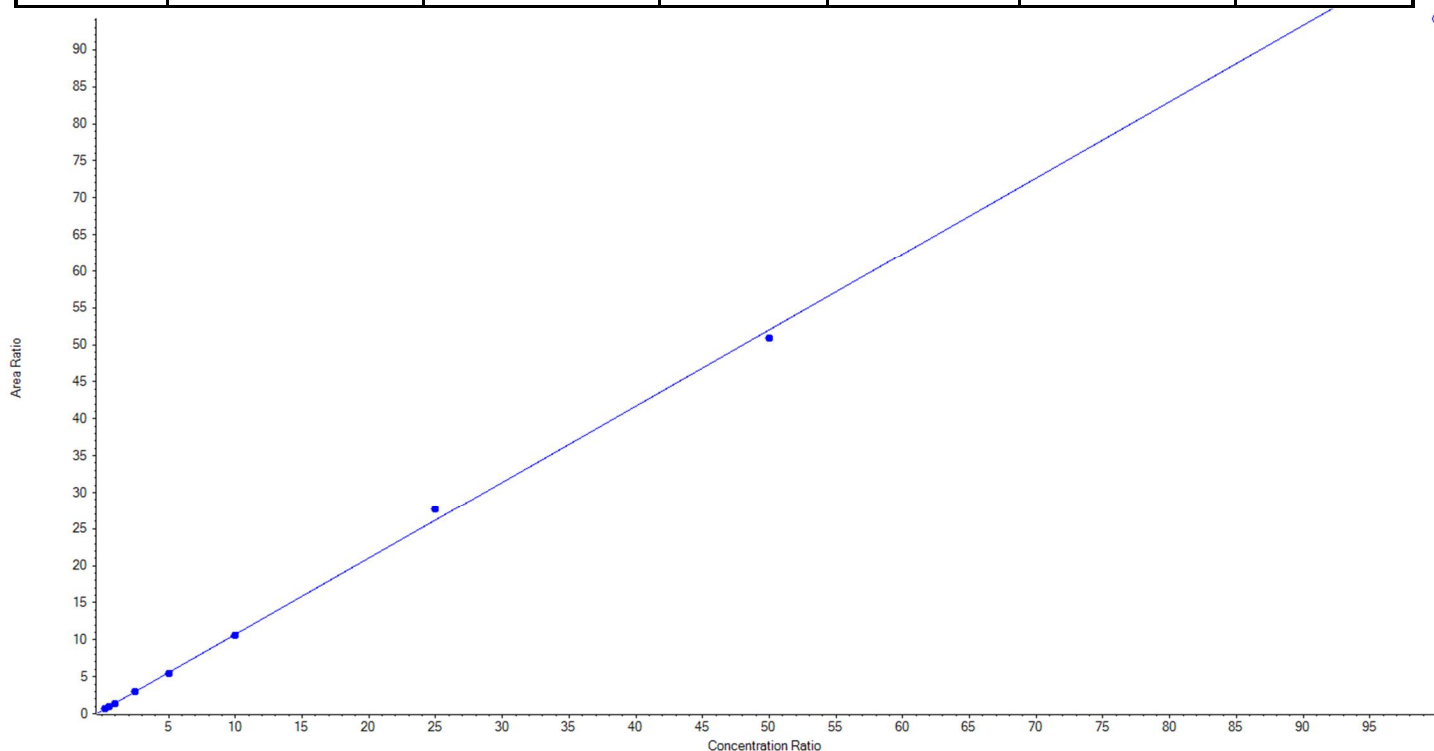
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	22.685495	99.5
3	JV65	L2	True	45.60	42.858494	94.0
4	JV66	L3	True	91.20	91.794916	100.7
5	JV67	L4	True	228.00	231.509688	101.5
6	JV68	L5	True	456.00	459.540762	100.8
7	JV69	L6	True	912.00	860.732360	94.4
8	JV70	L7	True	2280.00	2508.455542	110.0
9	JV71	L8	True	4560.00	4664.240454	102.3
10	JV72	L9	True	9120.00	8833.782290	96.9



<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.03224 x + 0.40144$  (r = 0.99932) (weighting: 1 / x)

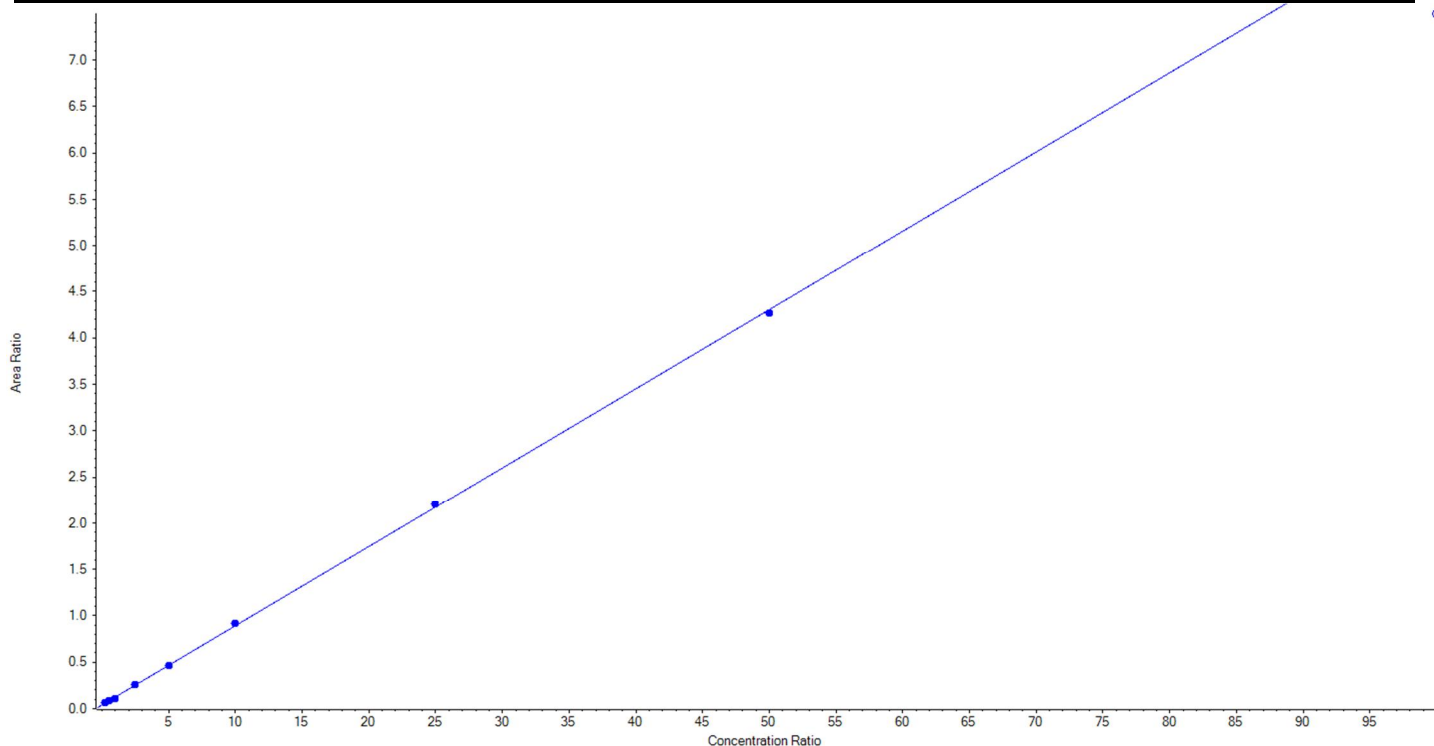
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	27.114030	108.5
3	JV65	L2	True	50.00	50.646537	101.3
4	JV66	L3	True	100.00	88.936107	88.9
5	JV67	L4	True	250.00	251.440480	100.6
6	JV68	L5	True	500.00	492.243257	98.5
7	JV69	L6	True	1000.00	990.584472	99.1
8	JV70	L7	True	2500.00	2637.535326	105.5
9	JV71	L8	True	5000.00	4886.499791	97.7
10	JV72	L9	False	10000.00	9085.501304	90.9



<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.08529x + 0.04040$  (r = 0.99943) (weighting: 1 / x)

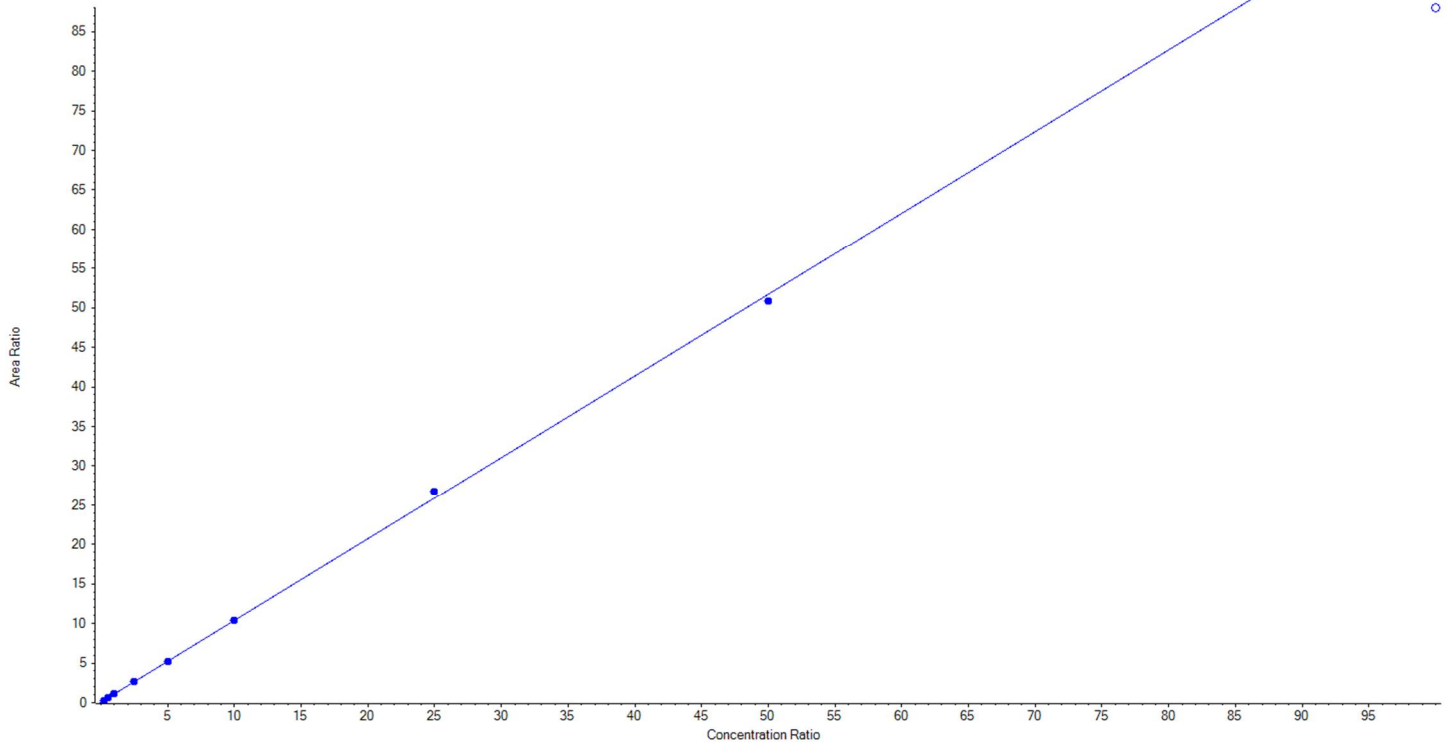
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	30.849054	123.4
3	JV65	L2	True	50.00	49.478583	99.0
4	JV66	L3	True	100.00	73.873247	73.9
5	JV67	L4	True	250.00	252.937559	101.2
6	JV68	L5	True	500.00	496.898603	99.4
7	JV69	L6	True	1000.00	1025.391274	102.5
8	JV70	L7	True	2500.00	2538.403299	101.5
9	JV71	L8	True	5000.00	4957.168382	99.1
10	JV72	L9	False	10000.00	8743.597229	87.4



<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.03297 x + 0.06553$  (r = 0.99975) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.121184	96.5
3	JV65	L2	True	50.00	49.481866	99.0
4	JV66	L3	True	100.00	101.654539	101.7
5	JV67	L4	True	250.00	254.470778	101.8
6	JV68	L5	True	500.00	496.390906	99.3
7	JV69	L6	True	1000.00	1002.857473	100.3
8	JV70	L7	True	2500.00	2581.214313	103.3
9	JV71	L8	True	5000.00	4914.808940	98.3
10	JV72	L9	False	10000.00	8514.480389	85.1

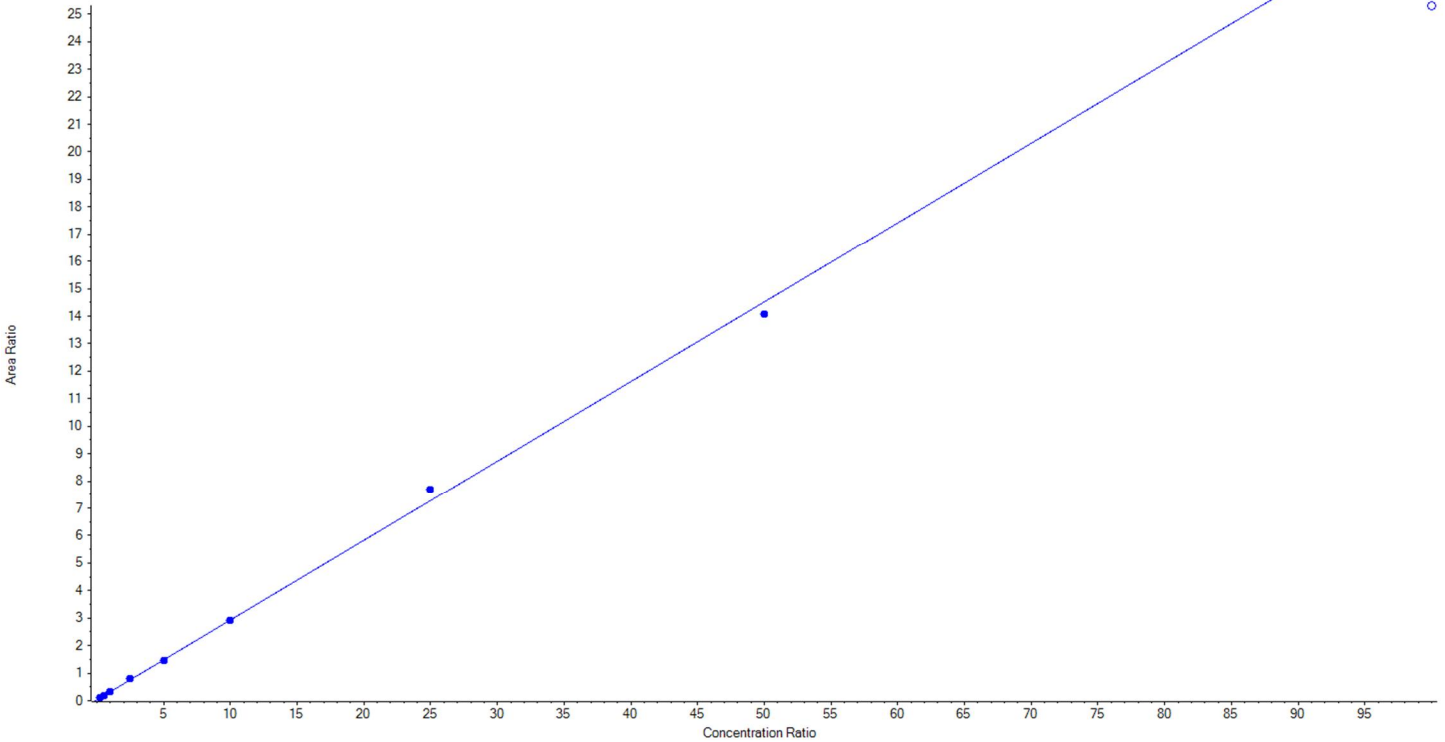




<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.28966 x + 0.03407$  (r = 0.99917) (weighting: 1 / x)

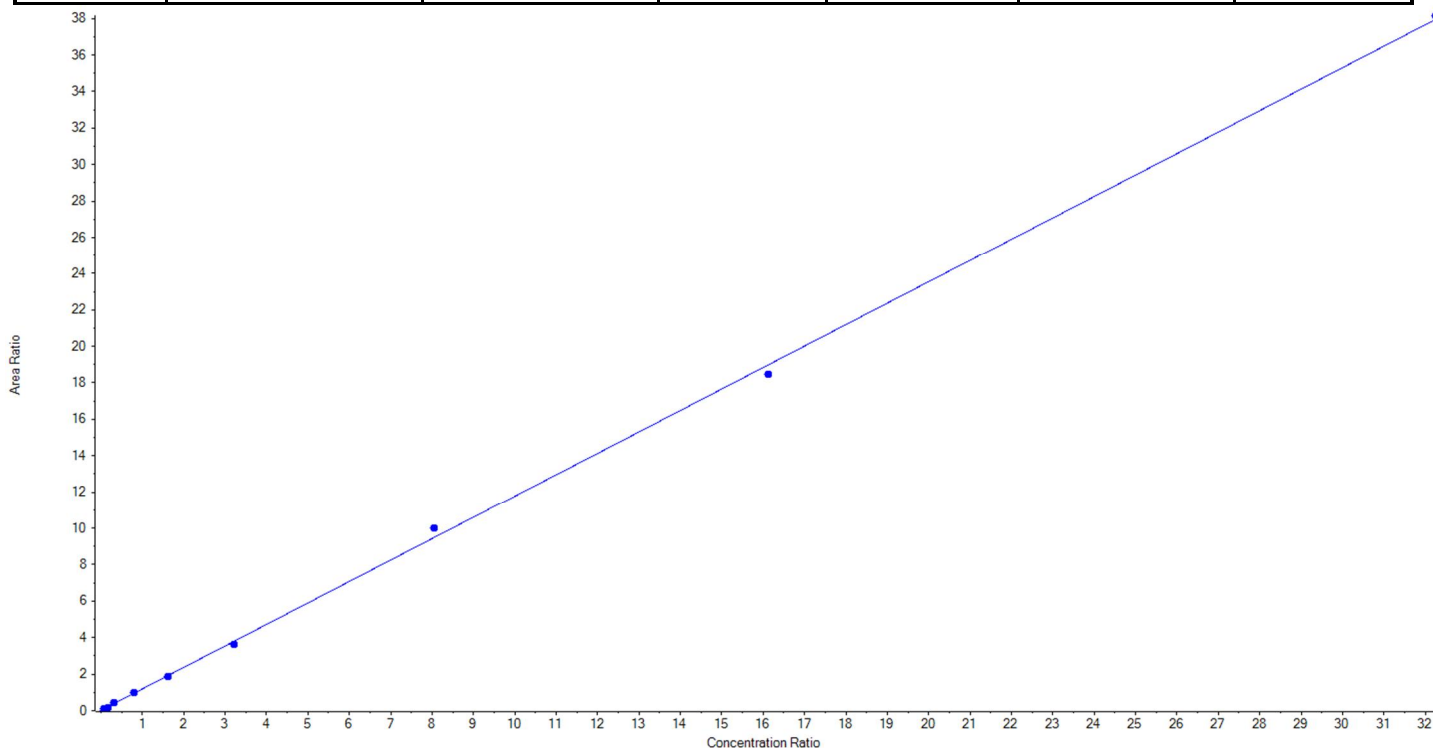
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.019956	88.1
3	JV65	L2	True	50.00	50.097820	100.2
4	JV66	L3	True	100.00	104.768332	104.8
5	JV67	L4	True	250.00	265.198012	106.1
6	JV68	L5	True	500.00	491.780543	98.4
7	JV69	L6	True	1000.00	997.937882	99.8
8	JV70	L7	True	2500.00	2643.157677	105.7
9	JV71	L8	True	5000.00	4850.039778	97.0
10	JV72	L9	False	10000.00	8723.390349	87.2



<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.17626 x + 0.01560$  (r = 0.99962) (weighting: 1 / x)

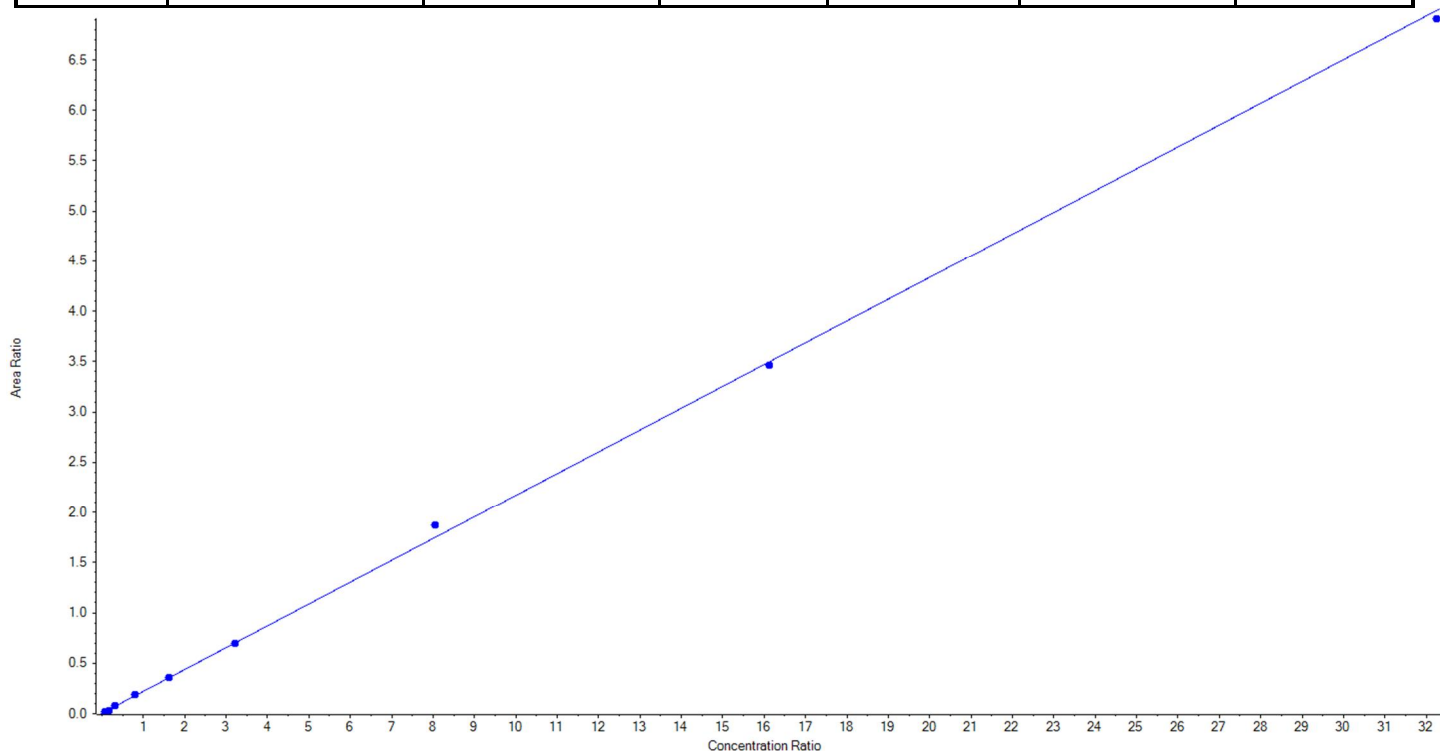
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	23.853829	103.0
3	JV65	L2	True	46.30	43.011639	92.9
4	JV66	L3	True	92.60	97.373524	105.2
5	JV67	L4	True	231.50	238.938161	103.2
6	JV68	L5	True	463.00	449.869323	97.2
7	JV69	L6	True	925.60	883.084484	95.4
8	JV70	L7	True	2314.00	2435.768229	105.3
9	JV71	L8	True	4628.00	4505.765724	97.4
10	JV72	L9	True	9256.00	9302.485087	100.5



<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.21661 x + 0.00461$  (r = 0.99954) (weighting: 1 / x)

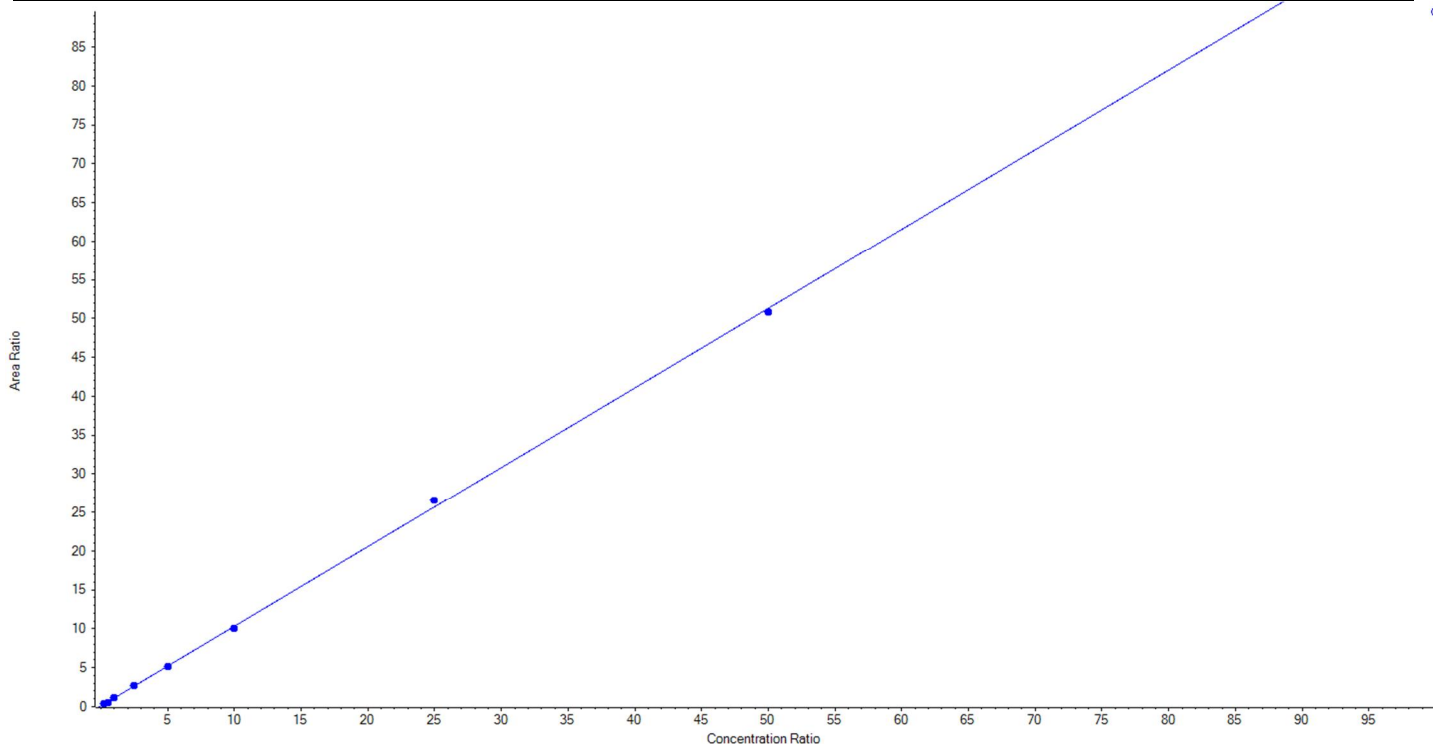
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	25.672779	110.9
3	JV65	L2	True	46.30	35.639688	77.0
4	JV66	L3	True	92.60	94.092291	101.6
5	JV67	L4	True	231.50	246.825038	106.6
6	JV68	L5	True	463.00	465.321435	100.5
7	JV69	L6	True	925.60	915.675303	98.9
8	JV70	L7	True	2314.00	2466.591124	106.6
9	JV71	L8	True	4628.00	4584.705722	99.1
10	JV72	L9	True	9256.00	9145.626619	98.8



<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.02458x + 0.09578$  (r = 0.99973) (weighting: 1 / x)

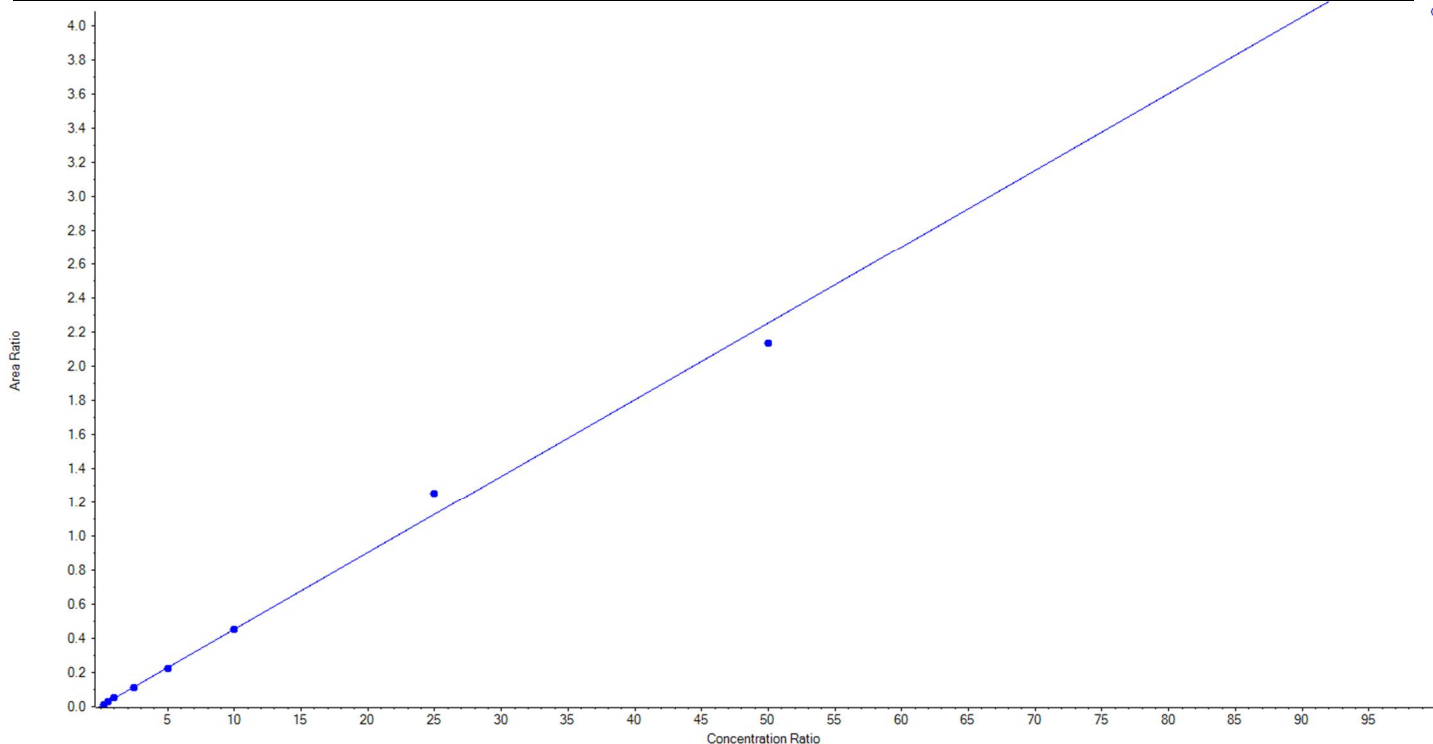
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.219077	104.9
3	JV65	L2	True	50.00	46.181808	92.4
4	JV66	L3	True	100.00	104.367940	104.4
5	JV67	L4	True	250.00	252.874366	101.2
6	JV68	L5	True	500.00	488.129333	97.6
7	JV69	L6	True	1000.00	973.117412	97.3
8	JV70	L7	True	2500.00	2581.129067	103.3
9	JV71	L8	True	5000.00	4952.980997	99.1
10	JV72	L9	False	10000.00	8730.404917	87.3



<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04499x + 0.00416$  (r = 0.99735) (weighting: 1 / x)

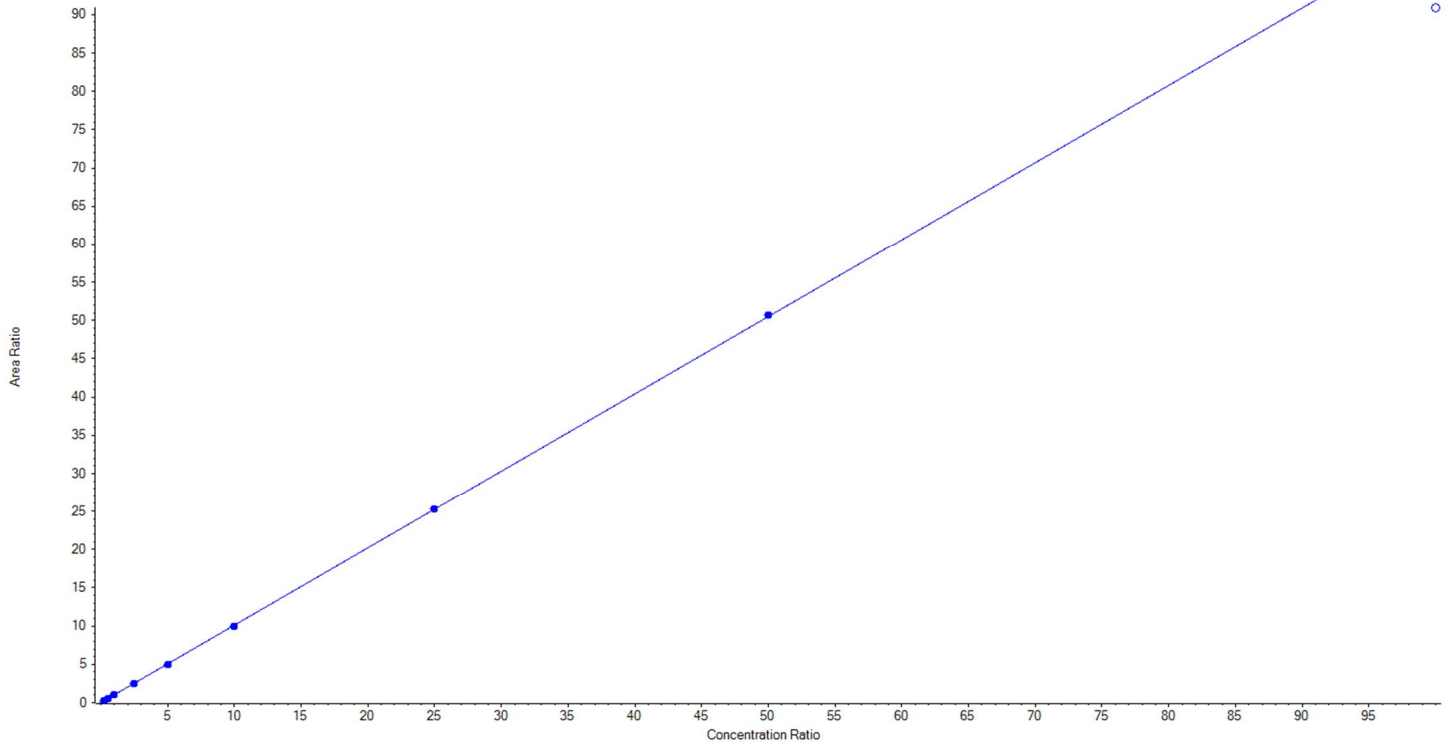
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.216707	84.9
3	JV65	L2	True	50.00	53.933477	107.9
4	JV66	L3	True	100.00	106.151028	106.2
5	JV67	L4	True	250.00	245.183421	98.1
6	JV68	L5	True	500.00	488.334256	97.7
7	JV69	L6	True	1000.00	995.605535	99.6
8	JV70	L7	True	2500.00	2776.145192	111.1
9	JV71	L8	True	5000.00	4738.430382	94.8
10	JV72	L9	False	10000.00	9065.576243	90.7



<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.00945x + 0.02032$  (r = 0.99998) (weighting: 1 / x)

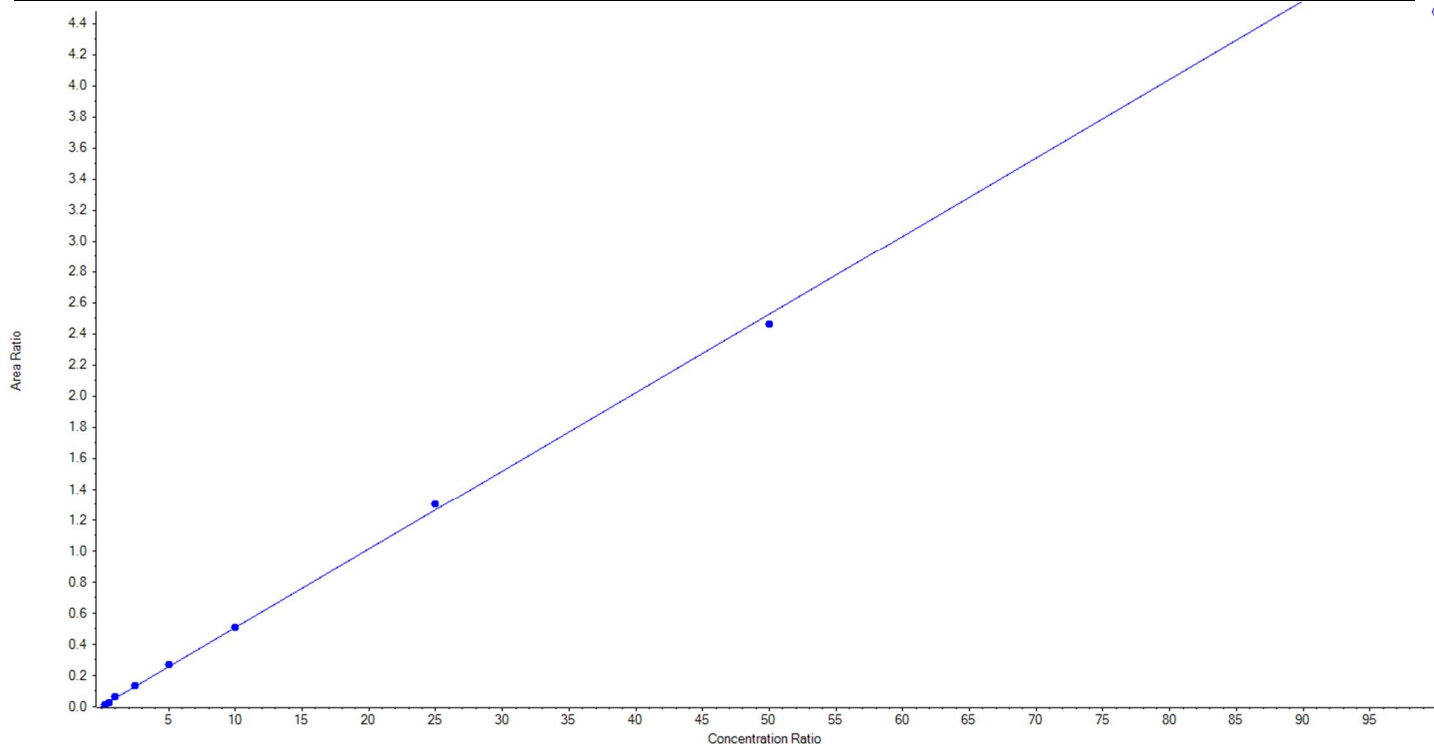
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.341334	97.4
3	JV65	L2	True	50.00	51.536736	103.1
4	JV66	L3	True	100.00	101.919285	101.9
5	JV67	L4	True	250.00	248.880312	99.6
6	JV68	L5	True	500.00	494.634182	98.9
7	JV69	L6	True	1000.00	989.188378	98.9
8	JV70	L7	True	2500.00	2497.705644	99.9
9	JV71	L8	True	5000.00	5016.794129	100.3
10	JV72	L9	False	10000.00	9002.134598	90.0



<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05046 x + 0.00416$  (r = 0.99916) (weighting: 1 / x)

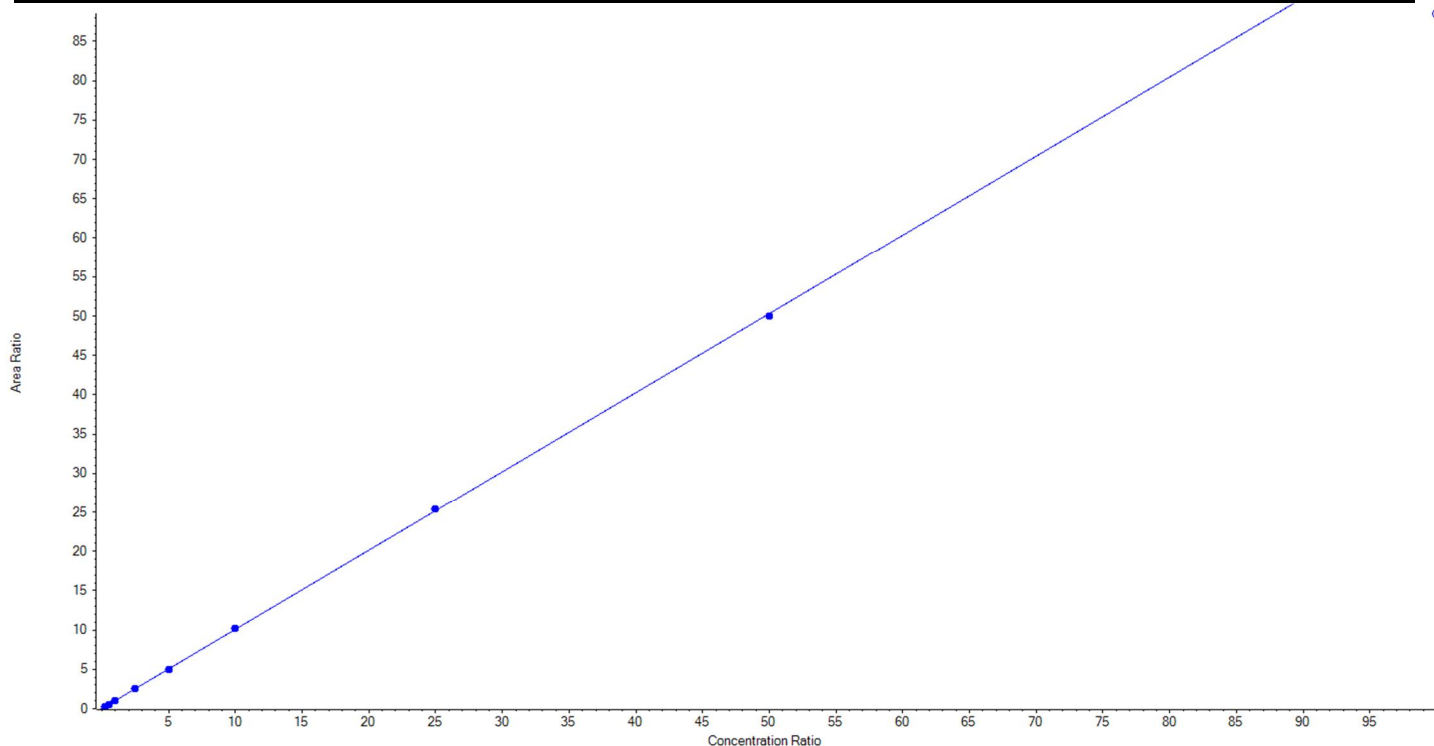
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.210812	80.8
3	JV65	L2	True	50.00	42.704447	85.4
4	JV66	L3	True	100.00	120.298427	120.3
5	JV67	L4	True	250.00	266.052668	106.4
6	JV68	L5	True	500.00	534.753221	107.0
7	JV69	L6	True	1000.00	998.995973	99.9
8	JV70	L7	True	2500.00	2566.921563	102.7
9	JV71	L8	True	5000.00	4875.062888	97.5
10	JV72	L9	False	10000.00	8860.250273	88.6



<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.00557x + 0.02863$  (r = 0.99993) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.079471	100.3
3	JV65	L2	True	50.00	48.568786	97.1
4	JV66	L3	True	100.00	104.271191	104.3
5	JV67	L4	True	250.00	246.377663	98.6
6	JV68	L5	True	500.00	488.410023	97.7
7	JV69	L6	True	1000.00	1016.786698	101.7
8	JV70	L7	True	2500.00	2522.574479	100.9
9	JV71	L8	True	5000.00	4972.931689	99.5
10	JV72	L9	False	10000.00	8798.205595	88.0

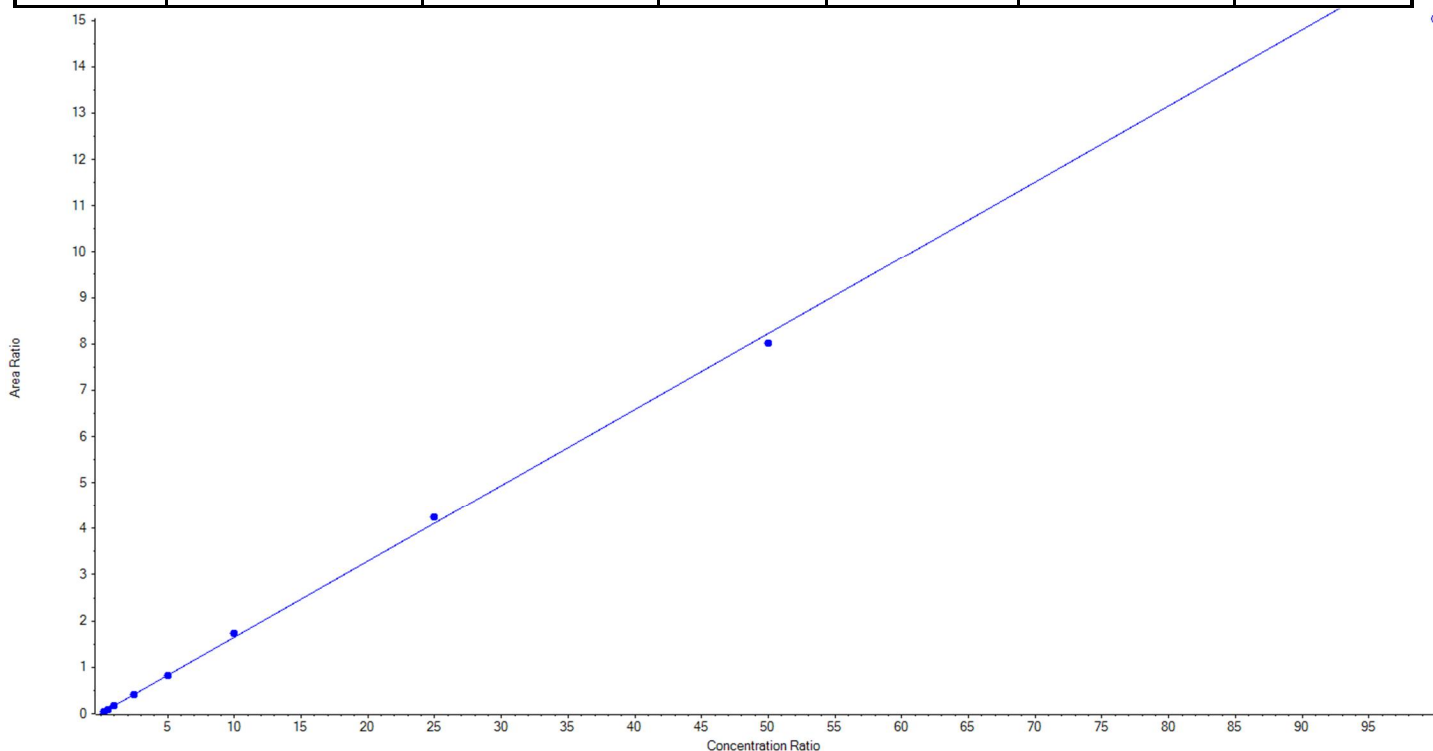




<b>Analyte Name</b>	PFDaA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.16433 x + 0.00700$  (r = 0.99946) (weighting: 1 / x)

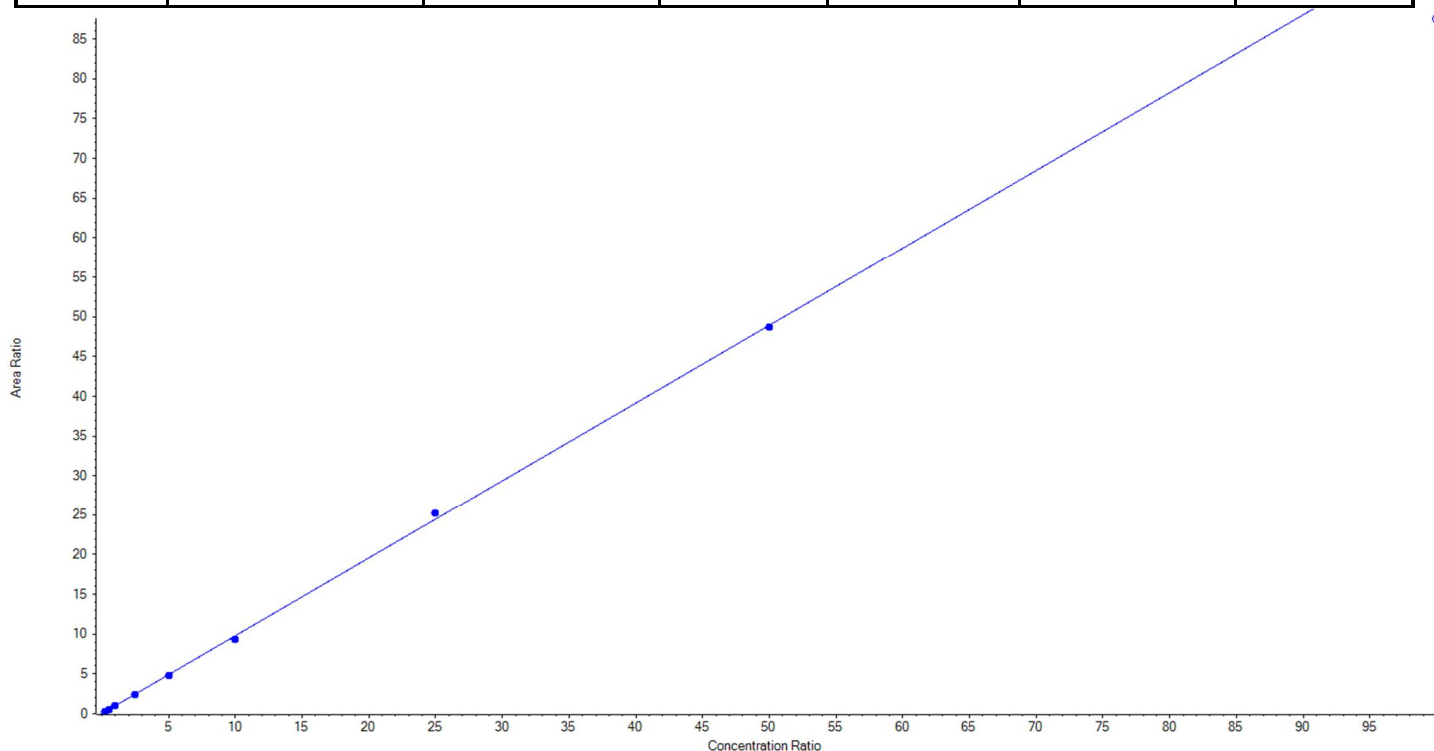
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.376883	89.5
3	JV65	L2	True	50.00	50.486070	101.0
4	JV66	L3	True	100.00	104.568160	104.6
5	JV67	L4	True	250.00	249.302804	99.7
6	JV68	L5	True	500.00	496.928169	99.4
7	JV69	L6	True	1000.00	1052.877827	105.3
8	JV70	L7	True	2500.00	2579.421445	103.2
9	JV71	L8	True	5000.00	4869.038641	97.4
10	JV72	L9	False	10000.00	9143.499217	91.4



<b>Analyte Name</b>	PFTrDA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.97814 x + 0.01951$  (r = 0.99970) (weighting: 1 / x)

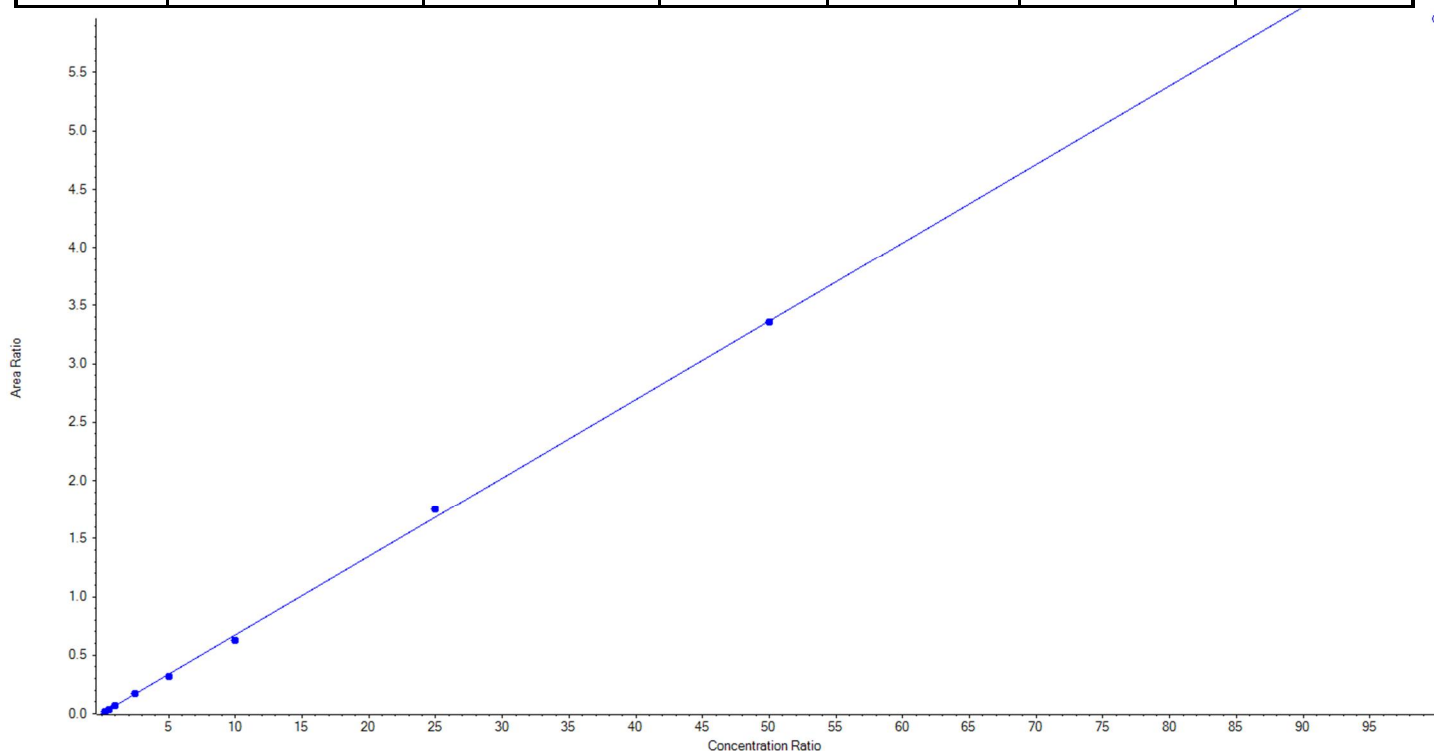
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.967378	103.9
3	JV65	L2	True	50.00	48.344640	96.7
4	JV66	L3	True	100.00	103.874292	103.9
5	JV67	L4	True	250.00	249.296761	99.7
6	JV68	L5	True	500.00	486.781731	97.4
7	JV69	L6	True	1000.00	958.304110	95.8
8	JV70	L7	True	2500.00	2580.641644	103.2
9	JV71	L8	True	5000.00	4971.789444	99.4
10	JV72	L9	False	10000.00	8948.655319	89.5



<b>Analyte Name</b>	PFTrDA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06731 x + 0.00111$  (r = 0.99939) (weighting: 1 / x)

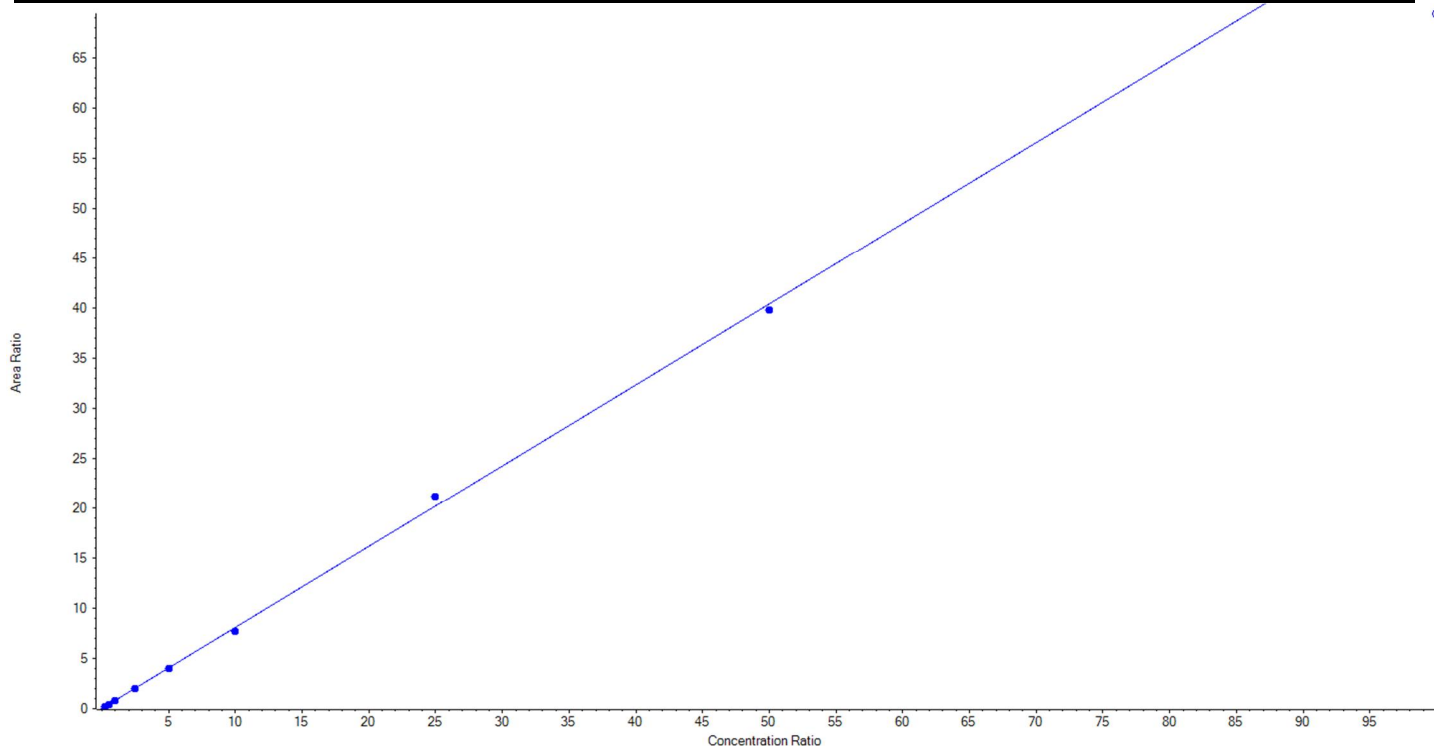
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.205576	104.8
3	JV65	L2	True	50.00	51.567868	103.1
4	JV66	L3	True	100.00	98.315437	98.3
5	JV67	L4	True	250.00	256.905806	102.8
6	JV68	L5	True	500.00	468.695737	93.7
7	JV69	L6	True	1000.00	934.572561	93.5
8	JV70	L7	True	2500.00	2599.652888	104.0
9	JV71	L8	True	5000.00	4989.084128	99.8
10	JV72	L9	False	10000.00	8850.881419	88.5



<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.80810x + 0.02533$  (r = 0.99948) (weighting: 1 / x)

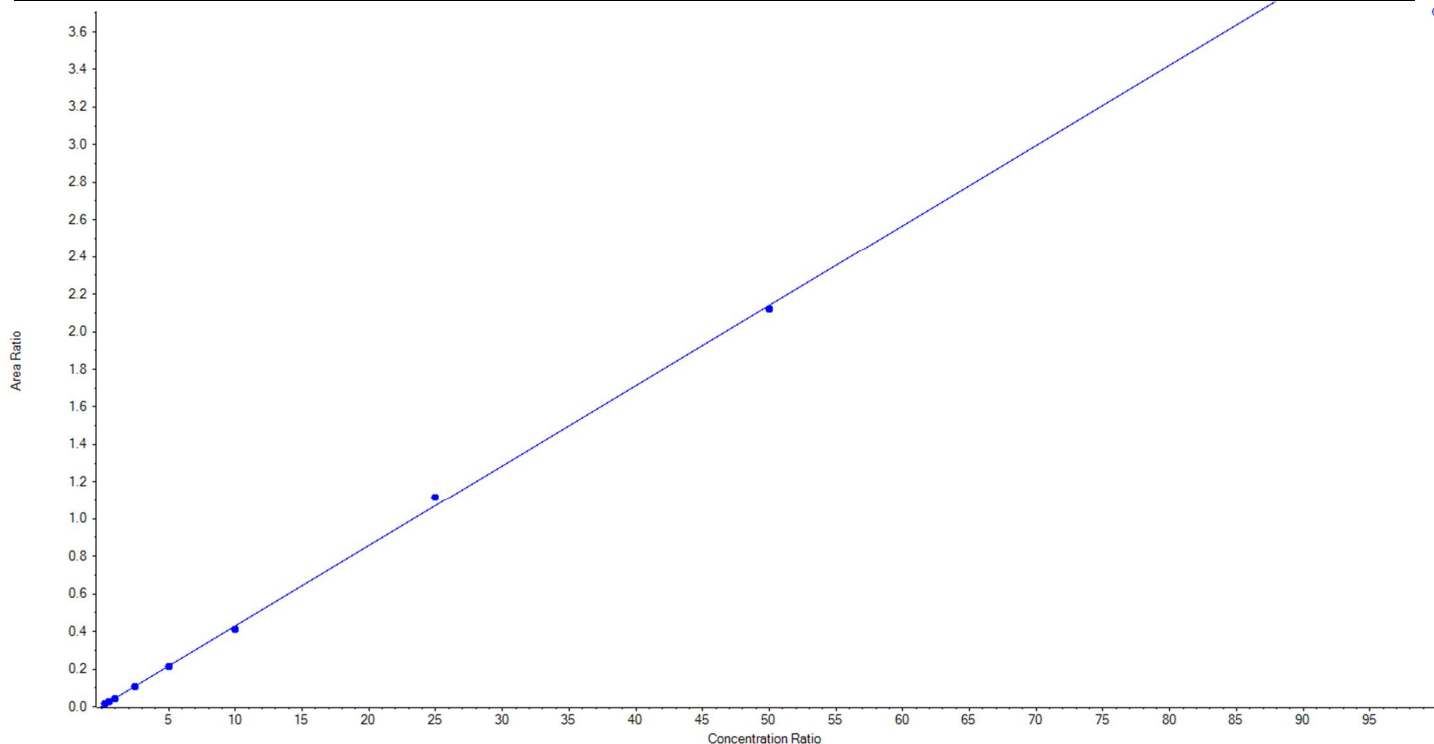
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.615906	98.5
3	JV65	L2	True	50.00	51.639881	103.3
4	JV66	L3	True	100.00	100.259522	100.3
5	JV67	L4	True	250.00	249.347489	99.7
6	JV68	L5	True	500.00	497.508333	99.5
7	JV69	L6	True	1000.00	954.141072	95.4
8	JV70	L7	True	2500.00	2619.628447	104.8
9	JV71	L8	True	5000.00	4927.859352	98.6
10	JV72	L9	False	10000.00	8588.121467	85.9



<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04275 x + 0.00280$  (r = 0.99959) (weighting: 1 / x)

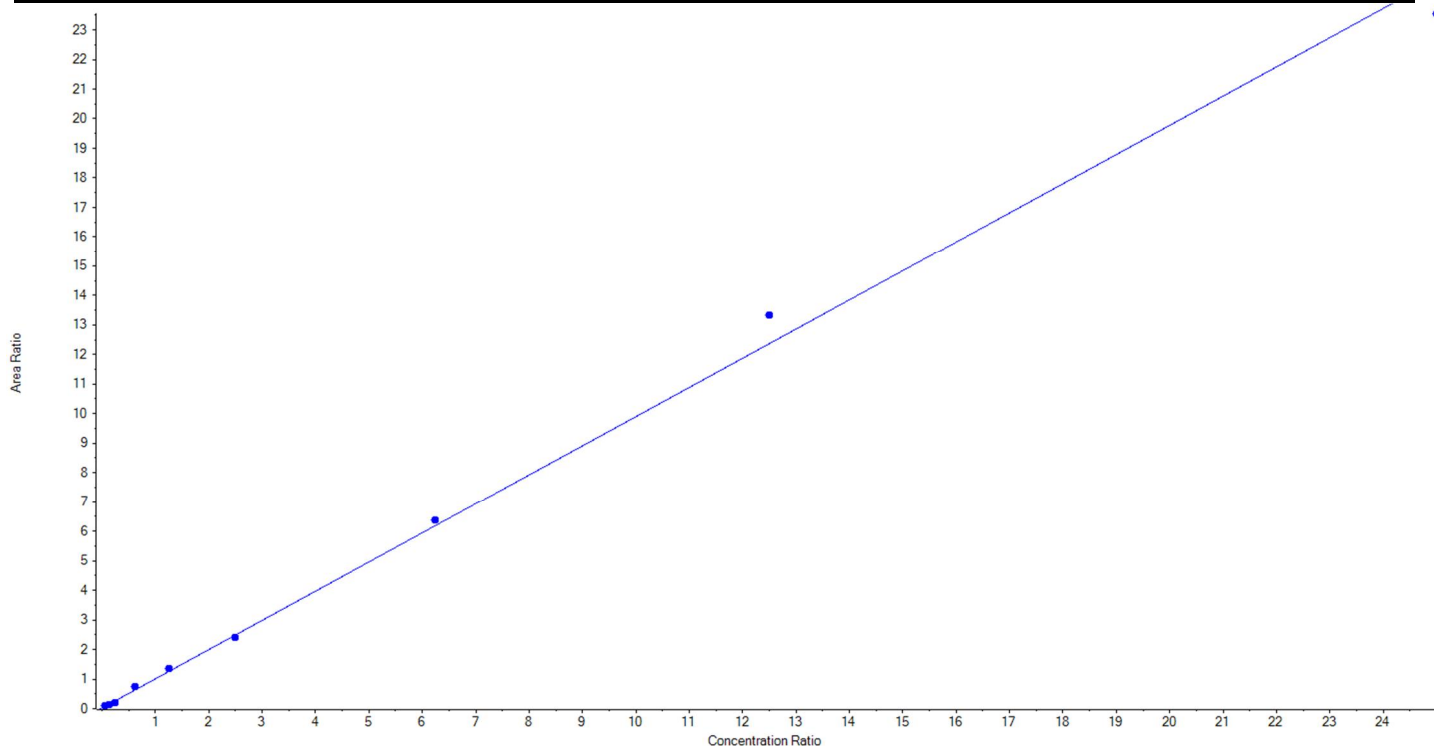
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.426099	105.7
3	JV65	L2	True	50.00	52.427881	104.9
4	JV66	L3	True	100.00	94.771548	94.8
5	JV67	L4	True	250.00	240.786869	96.3
6	JV68	L5	True	500.00	497.192408	99.4
7	JV69	L6	True	1000.00	957.997978	95.8
8	JV70	L7	True	2500.00	2600.366045	104.0
9	JV71	L8	True	5000.00	4955.031170	99.1
10	JV72	L9	False	10000.00	8663.653885	86.6



<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.98776 x + 0.02050$  (r = 0.99809) (weighting: 1 / x)

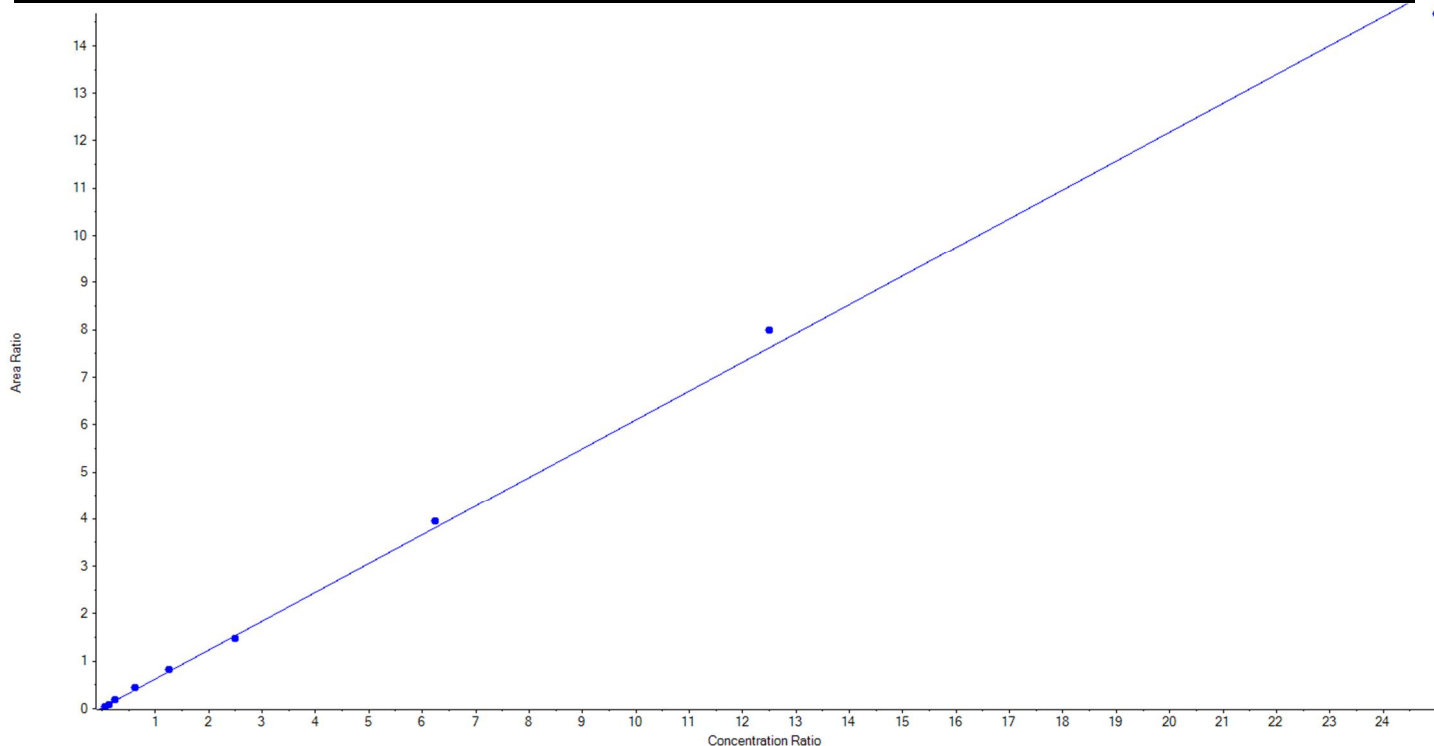
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.383057	105.5
3	JV65	L2	True	50.00	46.189927	92.4
4	JV66	L3	True	100.00	76.761420	76.8
5	JV67	L4	True	250.00	288.497067	115.4
6	JV68	L5	True	500.00	537.945268	107.6
7	JV69	L6	True	1000.00	965.780202	96.6
8	JV70	L7	True	2500.00	2567.650943	102.7
9	JV71	L8	True	5000.00	5389.664132	107.8
10	JV72	L9	True	10000.00	9526.127986	95.3



<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.60817 x + 0.01798$  (r = 0.99900) (weighting: 1 / x)

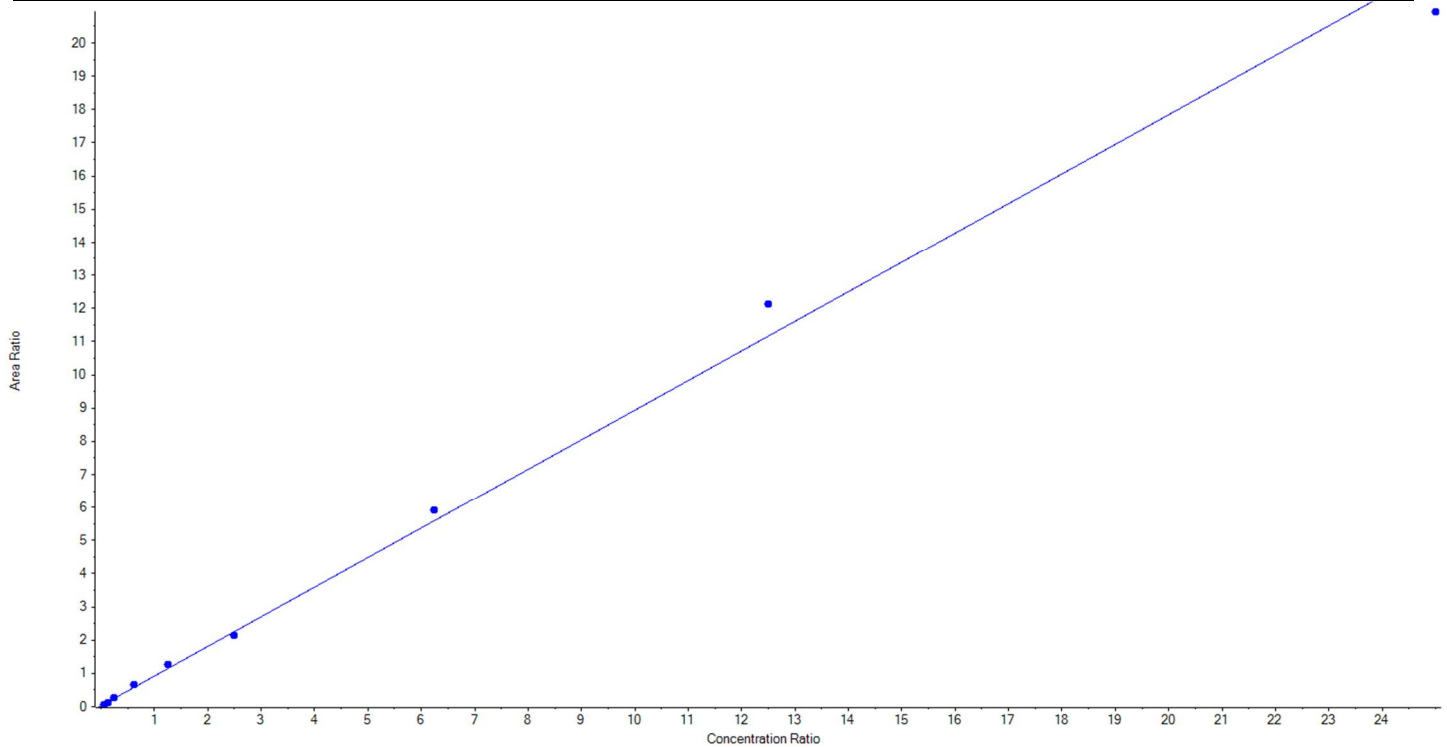
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.838413	83.4
3	JV65	L2	True	50.00	45.532559	91.1
4	JV66	L3	True	100.00	107.415887	107.4
5	JV67	L4	True	250.00	274.640072	109.9
6	JV68	L5	True	500.00	535.696079	107.1
7	JV69	L6	True	1000.00	960.857703	96.1
8	JV70	L7	True	2500.00	2594.178444	103.8
9	JV71	L8	True	5000.00	5245.878330	104.9
10	JV72	L9	True	10000.00	9639.962514	96.4



<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.89075x + 0.02880$  (r = 0.99732) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	17.933972	71.7
3	JV65	L2	True	50.00	46.860171	93.7
4	JV66	L3	True	100.00	104.821597	104.8
5	JV67	L4	True	250.00	286.153455	114.5
6	JV68	L5	True	500.00	559.443646	111.9
7	JV69	L6	True	1000.00	954.343619	95.4
8	JV70	L7	True	2500.00	2635.684352	105.4
9	JV71	L8	True	5000.00	5431.273294	108.6
10	JV72	L9	True	10000.00	9388.485893	93.9

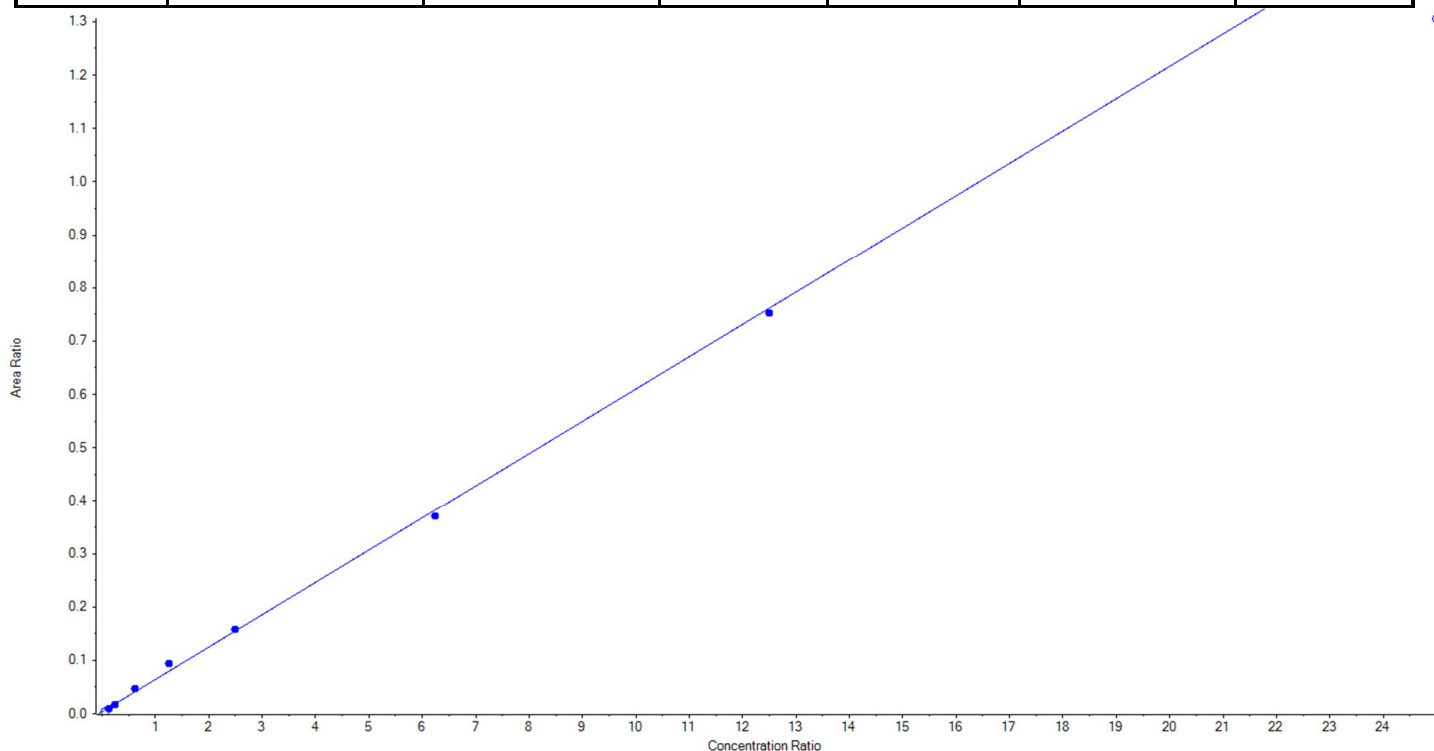




<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06065 x + 0.00344$  (r = 0.99817) (weighting: 1 / x)

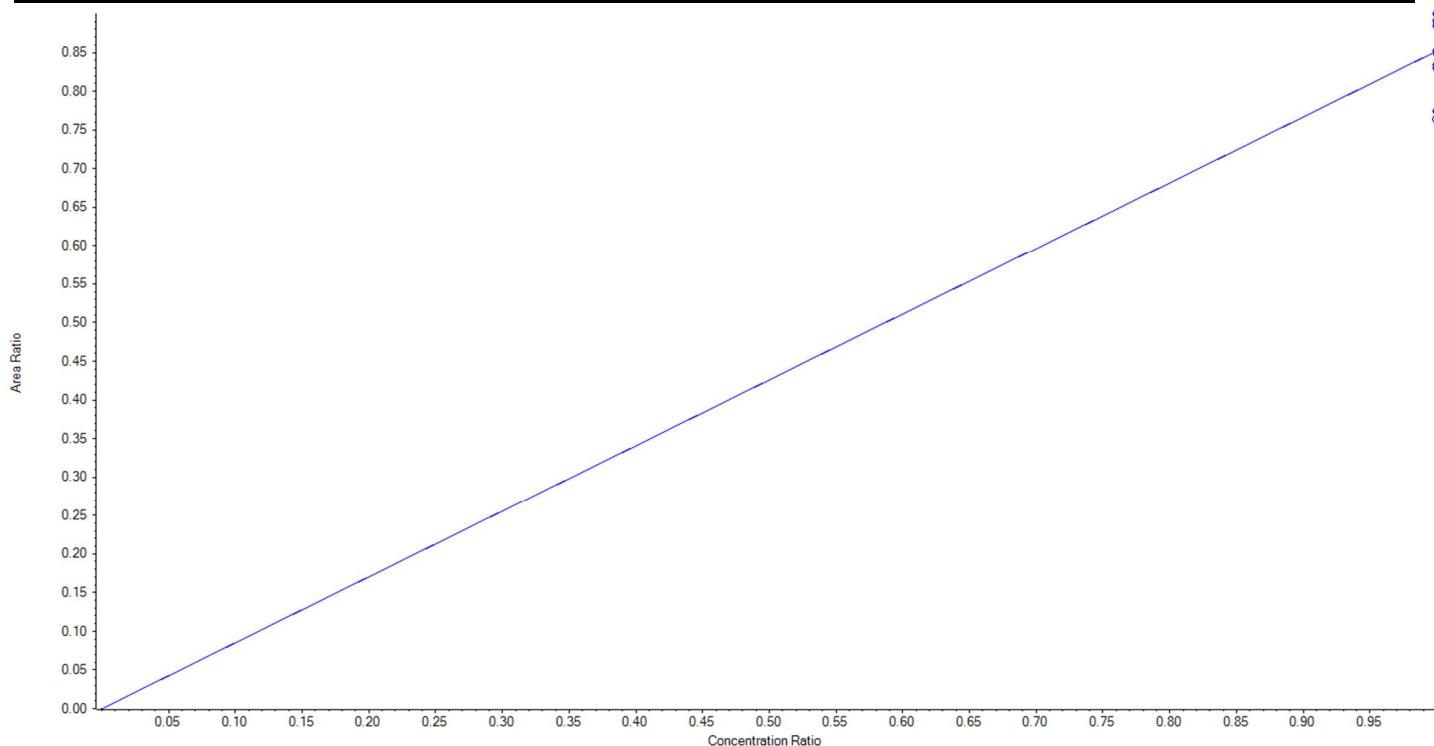
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	True	50.00	41.148035	82.3
4	JV66	L3	True	100.00	86.882544	86.9
5	JV67	L4	True	250.00	283.873236	113.6
6	JV68	L5	True	500.00	596.895502	119.4
7	JV69	L6	True	1000.00	1019.112819	101.9
8	JV70	L7	True	2500.00	2426.997616	97.1
9	JV71	L8	True	5000.00	4945.090248	98.9
10	JV72	L9	False	10000.00	8586.790395	85.9



<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.85181 x$  (std. dev. = 0.04082) (weighting: 1 / x)

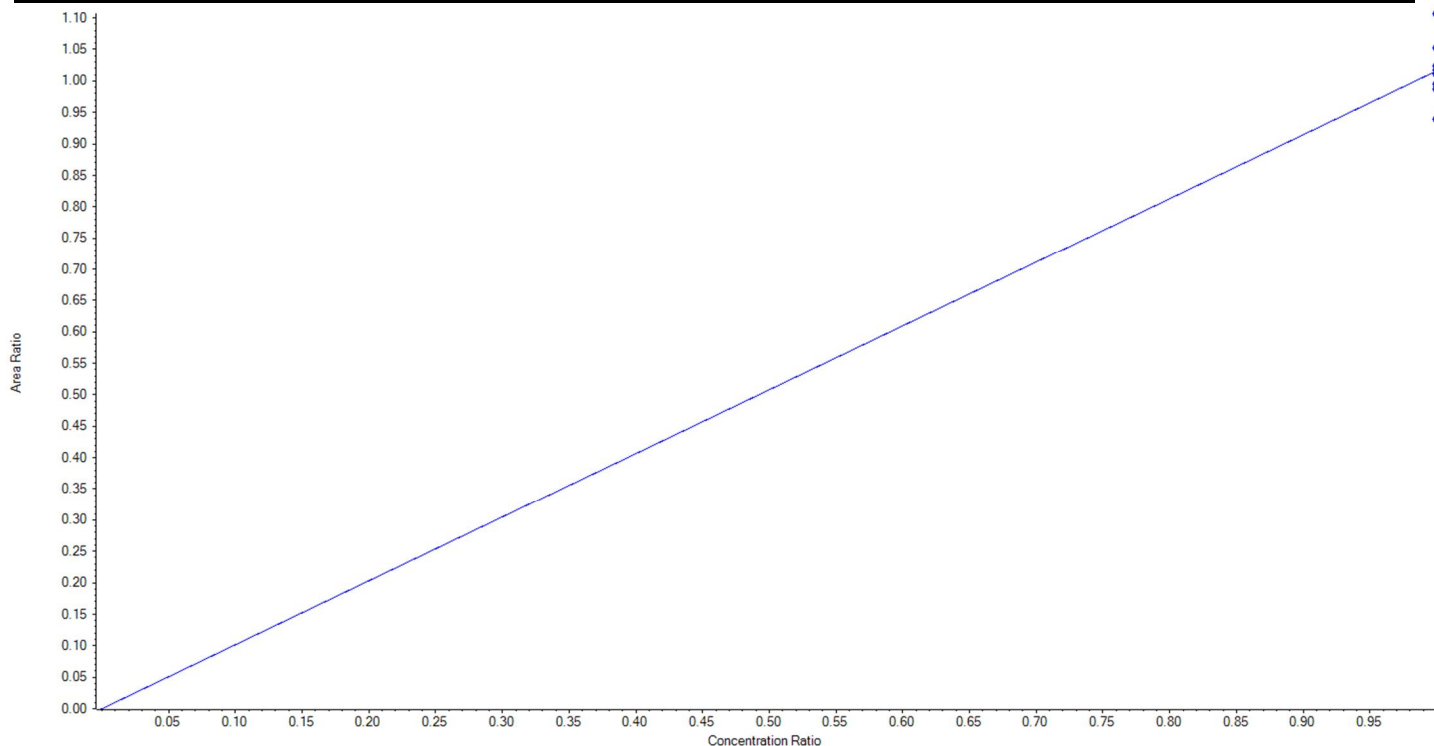
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.039156	100.0
3	JV65	L2	True	100.00	99.666125	99.7
4	JV66	L3	True	100.00	103.810567	103.8
5	JV67	L4	True	100.00	90.917552	90.9
6	JV68	L5	True	100.00	97.406921	97.4
7	JV69	L6	True	100.00	104.563356	104.6
8	JV70	L7	True	100.00	105.648475	105.7
9	JV71	L8	True	100.00	97.947847	98.0
10	JV72	L9	False	100.00	89.623369	89.6



<b>Analyte Name</b>	13C2-PFDA	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	515.0 / 470.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.01607 x$  (std. dev. = 0.04578) (weighting: 1 / x)

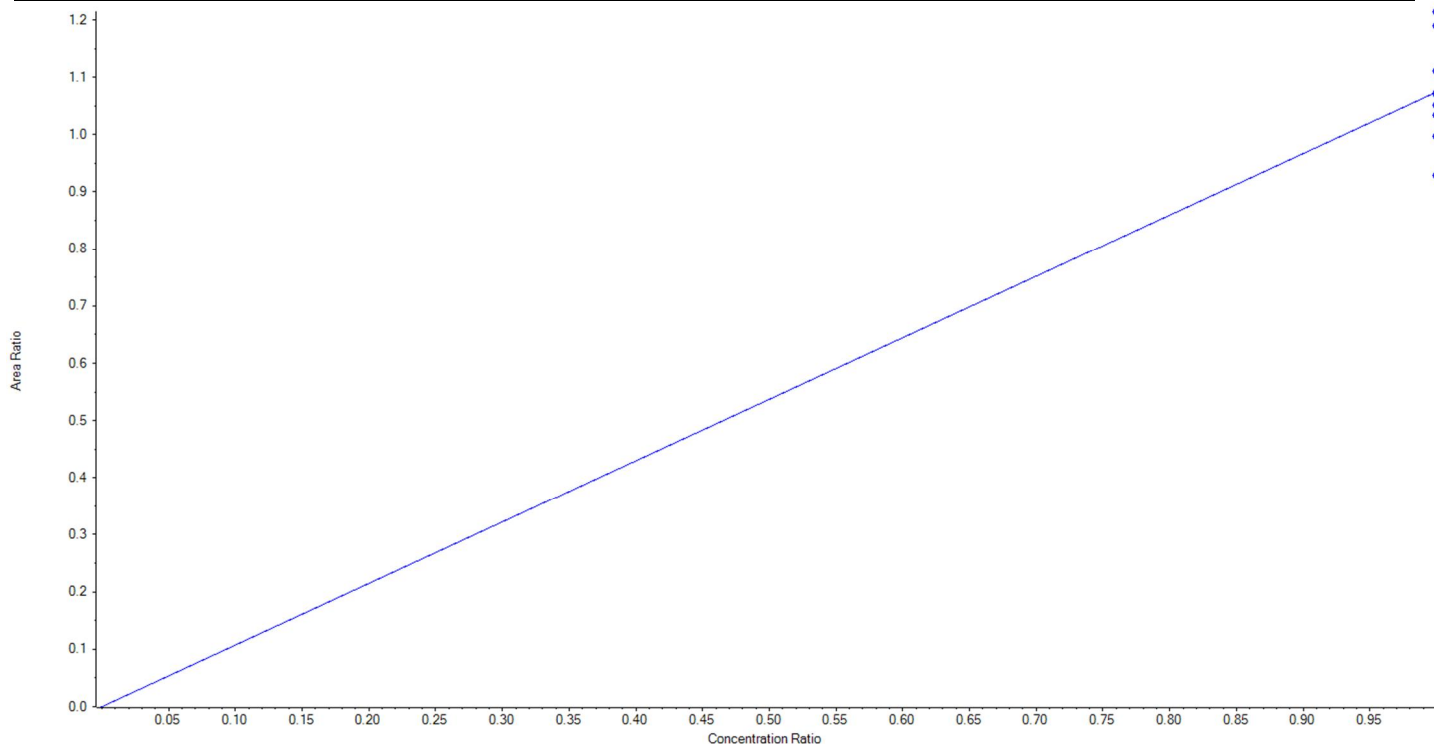
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.138661	100.1
3	JV65	L2	True	100.00	97.130095	97.1
4	JV66	L3	True	100.00	99.478644	99.5
5	JV67	L4	True	100.00	97.863511	97.9
6	JV68	L5	True	100.00	99.662505	99.7
7	JV69	L6	True	100.00	108.905764	108.9
8	JV70	L7	True	100.00	103.632596	103.6
9	JV71	L8	True	100.00	100.687253	100.7
10	JV72	L9	True	100.00	92.500970	92.5



<b>Analyte Name</b>	d5-EtFOSAA	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	589.0 / 419.0	<b>Result Table</b>	18-0360_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.07434 x$  (std. dev. = 0.08889) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	400.00	399.397046	99.9
3	JV65	L2	True	400.00	398.862493	99.7
4	JV66	L3	True	400.00	442.684279	110.7
5	JV67	L4	True	400.00	451.971281	113.0
6	JV68	L5	True	400.00	384.646352	96.2
7	JV69	L6	True	400.00	391.704100	97.9
8	JV70	L7	True	400.00	413.562392	103.4
9	JV71	L8	True	400.00	371.226492	92.8
10	JV72	L9	True	400.00	345.945566	86.5





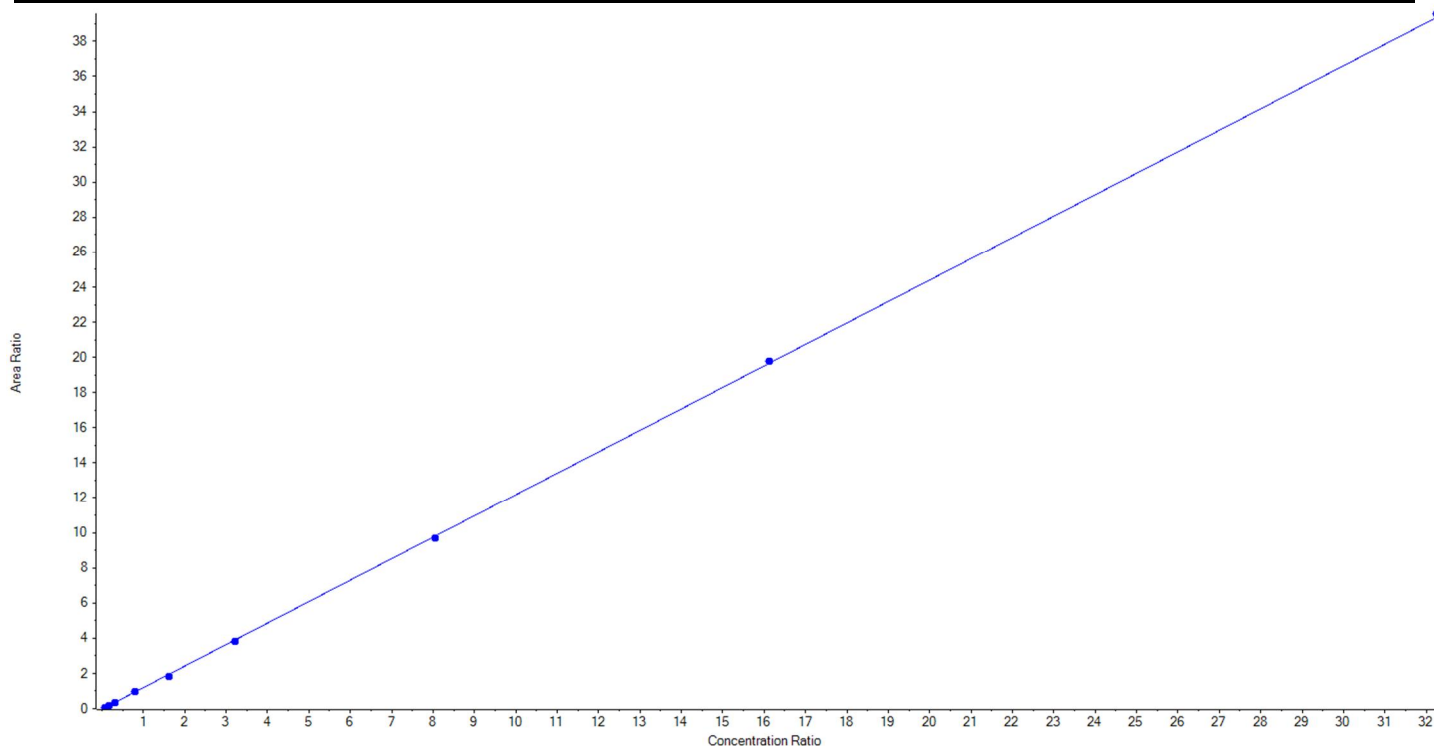
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 22/06/2018 1:19:54 PM

<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	06212018.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0360_DW_A
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/21/2018 8:15:15 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.22115x + -0.02500$  ( $r = 0.99991$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		True	23.15	24.315091	105.0
3	JV65		True	46.60	48.019660	103.1
4	JV66		True	92.60	89.117522	96.2
5	JV67		True	231.50	239.738311	103.6
6	JV68		True	463.00	441.075970	95.3
7	JV69		True	925.60	900.403561	97.3
8	JV70		True	2314.00	2278.422883	98.5
9	JV71		True	4628.00	4656.096883	100.6
10	JV72		True	9256.00	9303.260119	100.5





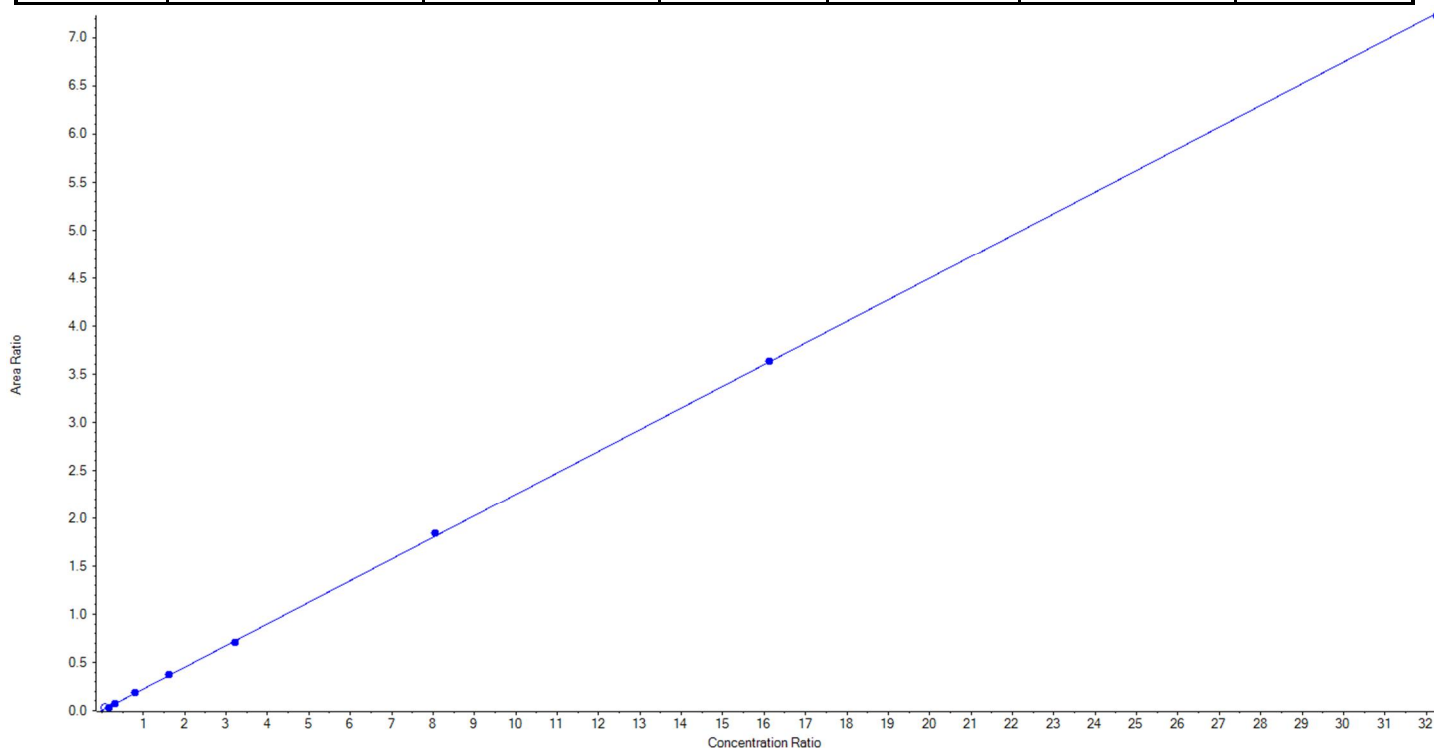
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 22/06/2018 1:19:54 PM

<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06212018.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0360_DW_A
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/21/2018 8:15:15 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.22492 x + 2.02760e-4$  ( $r = 0.99995$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		False	23.15	44.663754	192.9
3	JV65		True	46.60	45.377626	97.4
4	JV66		True	92.60	93.400454	100.9
5	JV67		True	231.50	233.096851	100.7
6	JV68		True	463.00	472.286458	102.0
7	JV69		True	925.60	903.125623	97.6
8	JV70		True	2314.00	2354.039825	101.7
9	JV71		True	4628.00	4633.901091	100.1
10	JV72		True	9256.00	9222.072071	99.6





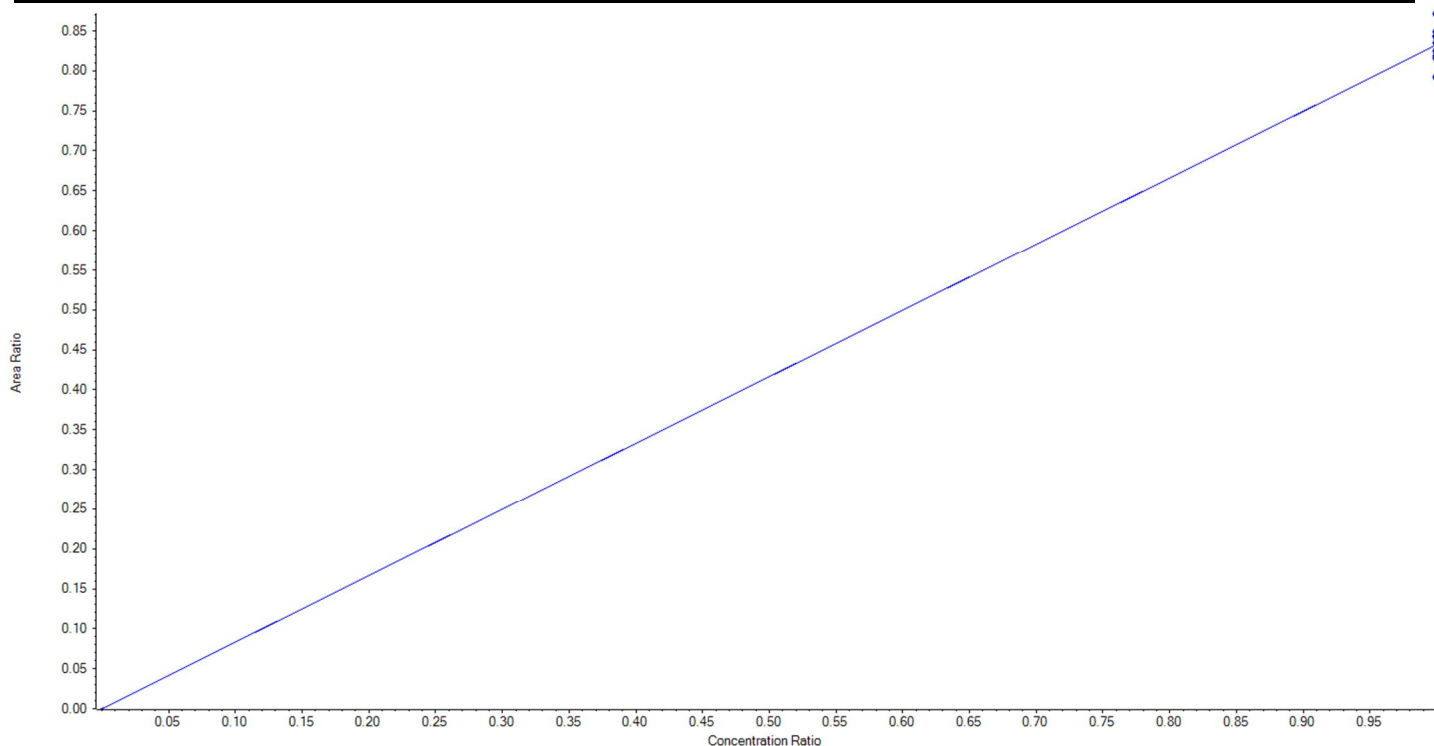
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 22/06/2018 1:19:54 PM

<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	06212018.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0360_DW_A
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/21/2018 8:15:15 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.83258 x$  (std. dev. = 0.02266) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		True	100.00	99.063145	99.1
3	JV65		True	100.00	101.974108	102.0
4	JV66		True	100.00	95.202909	95.2
5	JV67		True	100.00	100.209483	100.2
6	JV68		True	100.00	98.015938	98.0
7	JV69		True	100.00	104.651708	104.7
8	JV70		True	100.00	101.148165	101.2
9	JV71		True	100.00	101.368607	101.4
10	JV72		True	100.00	98.365939	98.4







Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T16:59:48	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.404	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.086	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.042	0.026	
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.098	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.311	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.212	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.038	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.054	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.156	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.063	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.580	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.042	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	ü

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T17:08:44	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.325	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.081	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.268	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.089	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.311	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.164	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.050	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.048	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.174	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.073	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.057	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.648	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	ü

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T17:17:40	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.316	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.029	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.296	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.078	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.303	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.182	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.062	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.166	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.863	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	ü

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T17:26:35	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.299	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.272	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.086	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.298	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.192	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.043	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.055	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.166	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.071	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.594	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.070	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	ü

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T17:35:30	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.297	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.065	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.028	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.288	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.085	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.191	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.044	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.055	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.167	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.066	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.617	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.074	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T17:44:26	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.313	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.068	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.291	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.086	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.191	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.051	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.169	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.615	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T17:53:22	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.305	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.072	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.286	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.080	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.187	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.047	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.052	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.167	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:02:19	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.301	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.069	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.283	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.084	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.277	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.188	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.042	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.160	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.600	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü



Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:11:15	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.304	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.080	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.181	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.046	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.170	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.27		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

Sample Name	JV64	Injection Vial	2
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T08:24:11	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.449	0.192	
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV65	Injection Vial	3
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T08:33:07	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.199	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV66	Injection Vial	4
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T08:42:03	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.207	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.80				

Sample Name	JV67	Injection Vial	5
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T08:50:59	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.184	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV68	Injection Vial	6
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T08:59:55	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.200	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV69	Injection Vial	7
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T09:08:50	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.186	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV70	Injection Vial	8
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T09:17:46	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.191	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.80				



Sample Name	JV71	Injection Vial	9
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T09:26:43	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.184	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV72	Injection Vial	10
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T09:35:40	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.183	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.52	749.808948	885.00	84.72
PFBS_2	298.9 / 99.0	1.51	739.611141	885.00	83.57
PFHxA_1	313.0 / 269.0	1.81	958.781173	1000.00	95.88
PFHxA_2	313.0 / 119.0	1.81	1030.910160	1000.00	103.09
PFHpA_1	363.0 / 319.0	2.18	971.090051	1000.00	97.11
PFHpA_2	363.0 / 169.0	2.18	997.298852	1000.00	99.73
PFHxS_1	399.0 / 80.0	2.20	834.436811	912.00	91.50
PFHxS_2	399.0 / 99.0	2.20	828.902733	912.00	90.89
PFOA_1	413.0 / 369.0	2.56	1016.567804	1000.00	101.66
PFOA_2	413.0 / 169.0	2.56	934.239108	1000.00	93.42
PFNA_1	463.0 / 419.0	2.94	996.784531	1000.00	99.68
PFNA_2	463.0 / 219.0	2.94	1005.268985	1000.00	100.53
PFOS_1	499.0 / 80.0	2.94	795.240090	925.60	85.92
PFOS_2	499.0 / 99.0	2.94	941.318881	925.60	101.70
PFDA_1	513.0 / 469.0	3.29	962.561060	1000.00	96.26
PFDA_2	513.0 / 219.0	3.29	985.545810	1000.00	98.55
PFUnA_1	563.0 / 519.0	3.61	963.973897	1000.00	96.40
PFUnA_2	563.0 / 269.0	3.61	934.136995	1000.00	93.41
PFDoA_1	613.0 / 569.0	3.90	970.912417	1000.00	97.09
PFDoA_2	613.0 / 319.0	3.89	949.343697	1000.00	94.93
PFTTrDA_1	663.0 / 619.0	4.14	969.615921	1000.00	96.96
PFTTrDA_2	663.0 / 169.0	4.14	958.270323	1000.00	95.83
PFTeDA_1	713.0 / 669.0	4.36	904.295824	1000.00	90.43
PFTeDA_2	713.0 / 169.0	4.36	951.292410	1000.00	95.13
NMeFOSAA_1	570.0 / 419.0	3.44	1102.408078	1000.00	110.24
NMeFOSAA_2	570.0 / 512.0	3.44	997.000489	1000.00	99.70
NEtFOSAA_1	584.0 / 419.0	3.60	1078.816663	1000.00	107.88
NEtFOSAA_2	584.0 / 483.0	3.60	973.971432	1000.00	97.40
13C2-PFHxA	315.0 / 270.0	1.80	94.595177	100.00	94.60
13C2-PFDA	515.0 / 470.0	3.28	95.591692	100.00	95.59
d5-EtFOSAA	589.0 / 419.0	3.59	348.591981	400.00	87.15

Sample Name	JV69 CCV	Injection Vial	23
Sample ID	L6 CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	854.314121	885.00	96.53
PFBS_2	298.9 / 99.0	1.51	854.548997	885.00	96.56
PFHxA_1	313.0 / 269.0	1.80	1030.112868	1000.00	103.01
PFHxA_2	313.0 / 119.0	1.80	1075.016943	1000.00	107.50
PFHpA_1	363.0 / 319.0	2.17	948.451562	1000.00	94.85
PFHpA_2	363.0 / 169.0	2.17	828.878298	1000.00	82.89
PFHxS_1	399.0 / 80.0	2.18	904.468957	945.00	95.71
PFHxS_2	399.0 / 99.0	2.18	907.299960	945.00	96.01
PFOA_1	413.0 / 369.0	2.55	1016.162426	1000.00	101.62
PFOA_2	413.0 / 169.0	2.54	931.588677	1000.00	93.16
PFNA_1	463.0 / 419.0	2.92	1025.545253	1000.00	102.55
PFNA_2	463.0 / 219.0	2.92	1011.598940	1000.00	101.16
PFOS_1	499.0 / 80.0	2.92	902.090028	955.00	94.46
PFOS_2	499.0 / 99.0	2.92	926.514394	955.00	97.02
PFDA_1	513.0 / 469.0	3.27	1054.267089	1000.00	105.43
PFDA_2	513.0 / 219.0	3.27	1064.686071	1000.00	106.47
PFUnA_1	563.0 / 519.0	3.59	1129.701410	1000.00	112.97
PFUnA_2	563.0 / 269.0	3.58	1053.261789	1000.00	105.33
PFDoA_1	613.0 / 569.0	3.87	1074.262463	1000.00	107.43
PFDoA_2	613.0 / 319.0	3.87	1075.476587	1000.00	107.55
PFTTrDA_1	663.0 / 619.0	4.12	1058.412613	1000.00	105.84
PFTTrDA_2	663.0 / 169.0	4.12	995.159667	1000.00	99.52
PFTeDA_1	713.0 / 669.0	4.34	1046.509862	1000.00	104.65
PFTeDA_2	713.0 / 169.0	4.33	1084.971567	1000.00	108.50
NMeFOSAA_1	570.0 / 419.0	3.42	934.438545	1000.00	93.44
NMeFOSAA_2	570.0 / 512.0	3.41	917.794628	1000.00	91.78
NEtFOSAA_1	584.0 / 419.0	3.57	1022.338296	1000.00	102.23
NEtFOSAA_2	584.0 / 483.0	3.58	895.695725	1000.00	89.57
13C2-PFHxA	315.0 / 270.0	1.79	103.715593	100.00	103.72
13C2-PFDA	515.0 / 470.0	3.26	102.287389	100.00	102.29
d5-EtFOSAA	589.0 / 419.0	3.57	452.090763	400.00	113.02

Sample Name	JV70 CCV	Injection Vial	32
Sample ID	L7 CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	2249.986522	2212.50	101.69
PFBS_2	298.9 / 99.0	1.51	2276.859782	2212.50	102.91
PFHxA_1	313.0 / 269.0	1.79	2607.642795	2500.00	104.31
PFHxA_2	313.0 / 119.0	1.79	2824.485962	2500.00	112.98
PFHpA_1	363.0 / 319.0	2.16	2551.068524	2500.00	102.04
PFHpA_2	363.0 / 169.0	2.16	2550.804577	2500.00	102.03
PFHxS_1	399.0 / 80.0	2.18	2289.847244	2280.00	100.43
PFHxS_2	399.0 / 99.0	2.18	2364.672327	2280.00	103.71
PFOA_1	413.0 / 369.0	2.54	2729.926236	2500.00	109.20
PFOA_2	413.0 / 169.0	2.54	2495.415946	2500.00	99.82
PFNA_1	463.0 / 419.0	2.92	2630.885082	2500.00	105.24
PFNA_2	463.0 / 219.0	2.92	2684.540843	2500.00	107.38
PFOS_1	499.0 / 80.0	2.91	2409.937106	2314.00	104.15
PFOS_2	499.0 / 99.0	2.91	2418.225162	2314.00	104.50
PFDA_1	513.0 / 469.0	3.27	2798.295589	2500.00	111.93
PFDA_2	513.0 / 219.0	3.26	2638.546752	2500.00	105.54
PFUnA_1	563.0 / 519.0	3.58	3037.817918	2500.00	121.51
PFUnA_2	563.0 / 269.0	3.58	3068.382360	2500.00	122.74
PFDoA_1	613.0 / 569.0	3.87	2831.488803	2500.00	113.26
PFDoA_2	613.0 / 319.0	3.86	2832.526286	2500.00	113.30
PFTrDA_1	663.0 / 619.0	4.11	2700.977172	2500.00	108.04
PFTrDA_2	663.0 / 169.0	4.11	2658.429098	2500.00	106.34
PFTeDA_1	713.0 / 669.0	4.33	2743.552145	2500.00	109.74
PFTeDA_2	713.0 / 169.0	4.33	2754.285388	2500.00	110.17
NMeFOSAA_1	570.0 / 419.0	3.41	2323.161185	2500.00	92.93
NMeFOSAA_2	570.0 / 512.0	3.41	2344.261587	2500.00	93.77
NEtFOSAA_1	584.0 / 419.0	3.57	2527.874701	2500.00	101.11
NEtFOSAA_2	584.0 / 483.0	3.57	2637.354256	2500.00	105.49
13C2-PFHxA	315.0 / 270.0	1.78	107.841936	100.00	107.84
13C2-PFDA	515.0 / 470.0	3.25	113.860541	100.00	113.86
d5-EtFOSAA	589.0 / 419.0	3.57	395.315016	400.00	98.83

Sample Name	JV69 CCV	Injection Vial	40
Sample ID	L6 CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	873.684178	885.00	98.72
PFBS_2	298.9 / 99.0	1.50	867.143292	885.00	97.98
PFHxA_1	313.0 / 269.0	1.79	968.368087	1000.00	96.84
PFHxA_2	313.0 / 119.0	1.79	1059.101252	1000.00	105.91
PFHpA_1	363.0 / 319.0	2.16	948.144702	1000.00	94.81
PFHpA_2	363.0 / 169.0	2.16	990.495435	1000.00	99.05
PFHxS_1	399.0 / 80.0	2.17	881.343985	912.00	96.64
PFHxS_2	399.0 / 99.0	2.17	910.295507	912.00	99.81
PFOA_1	413.0 / 369.0	2.54	1008.693557	1000.00	100.87
PFOA_2	413.0 / 169.0	2.53	941.809592	1000.00	94.18
PFNA_1	463.0 / 419.0	2.91	960.527945	1000.00	96.05
PFNA_2	463.0 / 219.0	2.91	980.875510	1000.00	98.09
PFOS_1	499.0 / 80.0	2.91	919.875918	925.60	99.38
PFOS_2	499.0 / 99.0	2.91	899.324971	925.60	97.16
PFDA_1	513.0 / 469.0	3.26	1003.355018	1000.00	100.34
PFDA_2	513.0 / 219.0	3.26	1077.917303	1000.00	107.79
PFUnA_1	563.0 / 519.0	3.57	1133.574410	1000.00	113.36
PFUnA_2	563.0 / 269.0	3.57	1085.263255	1000.00	108.53
PFDoA_1	613.0 / 569.0	3.86	998.474894	1000.00	99.85
PFDoA_2	613.0 / 319.0	3.86	1008.014514	1000.00	100.80
PFTTrDA_1	663.0 / 619.0	4.11	954.070516	1000.00	95.41
PFTTrDA_2	663.0 / 169.0	4.11	936.218288	1000.00	93.62
PFTeDA_1	713.0 / 669.0	4.33	996.489009	1000.00	99.65
PFTeDA_2	713.0 / 169.0	4.32	963.546047	1000.00	96.35
NMeFOSAA_1	570.0 / 419.0	3.41	976.286261	1000.00	97.63
NMeFOSAA_2	570.0 / 512.0	3.40	1050.636869	1000.00	105.06
NEtFOSAA_1	584.0 / 419.0	3.57	1156.604472	1000.00	115.66
NEtFOSAA_2	584.0 / 483.0	3.56	1057.230449	1000.00	105.72
13C2-PFHxA	315.0 / 270.0	1.78	102.055338	100.00	102.06
13C2-PFDA	515.0 / 470.0	3.25	109.247085	100.00	109.25
d5-EtFOSAA	589.0 / 419.0	3.56	465.603898	400.00	116.40

Sample Name	JV63 ICC	Injection Vial	11
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.91	816.229297	925.60	88.18
PFOS_2	499.0 / 99.0	2.91	874.230448	925.60	94.45
13C2-PFHxA	315.0 / 270.0	1.79	98.214979	100.00	98.21

Sample Name	JV69	Injection Vial	7
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	Data File	06212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0360_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.90	774.001594	925.60	83.62
PFOS_2	499.0 / 99.0	2.91	864.225562	925.60	93.37
13C2-PFHxA	315.0 / 270.0	1.78	97.782124	100.00	97.78



Sample Calc

Sample Name	J6295-FS1(0)	Injection Vial	16
Sample ID	WGNA-053118-RW-4850	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T18:28:22	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	2753340.56	9354.091238	950.5	false
PFBS_2	298.9 / 99.0	1.49	843202.93	9223.984666	929.5	false
PFHxA_1	313.0 / 269.0	1.77	2984311.53	9765.741763	228.8	false
PFHxA_2	313.0 / 119.0	1.77	187814.96	8656.451161	204.8	false
PFHpA_1	363.0 / 319.0	2.13	1092609.44	3738.572621	218.9	false
PFHpA_2	363.0 / 169.0	2.11	31553.55	4532.892575	265.9	false
PFHxS_1	399.0 / 80.0	2.15	12625151.81	39129.520570	861.5	false
PFHxS_2	399.0 / 99.0	2.15	3563022.54	38176.336408	1173.2	false
PFOA_1	413.0 / 369.0	2.50	2476349.44	6615.964056	460.0	false
PFOA_2	413.0 / 169.0	2.49	271831.41	9735.886245	398.7	false
PFNA_1	463.0 / 419.0	2.88	267910.94	797.813763	259.6	false
PFNA_2	463.0 / 219.0	2.88	79908.34	811.524529	253.6	false
PFOS_1	499.0 / 80.0	2.84	23598621.94	53179.075798	565.6	false
PFOS_2	499.0 / 99.0	2.87	3851668.21	46583.714479	873.1	false
PFDA_1	513.0 / 469.0	3.22	31850.79	68.362125	142.8	false
PFDA_2	513.0 / 219.0	3.22	1951.78	112.473280	83.2	false
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.37	556.33	14.984659	112.7	false
NMeFOSAA_2	570.0 / 512.0	3.41	204.34	11.648806	30.3	false
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.76	48626.50	129.606300	774.1	true
13C2-PFDA	515.0 / 470.0	3.21	52886.14	116.407629	1212.8	false
d5-EtFOSAA	589.0 / 419.0	3.53	15564.85	398.977021	349.7	false

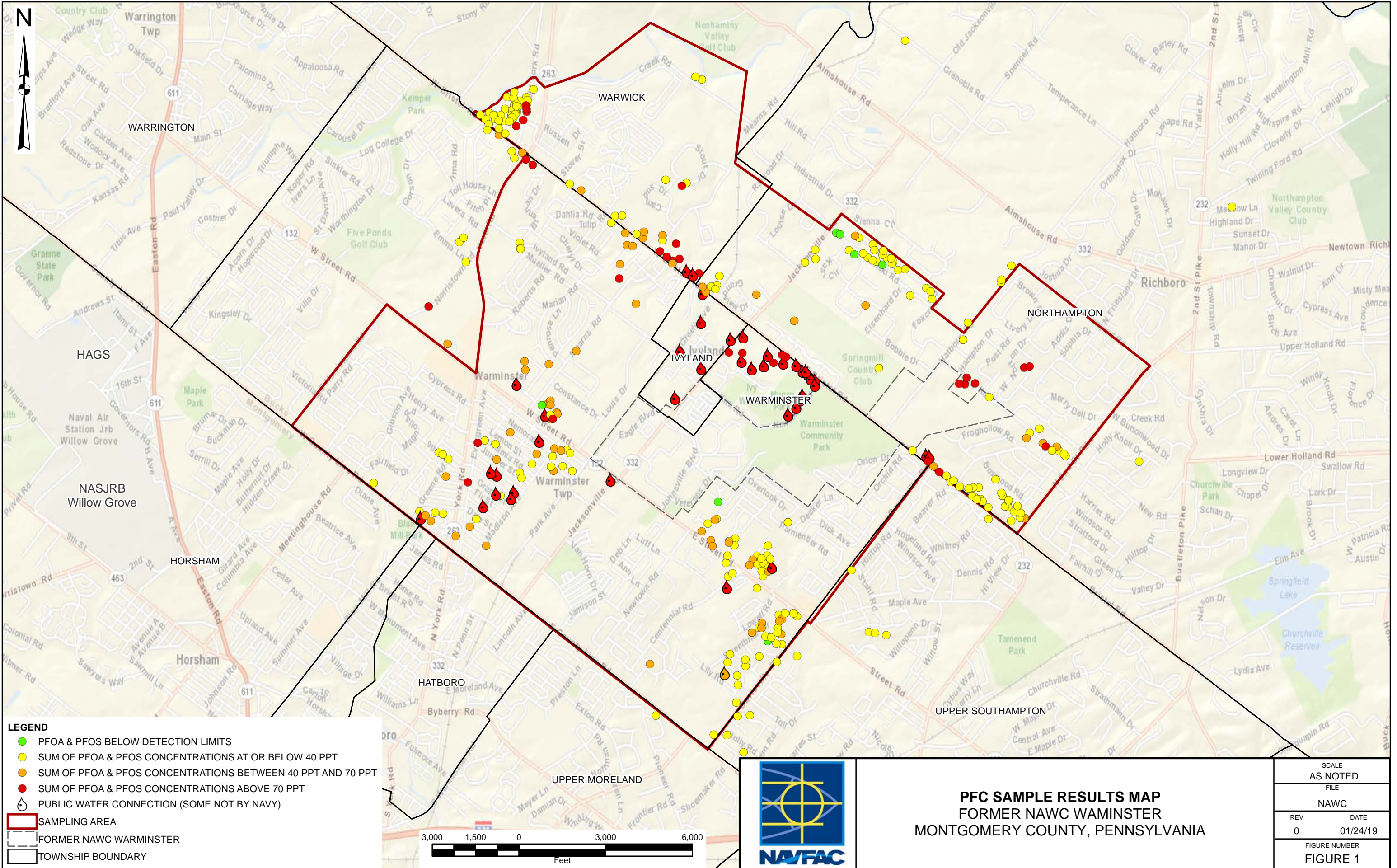
PFOA 24.06 ng/L  
 $y=0.76657x + 0.23682$   
 $((2476349.44 / 48600.75) - 0.23682 / 0.76657) * 100 * 0.001 / 0.275 = 24.058 \text{ ng/L}$   
 LCS PFOA 116%       $11.59/10 * 100 = 115.9\%$   
 MS PFOA 110%       $55.78-24.06/28.85*100 = 109.9\%$   
 MSD PFOA 115%       $55.35-24.06/27.27*100 = 114.7$   
 RPD 4.4       $(114.7-109.9)/(114.7+109.9/2)*100 = 4.3$

Sample Name	J6295-FS1(0)	Injection Vial	16
Sample ID	WGNA-053118-RW-4850	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T18:28:22	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0393_DW
Sample Comment			

## Results Summary

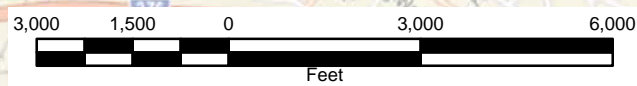
Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFHxA_1	313.0 / 269.0	1.77	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHpA_1	363.0 / 319.0	2.13	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHpA_2	363.0 / 169.0	2.11	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFOA_1	413.0 / 369.0	2.50	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFOA_2	413.0 / 169.0	2.49	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFNA_1	463.0 / 419.0	2.88	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFNA_2	463.0 / 219.0	2.88	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFOS_2	499.0 / 99.0	2.87	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFDA_1	513.0 / 469.0	3.22	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFDA_2	513.0 / 219.0	3.22	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
NMeFOSAA_1	570.0 / 419.0	3.37	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
13C2-PFHxA	315.0 / 270.0	1.76	13C2-PFOA	415.0 / 370.0	48600.75	100.00
13C2-PFDA	515.0 / 470.0	3.21	13C2-PFOA	415.0 / 370.0	48600.75	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00

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**LEGEND**

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- 🔴 PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARRINSTER
- TOWNSHIP BOUNDARY



**PFC SAMPLE RESULTS MAP**  
 FORMER NAWC WARRINSTER  
 MONTGOMERY COUNTY, PENNSYLVANIA

SCALE AS NOTED	
FILE	
NAWC	
REV 0	DATE 01/24/19
FIGURE NUMBER	
FIGURE 1	