



ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

October 11, 2016

Analytical Report for Service Request No: K1611172

John Kane
Kane Environmental
3815 Woodland Park Avenue N,
Suite 102
Seattle, WA 98103

RE: PFAAs Sampling / MOMS00007367079

Dear John,

Enclosed are the results of the sample(s) submitted to our laboratory September 20, 2016
For your reference, these analyses have been assigned our service request number **K1611172**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager



ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

Table of Contents

Acronyms

Qualifiers

State Certifications, Accreditations, And Licenses

Case Narrative

Chain of Custody

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LCMSMS

Raw Data

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LCMSMS

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
 - i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS ENVIRONMENTAL

Client: Kane Environmental
Project: PFAAs Sampling/ MOMS00007367079
Sample Matrix: Water

Service Request No.: K1611172
Date Received: 09/20/16

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at ALS Environmental on 09/20/16. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Perfluorinated Alkyl Acids by EPA Method 537

Sample Notes and Discussion:

Manual integration of one or more chromatographic peaks was required to correct the integration performed by the automated data processing program. The manual integration was performed in accordance with ALS policy, which is consistent with the National Environmental Laboratory Accreditation Program (NELAP), Department of Defense (DOD), and other certifying agencies. The analytes that required manual integrations are identified on each sample report contained in this data package.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____





Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



CHAIN OF CUSTODY
73313

001

SR# K1611172
COC Set _____ of _____
COC# _____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name PEAAs Sampling		Project Number MOMS 00007367079		NUMBER OF CONTAINERS	14D	537 / Per/AlkylAcids	1	2	3	4	5	6	Remarks
Project Manager Nathan Evenson													
Company KANS ENVIRONMENTAL													
Address 3815 WOODLAND PARK AVE N SUITE 102													
Phone # 206-691-0476		email nevenson@kane-											
Sampler Signature 		Sampler Printed Name VANCE ATKINS											
CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix									
1. OLF Bldg 11		9/19/16	1015	W	4	X							
2. OLF Bldg 11-FB			1016		1	X							
3. OLF Bldg 2807			1045		4	X							
4. OLF Bldg 2807-FB			1046		1	X							
5.													
6.													
7.													
8.													
9.													
10.													

Report Requirements <input checked="" type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required <input type="checkbox"/> II. Report Dup., MS, MSD as required <input type="checkbox"/> III. CLP Like Summary (no raw data) <input type="checkbox"/> IV. Data Validation Report <input type="checkbox"/> V. EDD	Invoice Information P.O.# <u>MOMS 00007367079</u> Bill To: <u>ap@kane-environmental.com</u>	Circle which metals are to be analyzed Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg	
	Turnaround Requirements <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input checked="" type="checkbox"/> 5 Day <input checked="" type="checkbox"/> Standard	Special Instructions/Comments:	*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other _____ (Circle One)
	Requested Report Date		

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature 	Signature 	Signature	Signature	Signature	Signature
Printed Name VANCE ATKINS	Printed Name ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm KANS ENV	Firm 9-20-16 11:10	Firm	Firm	Firm	Firm
Date/Time 9/19/16 1430	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time



Cooler Receipt and Preservation Form

Client Karl Environmental Service Request K16 11172
 Received: 9-20-16 Opened: 9-20-16 By: [Signature] Unloaded: 9-20-16 By: [Signature]

1. Samples were received via? USPS ~~Fed Ex~~ UPS ~~DHL~~ ~~PDX~~ ~~Courier~~ ~~Hand Delivered~~
2. Samples were received in: (circle) Cooler ~~Box~~ ~~Envelope~~ ~~Other~~ NA
3. Were custody seals on coolers? NA ~~Y~~ ~~N~~ If yes, how many and where? 1-front
 If present, were custody seals intact? Y ~~N~~ If present, were they signed and dated? Y ~~N~~

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
4.7	4.7	5.6	5.6	<u>Q</u>	348	73313	6447 9278 2845		

4. Packing material: Inserts Baggies ~~Bubble Wrap~~ Gel Packs ~~Wet Ice~~ ~~Dry Ice~~ ~~Sleeves~~
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y ~~N~~
6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y ~~N~~
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y ~~N~~
8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y ~~N~~
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y ~~N~~
10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y ~~N~~
11. Were VOA vials received without headspace? Indicate in the table below. NA Y ~~N~~
12. Was C12/Res negative? NA Y ~~N~~

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Out of	Head-	Broke	pH	Reagent	Volume	Reagent Lot	Initials	Time
	Bottle Type	Temp	space				added	Number		

Notes, Discrepancies, & Resolutions: _____



Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Collected: 09/19/16 10:15
Date Received: 09/20/16 11:10

Sample Name: OLF BLDG 11
Lab Code: K1611172-001

Units: ng/L
Basis: NA

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Prep Method: Method

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctylsulfonic Acid	ND U	37.0	10.0	10.0	1	10/05/16 20:37	10/3/16	
Perfluorooctanoic Acid	ND U	18.5	7.00	3.00	1	10/05/16 20:37	10/3/16	
Perfluoroheptanoic Acid	ND U	9.26	3.00	2.00	1	10/05/16 20:37	10/3/16	
Perfluorononanoic Acid	ND U	18.5	7.00	4.00	1	10/05/16 20:37	10/3/16	
Perfluorobutanesulfonic Acid	ND U	83.3	30.0	10.0	1	10/05/16 20:37	10/3/16	
Perfluorohexylsulfonic Acid	ND U	27.8	10.0	4.00	1	10/05/16 20:37	10/3/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2-13C2] hexanoic acid	99	70 - 130	10/05/16 20:37	
Perfluoro-n-[1,2-13C2] decanoic acid	93	70 - 130	10/05/16 20:37	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Collected: 09/19/16 10:16
Date Received: 09/20/16 11:10

Sample Name: OLF BLDG 11-FB
Lab Code: K1611172-002

Units: ng/L
Basis: NA

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Prep Method: Method

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctylsulfonic Acid	ND U	40.0	10.0	10.0	1	10/05/16 21:04	10/3/16	
Perfluorooctanoic Acid	ND U	20.0	7.00	3.00	1	10/05/16 21:04	10/3/16	
Perfluoroheptanoic Acid	ND U	10.0	3.00	2.00	1	10/05/16 21:04	10/3/16	
Perfluorononanoic Acid	ND U	20.0	7.00	4.00	1	10/05/16 21:04	10/3/16	
Perfluorobutanesulfonic Acid	ND U	90.0	30.0	10.0	1	10/05/16 21:04	10/3/16	
Perfluorohexylsulfonic Acid	ND U	30.0	10.0	4.00	1	10/05/16 21:04	10/3/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2-13C2] hexanoic acid	88	70 - 130	10/05/16 21:04	
Perfluoro-n-[1,2-13C2] decanoic acid	82	70 - 130	10/05/16 21:04	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Collected: 09/19/16 10:45
Date Received: 09/20/16 11:10

Sample Name: OLF BLDG 2807
Lab Code: K1611172-003

Units: ng/L
Basis: NA

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Prep Method: Method

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctylsulfonic Acid	ND U	35.7	10.0	10.0	1	10/05/16 21:13	10/3/16	
Perfluorooctanoic Acid	17.5 J	17.9	7.00	3.00	1	10/05/16 21:13	10/3/16	
Perfluoroheptanoic Acid	22.8	8.93	3.00	2.00	1	10/05/16 21:13	10/3/16	
Perfluorononanoic Acid	ND U	17.9	7.00	4.00	1	10/05/16 21:13	10/3/16	
Perfluorobutanesulfonic Acid	110	80.4	30.0	10.0	1	10/05/16 21:13	10/3/16	
Perfluorohexylsulfonic Acid	48.3	26.8	10.0	4.00	1	10/05/16 21:13	10/3/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2-13C2] hexanoic acid	89	70 - 130	10/05/16 21:13	
Perfluoro-n-[1,2-13C2] decanoic acid	80	70 - 130	10/05/16 21:13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Collected: 09/19/16 10:46
Date Received: 09/20/16 11:10

Sample Name: OLF BLDG 2807-FB
Lab Code: K1611172-004

Units: ng/L
Basis: NA

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Prep Method: Method

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctylsulfonic Acid	ND U	37.0	10.0	10.0	1	10/05/16 21:22	10/3/16	
Perfluorooctanoic Acid	ND U	18.5	7.00	3.00	1	10/05/16 21:22	10/3/16	
Perfluoroheptanoic Acid	ND U	9.26	3.00	2.00	1	10/05/16 21:22	10/3/16	
Perfluorononanoic Acid	ND U	18.5	7.00	4.00	1	10/05/16 21:22	10/3/16	
Perfluorobutanesulfonic Acid	ND U	83.3	30.0	10.0	1	10/05/16 21:22	10/3/16	
Perfluorohexylsulfonic Acid	ND U	27.8	10.0	4.00	1	10/05/16 21:22	10/3/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2-13C2] hexanoic acid	88	70 - 130	10/05/16 21:22	
Perfluoro-n-[1,2-13C2] decanoic acid	81	70 - 130	10/05/16 21:22	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ1612321-04

Units: ng/L
Basis: NA

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Prep Method: Method

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctylsulfonic Acid	ND U	40.0	10.0	10.0	1	10/05/16 20:00	10/3/16	
Perfluorooctanoic Acid	ND U	20.0	7.00	3.00	1	10/05/16 20:00	10/3/16	
Perfluoroheptanoic Acid	ND U	10.0	3.00	2.00	1	10/05/16 20:00	10/3/16	
Perfluorononanoic Acid	ND U	20.0	7.00	4.00	1	10/05/16 20:00	10/3/16	
Perfluorobutanesulfonic Acid	ND U	90.0	30.0	10.0	1	10/05/16 20:00	10/3/16	
Perfluorohexylsulfonic Acid	ND U	30.0	10.0	4.00	1	10/05/16 20:00	10/3/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2-13C2] hexanoic acid	84	70 - 130	10/05/16 20:00	
Perfluoro-n-[1,2-13C2] decanoic acid	81	70 - 130	10/05/16 20:00	

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172

SURROGATE RECOVERY SUMMARY

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Extraction Method: Method

Sample Name	Lab Code	Perfluoro-n-[1,2-13C2] hexanoic acid 70 - 130	Perfluoro-n-[1,2-13C2] decanoic acid 70 - 130
OLF BLDG 11	K1611172-001	99	93
OLF BLDG 11-FB	K1611172-002	88	82
OLF BLDG 2807	K1611172-003	89	80
OLF BLDG 2807-FB	K1611172-004	88	81
OLF BLDG 11	KQ1612321-01	88	80
OLF BLDG 11	KQ1612321-02	84	74
Lab Control Sample	KQ1612321-03	94	90
Method Blank	KQ1612321-04	84	81

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request: K1611172
Date Analyzed: 10/5/16 19:51

Internal Standard Area and RT Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

File ID: 100416\0149.wiff
Instrument ID: K-LCMS-02
Analytical Method: 537

Lab Code: KQ1612661-01
Analysis Lot: 517611
Signal ID: 1

	Perfluoro-n- [1,2-13C2]octanoic acid		Sodium perfluoro-1- [1,2,3,4-13C4] octanesulfonate	
	<u>Area</u>	<u>RT</u>	<u>Area</u>	<u>RT</u>
Results ==>	1,304,587	4.47	2,854,361	4.96
Upper Limit ==>	1,826,422	5.47	3,996,105	5.96
Lower Limit ==>	913,211	3.47	1,998,052	3.96
ICAL Result ==>				

Associated Analyses

Sample Name	Sample ID	Area	RT	Area	RT
Method Blank	KQ1612321-04	1,341,079	4.47	2,861,244	4.97
Lab Control Sample	KQ1612321-03	1,179,559	4.47	2,700,935	4.97
OLF BLDG 11	K1611172-001	1,037,601	4.47	2,376,234	4.97
OLF BLDG 11DMS	KQ1612321-02	1,395,670	4.47	3,028,335	4.97
OLF BLDG 11-FB	K1611172-002	1,197,646	4.47	2,674,065	4.96
OLF BLDG 2807	K1611172-003	1,227,780	4.47	2,679,034	4.96
OLF BLDG 2807-FB	K1611172-004	1,249,855	4.47	2,755,328	4.97

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request: K1611172
Date Analyzed: 10/6/16 01:18

Internal Standard Area and RT Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

File ID: 100416\0185.wiff
Instrument ID: K-LCMS-02
Analytical Method: 537

Lab Code: KQ1612662-02
Analysis Lot: 517612
Signal ID: 1

	Perfluoro-n- [1,2-13C2]octanoic acid		Sodium perfluoro-1- [1,2,3,4-13C4] octanesulfonate	
	<u>Area</u>	<u>RT</u>	<u>Area</u>	<u>RT</u>
Results ==>	1,286,169	4.46	2,862,168	4.96
Upper Limit ==>	1,800,637	5.46	4,007,035	5.96
Lower Limit ==>	900,319	3.46	2,003,517	3.96
ICAL Result ==>				

Associated Analyses

OLF BLDG 11MS	KQ1612321-01	1,271,227	4.47	2,790,991	4.96
---------------	--------------	-----------	------	-----------	------

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Collected: 09/19/16
Date Received: 09/20/16
Date Analyzed: 10/6/16
Date Extracted: 10/3/16

Duplicate Matrix Spike Summary

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Sample Name: OLF BLDG 11 **Units:** ng/L
Lab Code: K1611172-001 **Basis:** NA
Analysis Method: 537
Prep Method: Method

Analyte Name	Sample Result	Matrix Spike KQ1612321-01			Duplicate Matrix Spike KQ1612321-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Perfluorobutanesulfonic Acid	ND U	332	360	92	310	360	86	0-200	7	50
Perfluoroheptanoic Acid	ND U	36.6	40.0	91	34.7	40.0	87	0-200	4	50
Perfluorohexylsulfonic Acid	ND U	117	120	97	109	120	91	0-200	6	50
Perfluorononanoic Acid	ND U	76.8	80.0	96	68.4	80.0	85	0-200	12	50
Perfluorooctanoic Acid	ND U	76.3	80.0	95	69.0	80.0	86	0-200	10	50
Perfluorooctylsulfonic Acid	ND U	150	160	94	136	160	85	0-200	10	50

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Analyzed: 10/05/16
Date Extracted: 10/03/16

Lab Control Sample Summary

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
Prep Method: Method

Units: ng/L
Basis: NA
Analysis Lot: 517611

**Lab Control Sample
KQ1612321-03**

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perfluorobutanesulfonic Acid	96.6	90.0	107	50-150
Perfluoroheptanoic Acid	10.8	10.0	108	50-150
Perfluorohexylsulfonic Acid	32.4	30.0	108	50-150
Perfluorononanoic Acid	21.4	20.0	107	50-150
Perfluorooctanoic Acid	20.8	20.0	104	50-150
Perfluorooctylsulfonic Acid	42.3	40.0	106	50-150

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request: K1611172
Date Analyzed: 10/05/16 20:09
Date Extracted: 10/03/16

Lab Control Sample Summary

Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Sample Name: Lab Control Sample **Instrument ID:** K-LCMS-02
Lab Code: KQ1612321-03 **File ID:** 100416\0151.wiff
Analysis Method: 537 **Analysis Lot:** 517611
Prep Method: Method **Extraction Lot:** 272269

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1612321-04	100416\0150.wiff	10/05/16 20:00
OLF BLDG 11	K1611172-001	100416\0154.wiff	10/05/16 20:37
OLF BLDG 11	KQ1612321-02	100416\0156.wiff	10/05/16 20:55
OLF BLDG 11-FB	K1611172-002	100416\0157.wiff	10/05/16 21:04
OLF BLDG 2807	K1611172-003	100416\0158.wiff	10/05/16 21:13
OLF BLDG 2807-FB	K1611172-004	100416\0159.wiff	10/05/16 21:22
OLF BLDG 11	KQ1612321-01	100416\0188.wiff	10/06/16 02:42

Client: Kane Environmental
Project: PFAAs Sampling

Service Request: K1611172
Calibration Date: 10/4/2016

Initial Calibration Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Calibration ID: KC1600169
Instrument ID: K-LCMS-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	KC1600169-01	537 CAL 1-9ppb	100416\0002.wiff	10/04/2016 20:39
02	KC1600169-02	537 CAL 2.5-22.5ppb	100416\0003.wiff	10/04/2016 20:48
03	KC1600169-03	537 CAL 5-45ppb	100416\0004.wiff	10/04/2016 20:57
04	KC1600169-04	537 CAL 10-90ppb	100416\0005.wiff	10/04/2016 21:06
05	KC1600169-05	537 CAL 20-180ppb	100416\0006.wiff	10/04/2016 21:15
06	KC1600169-06	537 CAL 50-450ppb	100416\0007.wiff	10/04/2016 21:24
07	KC1600169-07	537 CAL 100-900ppb	100416\0008.wiff	10/04/2016 21:33

Analyte

Perfluorooctylsulfonic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	4.00	1.228	02	10.0	1.06	03	20.0	1.038	04	40.0	1.012
05	80.0	1.071	06	200.	1.014	07	400.	0.9608			

Perfluorooctanoic Acid

#	Amount	RF									
01	2.00	0.8649	02	5.00	0.7427	03	10.0	0.7141	04	20.0	0.7022
05	40.0	0.7313	06	100.	0.7098	07	200.	0.6401			

Perfluoroheptanoic Acid

#	Amount	RF									
01	1.00	0.807	02	2.50	0.6888	03	5.00	0.6459	04	10.0	0.6198
05	20.0	0.6618	06	50.0	0.6555	07	100.	0.6498			

Perfluorononanoic Acid

#	Amount	RF									
01	2.00	1.012	02	5.00	0.8394	03	10.0	0.8295	04	20.0	0.8193
05	40.0	0.8105	06	100.	0.763	07	200.	0.6582			

Perfluorobutanesulfonic Acid

#	Amount	RF									
01	9.00	1.575	02	22.5	1.358	03	45.0	1.328	04	90.0	1.244
05	180.	1.215									

Perfluorohexylsulfonic Acid

#	Amount	RF									
01	3.00	1.393	02	7.50	1.176	03	15.0	1.161	04	30.0	1.111
05	60.0	1.187	06	150.	1.124	07	300.	1.063			

Perfluoro-n-[1,2-13C2] hexanoic acid

#	Amount	RF									
01	10.0	0.7166	02	10.0	0.6516	03	10.0	0.5706	04	10.0	0.5801
05	10.0	0.6244	06	10.0	0.6496	07	10.0	0.5789			

Perfluoro-n-[1,2-13C2] decanoic acid

#	Amount	RF									

Client: Kane Environmental
Project: PFAAs Sampling

Service Request: K1611172
Calibration Date: 10/4/2016

Initial Calibration Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Calibration ID: KC1600169
Instrument ID: K-LCMS-02

Signal ID: 1

Analyte

01	10.0	1.103	02	10.0	1.011	03	10.0	0.9018	04	10.0	0.8996
05	10.0	0.9799	06	10.0	1.035	07	10.0	0.9344			

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Perfluorooctylsulfonic Acid	TRG	Average RF	% RSD	8.0		1.055	
Perfluorooctanoic Acid	TRG	Average RF	% RSD	9.3		0.7293	
Perfluoroheptanoic Acid	TRG	Average RF	% RSD	9.1		0.6755	
Perfluorononanoic Acid	TRG	Average RF	% RSD	12.9		0.8189	
Perfluorobutanesulfonic Acid	TRG	Average RF	% RSD	10.6		1.344	
Perfluorohexylsulfonic Acid	TRG	Average RF	% RSD	9.0		1.174	
Perfluoro-n-[1,2-13C2] hexanoic acid	SURR	Average RF	% RSD	8.5		0.6245	
Perfluoro-n-[1,2-13C2] decanoic acid	SURR	Average RF	% RSD	7.7		0.9807	

Client: Kane Environmental
Project: PFAAs Sampling

Service Request: K1611172
Calibration Date: 10/4/2016

Initial Calibration Verification Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Calibration ID: KC1600169
Instrument ID: K-LCMS-02

Signal ID: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
08	KC1600169-08	537 ICV 50ppb	100416\0010.wiff	10/04/2016 21:51

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	47.8	44.4	1.055	0.979	-7.175	±30	Average RF
Perfluorooctanoic Acid	50.0	54.5	0.729	0.795	9.00	±30	Average RF
Perfluoroheptanoic Acid	50.0	53.5	0.676	0.723	7.03	±30	Average RF
Perfluorononanoic Acid	50.0	55.9	0.819	0.916	11.87	±30	Average RF
Perfluorobutanesulfonic Acid	44.3	48.1	1.344	1.461	8.69	±30	Average RF
Perfluorohexylsulfonic Acid	47.3	52.9	1.174	1.312	11.78	±30	Average RF
Perfluoro-n-[1,2-13C2] hexanoic acid	10.0	9.47	0.625	0.591	-5.323	±30	Average RF
Perfluoro-n-[1,2-13C2] decanoic acid	10.0	9.15	0.981	0.897	-8.530	±30	Average RF

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request: K1611172
Date Analyzed: 10/05/16 19:51

Continuing Calibration Verification (CCV) Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
File ID: 100416\0149.wiff

Calibration Date: 10/4/2016 12:00:00 AM
Calibration ID: KC1600169
Analysis Lot: 517611
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	10.0	10.1	1.055	1.064	0.9	NA	±30	Average RF
Perfluorooctanoic Acid	5.00	4.90	0.729	0.715	-2.0	NA	±30	Average RF
Perfluoroheptanoic Acid	2.50	2.43	0.676	0.657	-2.7	NA	±30	Average RF
Perfluorononanoic Acid	5.00	5.09	0.819	0.833	1.8	NA	±30	Average RF
Perfluorobutanesulfonic Acid	22.5	22.4	1.344	1.341	-0.3	NA	±30	Average RF
Perfluorohexylsulfonic Acid	7.50	7.66	1.174	1.199	2.2	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] hexanoic acid	10.0	10.2	0.625	0.636	1.8	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] decanoic acid	10.0	10.1	0.981	0.994	1.4	NA	±30	Average RF

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request: K1611172
Date Analyzed: 10/05/16 21:31

Continuing Calibration Verification (CCV) Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
File ID: 100416\0160.wiff

Calibration Date: 10/4/2016 12:00:00 AM
Calibration ID: KC1600169
Analysis Lot: 517611
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	80.0	81.2	1.055	1.071	1.5	NA	±30	Average RF
Perfluorooctanoic Acid	40.0	41.3	0.729	0.752	3.2	NA	±30	Average RF
Perfluoroheptanoic Acid	20.0	20.2	0.676	0.683	1.0	NA	±30	Average RF
Perfluorononanoic Acid	40.0	40.6	0.819	0.831	1.4	NA	±30	Average RF
Perfluorobutanesulfonic Acid	180	162	1.344	1.213	-9.8	NA	±30	Average RF
Perfluorohexylsulfonic Acid	60.0	61.1	1.174	1.196	1.9	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] hexanoic acid	10.0	10.0	0.625	0.627	0.5	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] decanoic acid	10.0	9.83	0.981	0.964	-1.7	NA	±30	Average RF

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request: K1611172
Date Analyzed: 10/06/16 01:18

Continuing Calibration Verification (CCV) Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
File ID: 100416\0185.wiff

Calibration Date: 10/4/2016 12:00:00 AM
Calibration ID: KC1600169
Analysis Lot: 517612
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	40.0	38.9	1.055	1.026	-2.7	NA	±30	Average RF
Perfluorooctanoic Acid	20.0	19.0	0.729	0.694	-4.9	NA	±30	Average RF
Perfluoroheptanoic Acid	10.0	9.77	0.676	0.660	-2.3	NA	±30	Average RF
Perfluorononanoic Acid	20.0	18.8	0.819	0.772	-5.8	NA	±30	Average RF
Perfluorobutanesulfonic Acid	90.0	83.9	1.344	1.253	-6.7	NA	±30	Average RF
Perfluorohexylsulfonic Acid	30.0	29.9	1.174	1.171	-0.2	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] hexanoic acid	10.0	9.46	0.625	0.591	-5.4	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] decanoic acid	10.0	8.91	0.981	0.874	-10.9	NA	±30	Average RF

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request: K1611172
Date Analyzed: 10/06/16 03:00

Continuing Calibration Verification (CCV) Summary
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537
File ID: 100416\0190.wiff

Calibration Date: 10/4/2016 12:00:00 AM
Calibration ID: KC1600169
Analysis Lot: 517612
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	80.0	80.7	1.055	1.064	0.8	NA	±30	Average RF
Perfluorooctanoic Acid	40.0	38.9	0.729	0.709	-2.7	NA	±30	Average RF
Perfluoroheptanoic Acid	20.0	19.1	0.676	0.645	-4.5	NA	±30	Average RF
Perfluorononanoic Acid	40.0	37.6	0.819	0.769	-6.1	NA	±30	Average RF
Perfluorobutanesulfonic Acid	180	159	1.344	1.190	-11.4	NA	±30	Average RF
Perfluorohexylsulfonic Acid	60.0	60.2	1.174	1.178	0.4	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] hexanoic acid	10.0	9.49	0.625	0.592	-5.1	NA	±30	Average RF
Perfluoro-n-[1,2-13C2] decanoic acid	10.0	9.44	0.981	0.926	-5.6	NA	±30	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request:K1611172

Analysis Run Log
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537

Analysis Lot:517611

Instrument ID:K-LCMS-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
100416\0149.wiff	Continuing Calibration Verification	KQ1612661-01	10/5/2016	19:51:39	
100416\0150.wiff	Method Blank	KQ1612321-04	10/5/2016	20:00:40	
100416\0151.wiff	Lab Control Sample	KQ1612321-03	10/5/2016	20:09:47	
100416\0152.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	20:18:49	
100416\0153.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	20:27:58	
100416\0154.wiff	OLF BLDG 11	K1611172-001	10/5/2016	20:37:01	
100416\0156.wiff	OLF BLDG 11 DMS	KQ1612321-02	10/5/2016	20:55:07	
100416\0157.wiff	OLF BLDG 11-FB	K1611172-002	10/5/2016	21:04:16	
100416\0158.wiff	OLF BLDG 2807	K1611172-003	10/5/2016	21:13:19	
100416\0159.wiff	OLF BLDG 2807-FB	K1611172-004	10/5/2016	21:22:22	
100416\0160.wiff	Continuing Calibration Verification	KQ1612661-02	10/5/2016	21:31:28	
100416\0162.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	21:49:36	
100416\0163.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	21:58:42	
100416\0164.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	22:07:48	
100416\0165.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	22:16:52	
100416\0167.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	22:35:02	
100416\0168.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	22:44:09	
100416\0169.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	22:53:14	
100416\0170.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	23:02:20	
100416\0171.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	23:11:22	
100416\0173.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	23:29:31	
100416\0174.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	23:38:39	
100416\0175.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	23:47:41	
100416\0176.wiff	ZZZZZZZ	ZZZZZZZ	10/5/2016	23:56:43	
100416\0177.wiff	ZZZZZZZ	ZZZZZZZ	10/6/2016	00:05:49	
100416\0178.wiff	ZZZZZZZ	ZZZZZZZ	10/6/2016	00:14:54	
100416\0180.wiff	ZZZZZZZ	ZZZZZZZ	10/6/2016	00:33:02	
100416\0183.wiff	ZZZZZZZ	ZZZZZZZ	10/6/2016	01:00:20	
100416\0184.wiff	ZZZZZZZ	ZZZZZZZ	10/6/2016	01:09:27	
100416\0189.wiff	ZZZZZZZ	ZZZZZZZ	10/6/2016	02:51:46	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079

Service Request:K1611172

Analysis Run Log
Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

Analysis Method: 537

Analysis Lot:517612

Instrument ID:K-LCMS-02

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
100416\0185.wiff	Continuing Calibration Verification	KQ1612662-02	10/6/2016	01:18:32	
100416\0188.wiff	OLF BLDG 11 MS	KQ1612321-01	10/6/2016	02:42:38	
100416\0190.wiff	Continuing Calibration Verification	KQ1612662-03	10/6/2016	03:00:50	

ALS Group USA, Corp.

dba ALS Environmental

Prep Summary Report

Client: Kane Environmental
Project: PFAAs Sampling/MOMS00007367079
Sample Matrix: Water

Service Request:K1611172**Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS****Prep Method:** Method**Extraction Lot:**272269**Analytical Method:** 537

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
OLF BLDG 11	K1611172-001	9/19/16	9/20/16	270.0000	1 mL	
OLF BLDG 11-FB	K1611172-002	9/19/16	9/20/16	250.0000	1 mL	
OLF BLDG 2807	K1611172-003	9/19/16	9/20/16	280.0000	1 mL	
OLF BLDG 2807-FB	K1611172-004	9/19/16	9/20/16	270.0000	1 mL	
OLF BLDG 11	KQ1612321-01	9/19/16	9/20/16	250 mL	1 mL	
OLF BLDG 11	KQ1612321-02	9/19/16	9/20/16	250 mL	1 mL	
Lab Control Sample	KQ1612321-03	NA	NA	250 mL	1 mL	
Method Blank	KQ1612321-04	NA	NA	250 mL	1 mL	



Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



Handwritten signature

Project	Ewan's Projects\EPA 537		
Data File	100416\0154.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	K1611172-001	Injection Volume	1
Acquisition Date	10/5/2016 8:37:01 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	27	Weight to Volume	0.00

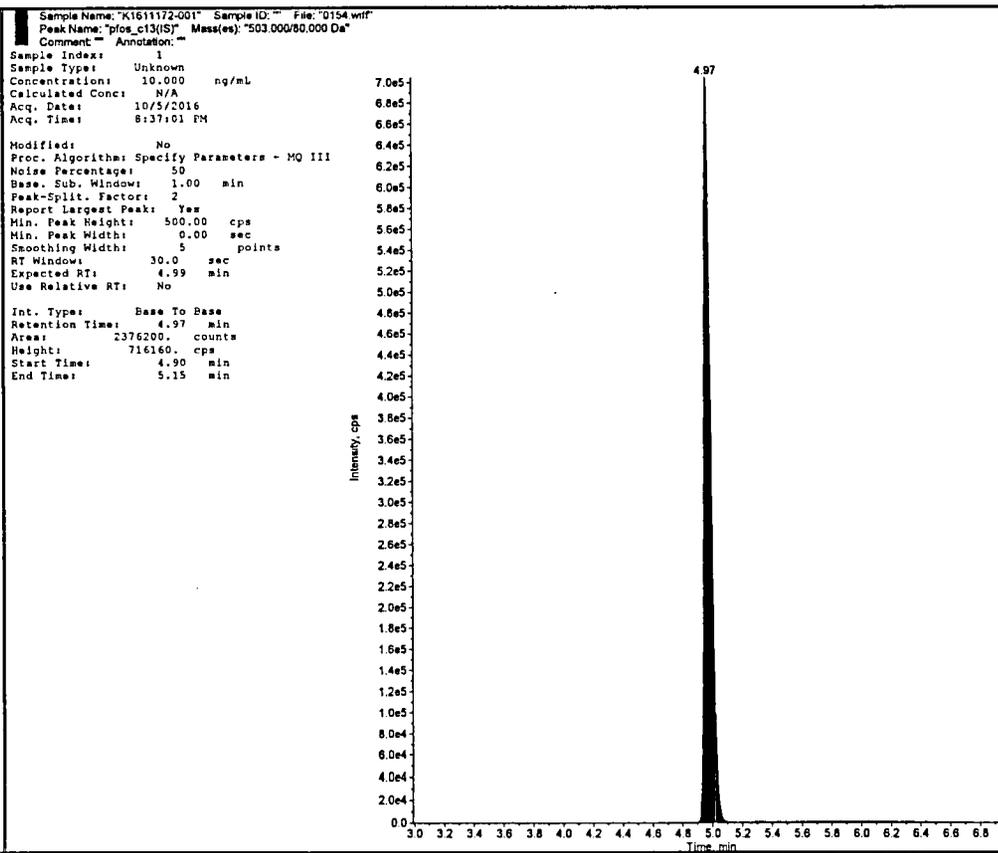
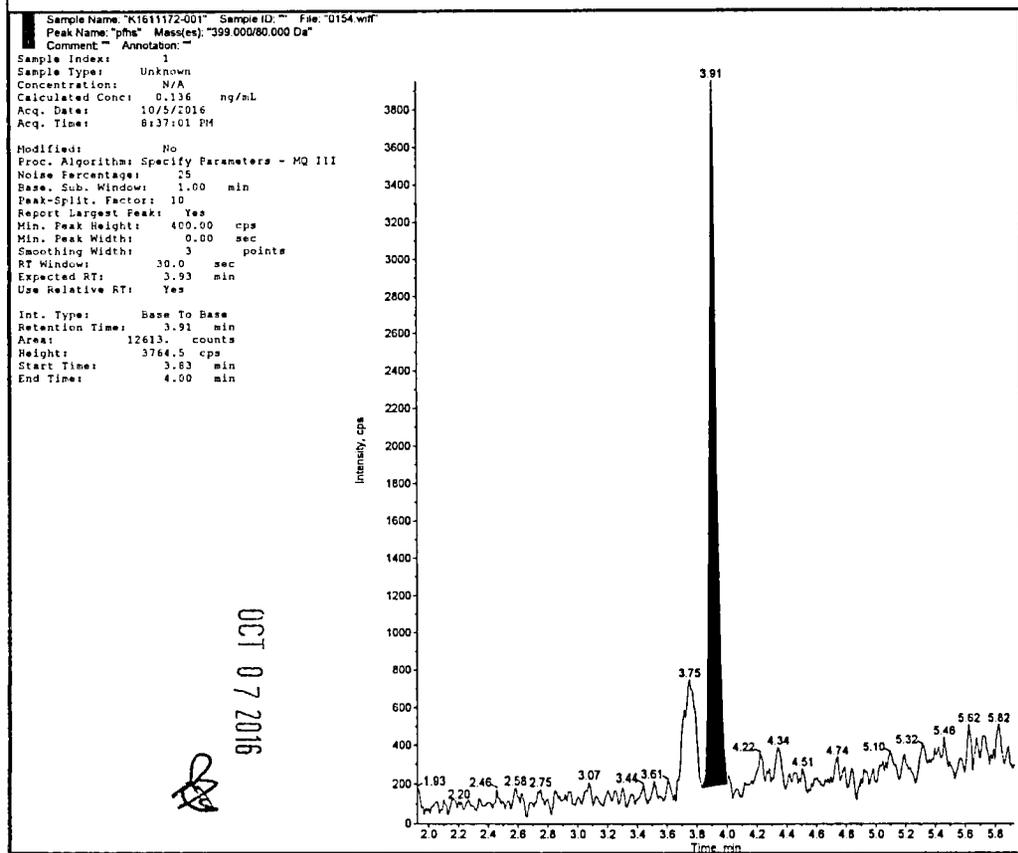
Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	2376200	0.00	0	N/A	No
pfa_c13	pfoa_c13	1037600	2.93	639930	9.87	No
pfnpa	pfoa_c13	1037600	3.84	13866	0.20	No
pfs	pfos_c13	2376200	3.91	16471	0.18	Yes /
pfoa	pfoa_c13	1037600	4.48	8526	0.11	No
pfos	pfos_c13	2376200	4.99	3788	0.05	No
pfna	pfoa_c13	1037600	4.97	7802	0.09	No
pfda_c13	pfoa_c13	1037600	5.36	942950	9.27	No

OCT 07 2016

Handwritten signature

	File Name	Sample Name	Sample ID	Sample Type	Analyte Peak Name	Analyte Peak Area (counts)	Analyte Concentration (ng/mL)	Analyte Retention Time	IS Peak Name	IS Peak Area (counts)
992	100416\0153.wiff	K1611125-002		Unknown	pfda_c13	912830.	N/A	5.37	pfoa_c13	1301400.
993	100416\0154.wiff	K1611172-001		Unknown	pfbs	0.0000	N/A	0.00	pfos_c13	2376200.
994	100416\0154.wiff	K1611172-001		Unknown	pfha_c13	639930.	N/A	2.93	pfoa_c13	1037600.
995	100416\0154.wiff	K1611172-001		Unknown	pfhpa	13866.	N/A	3.84	pfoa_c13	1037600.
996	100416\0154.wiff	K1611172-001		Unknown	pfhs	12613.	N/A	3.91	pfos_c13	2376200.
997	100416\0154.wiff	K1611172-001		Unknown	pfoa	8526.3	N/A	4.48	pfoa_c13	1037600.
998	100416\0154.wiff	K1611172-001		Unknown	pfos	3788.2	N/A	4.99	pfos_c13	2376200.





ls

Project	Ewan's Projects\EPA 537		
Data File	100416\0157.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	K1611172-002	Injection Volume	1
Acquisition Date	10/5/2016 9:04:16 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	30	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	2674100	0.00	0	N/A	No
pfa_c13	pfoa_c13	1197600	2.93	658550	8.80	No
pfa	pfoa_c13	1197600	0.00	0	N/A	No
pfs	pfos_c13	2674100	0.00	0	N/A	No
pfoa	pfoa_c13	1197600	4.47	5122	0.06	No
pfs	pfos_c13	2674100	0.00	0	N/A	No
pfa	pfoa_c13	1197600	4.97	4688	0.05	No
pfa_c13	pfoa_c13	1197600	5.36	967100	8.23	No

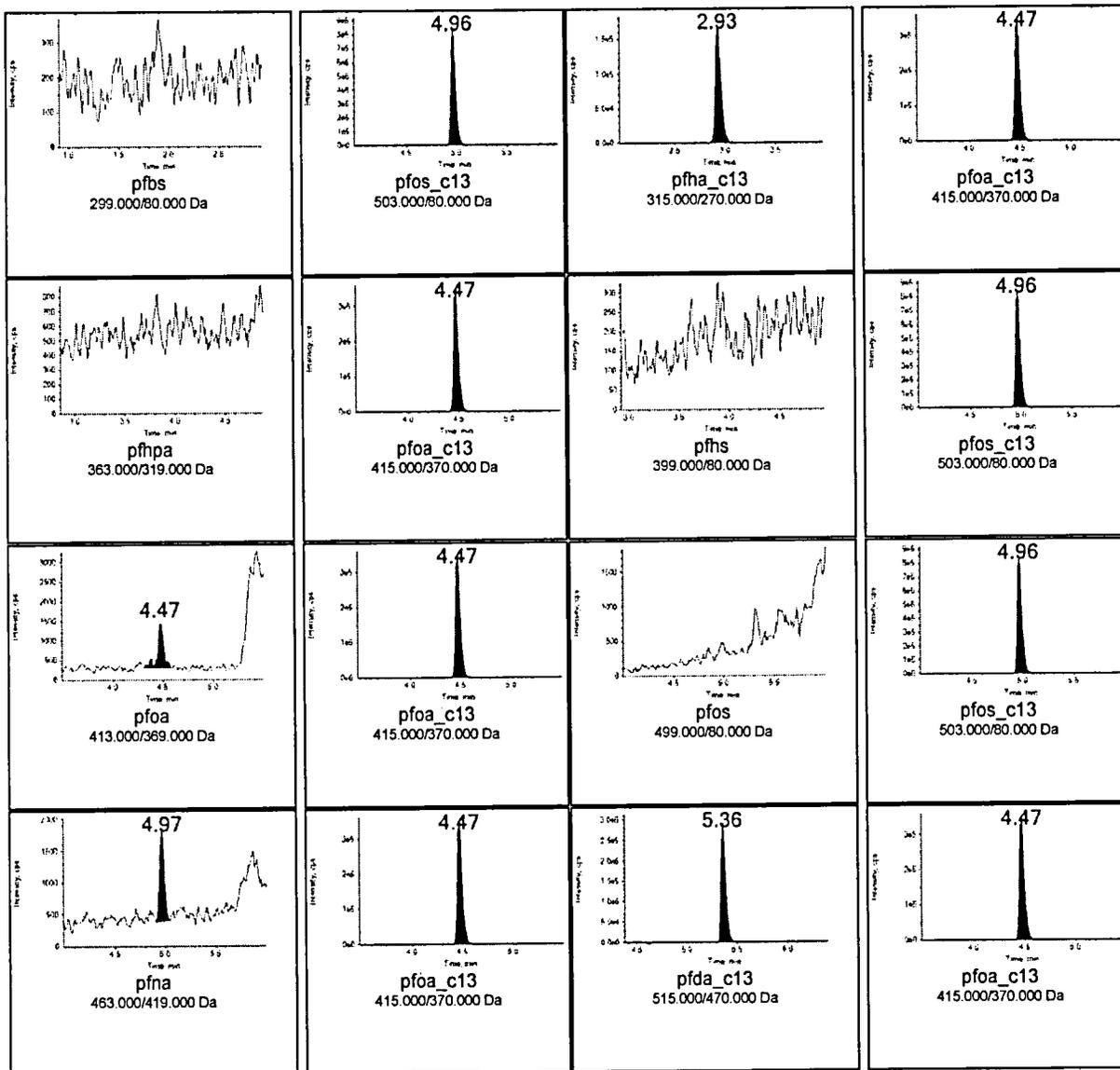
OCT 07 2016

ls



Quantitative Peak Review

K1611172-002



Before After



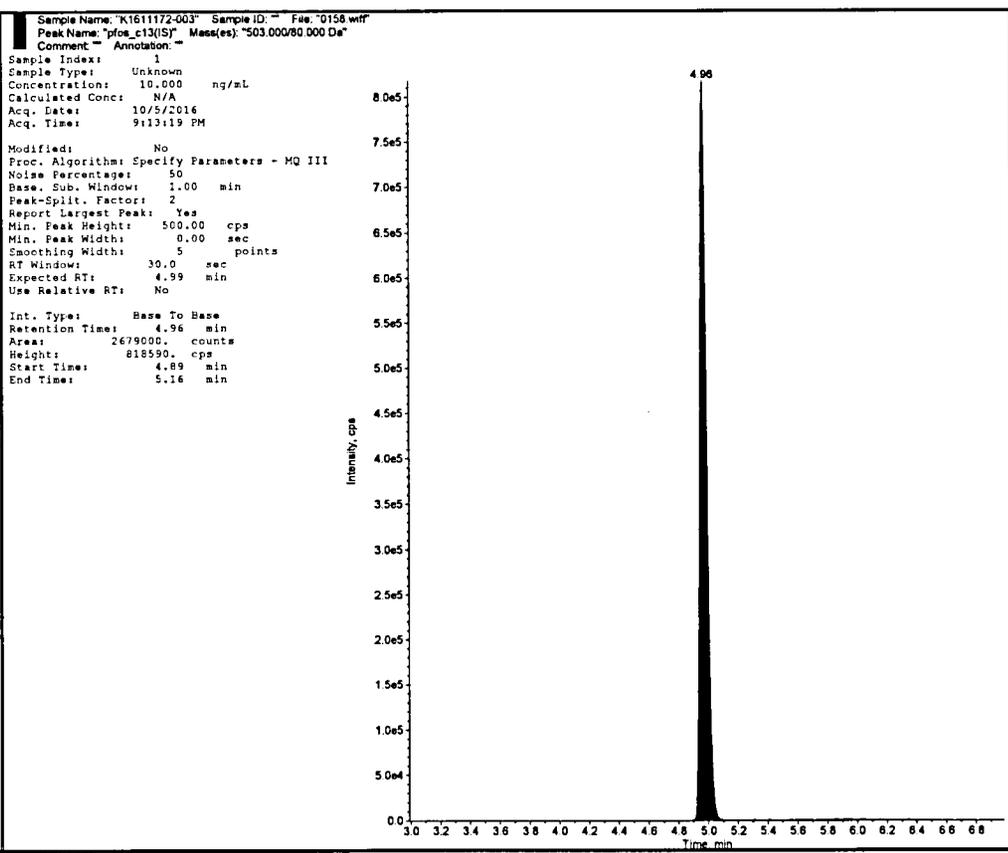
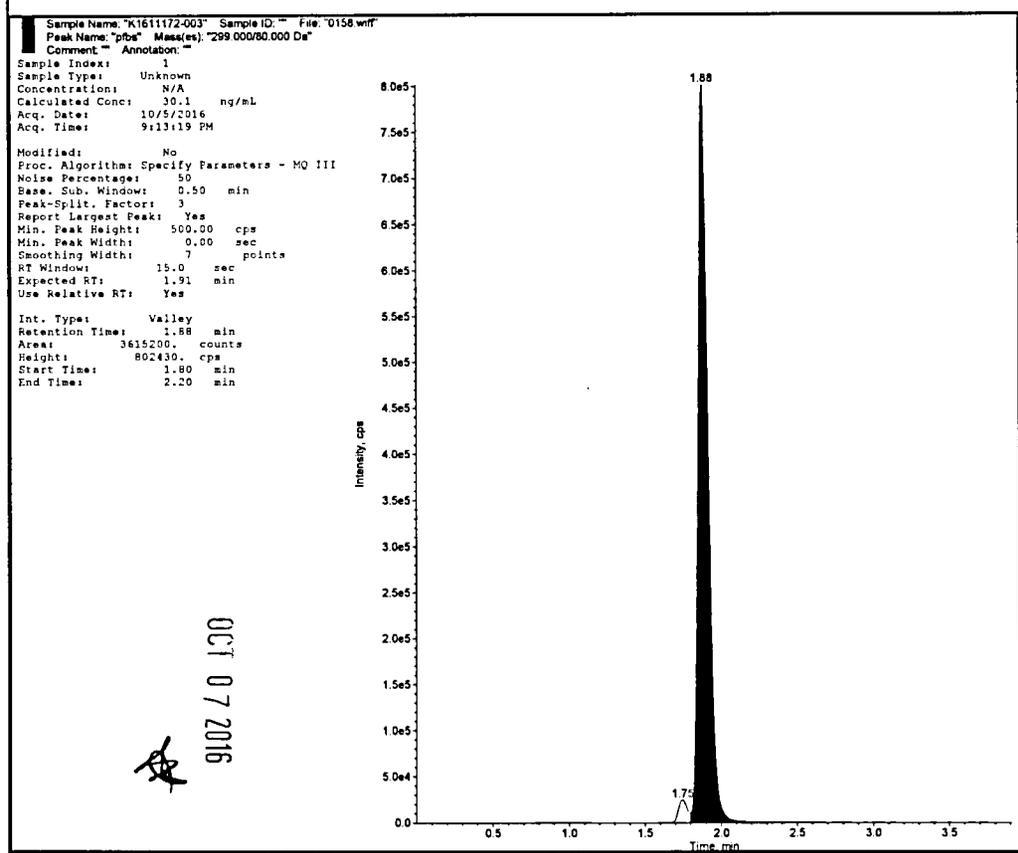
Project	Ewan's Projects\EPA 537		
Data File	100416\0158.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	K1611172-003	Injection Volume	1
Acquisition Date	10/5/2016 9:13:19 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	31	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	2679000	1.88	3712700	30.90	Yes
pha_c13	pfoa_c13	1227800	2.92	685460	8.94	No
phpa	pfoa_c13	1227800	3.83	529680	6.39	No
pfs	pfos_c13	2679000	3.90	1418300	13.50	No
pfoa	pfoa_c13	1227800	4.47	437700	4.89	No
pfos	pfos_c13	2679000	4.97	2266	0.02	No
pfa	pfoa_c13	1227800	4.97	6756	0.07	No
pfa_c13	pfoa_c13	1227800	5.36	964050	8.01	No

OCT 07 2016

	File Name	Sample Name	Sample ID	Sample Type	Analyte Peak Name	Analyte Peak Area (counts)	Analyte Concentration (ng/mL)	Analyte Retention Time	IS Peak Name	IS Peak Area (counts)
1021	100416\0157.wiff	K1611172-002		Unknown	pfoa	5121.6	N/A	4.47	pfoa_c13	1197600.
1022	100416\0157.wiff	K1611172-002		Unknown	pfos	0.0000	N/A	0.00	pfos_c13	2674100.
1023	100416\0157.wiff	K1611172-002		Unknown	pfna	4688.3	N/A	4.97	pfoa_c13	1197600.
1024	100416\0157.wiff	K1611172-002		Unknown	pfda_c13	967100.	N/A	5.36	pfoa_c13	1197600.
1025	100416\0158.wiff	K1611172-003		Unknown	pfbs	3615200.	N/A	1.88	pfos_c13	2679000.
1026	100416\0158.wiff	K1611172-003		Unknown	pfha_c13	685460.	N/A	2.92	pfoa_c13	1227800.
1027	100416\0158.wiff	K1611172-003		Unknown	pfhpa	529680.	N/A	3.83	pfoa_c13	1227800.





JL

Project	Ewan's Projects\EPA 537		
Data File	100416\0159.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	K1611172-004	Injection Volume	1
Acquisition Date	10/5/2016 9:22:22 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	32	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfs_c13	2755300	0.00	0	N/A	No
pfa_c13	pfoa_c13	1249900	2.93	686230	8.79	No
pftpa	pfoa_c13	1249900	0.00	0	N/A	No
pfs	pfs_c13	2755300	0.00	0	N/A	No
pfoa	pfoa_c13	1249900	4.48	6376	0.07	No
pfs	pfs_c13	2755300	0.00	0	N/A	No
pfa	pfoa_c13	1249900	4.97	4597	0.04	No
pfa_c13	pfoa_c13	1249900	5.37	992040	8.09	No

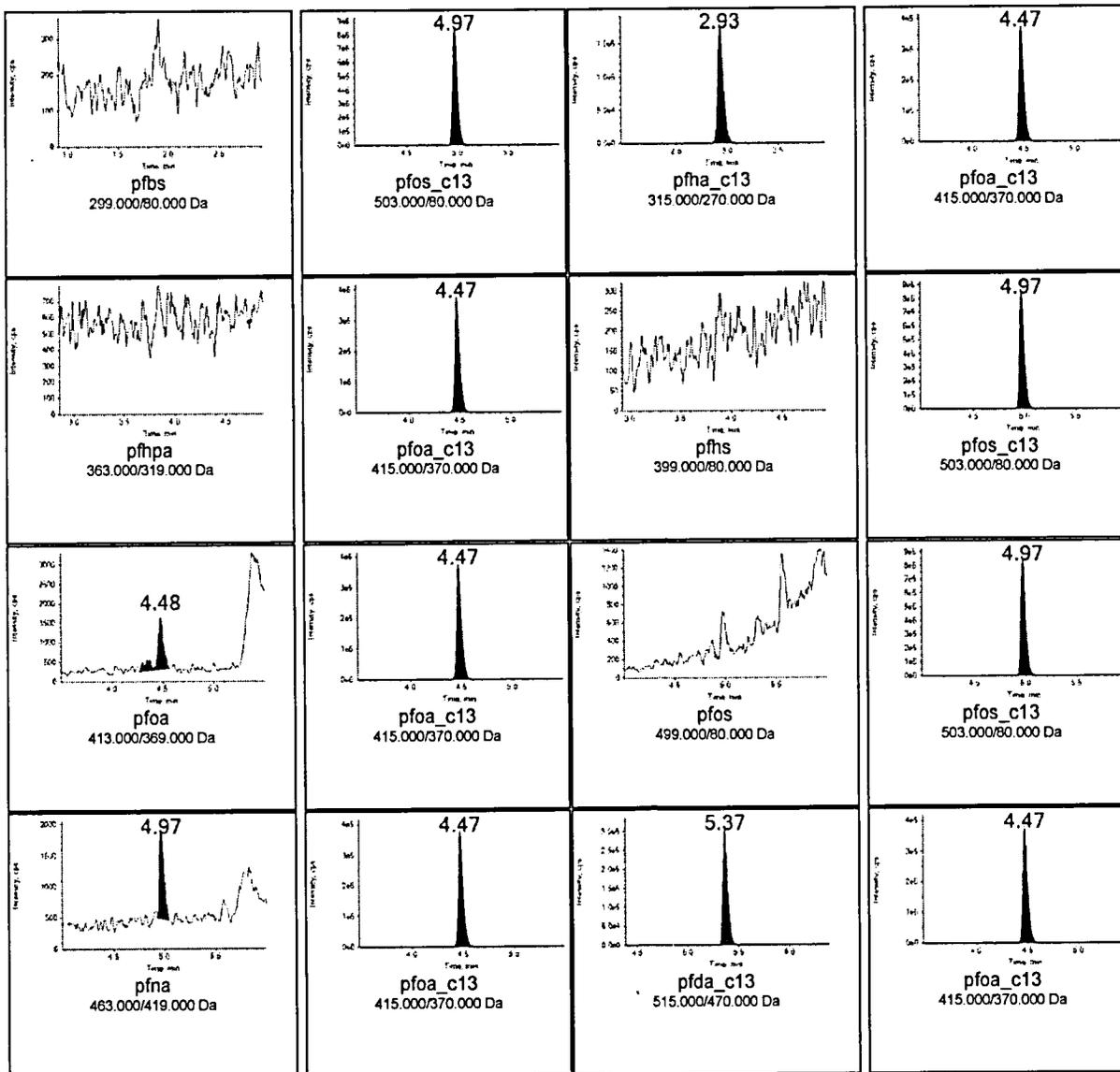
OCT 07 2016

[Signature]



Quantitative Peak Review

K1611172-004



Before After



lu

Project	Ewan's Projects\EPA 537		
Data File	100416\0150.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	KQ1612321-04 <i>MB</i>	Injection Volume	1
Acquisition Date	10/5/2016 8:00:40 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	23	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	2861200	0.00	0	N/A	No
pfa_c13	pfoa_c13	1341100	2.93	706170	8.43	No
pfpa	pfoa_c13	1341100	0.00	0	N/A	No
pfs	pfos_c13	2861200	0.00	0	N/A	No
pfoa	pfoa_c13	1341100	4.48	4389	0.04	No
pfos	pfos_c13	2861200	0.00	0	N/A	No
pfna	pfoa_c13	1341100	4.96	6034	0.05	No
pfda_c13	pfoa_c13	1341100	5.37	1066600	8.11	No

OCT 07 2016

[Signature]



Project	Ewan's Projects\EPA 537		
Data File	100416\0188.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	KQ1612321-01	Injection Volume	1
Acquisition Date	10/6/2016 2:42:38 AM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	18	Weight to Volume	0.00

Results Summary

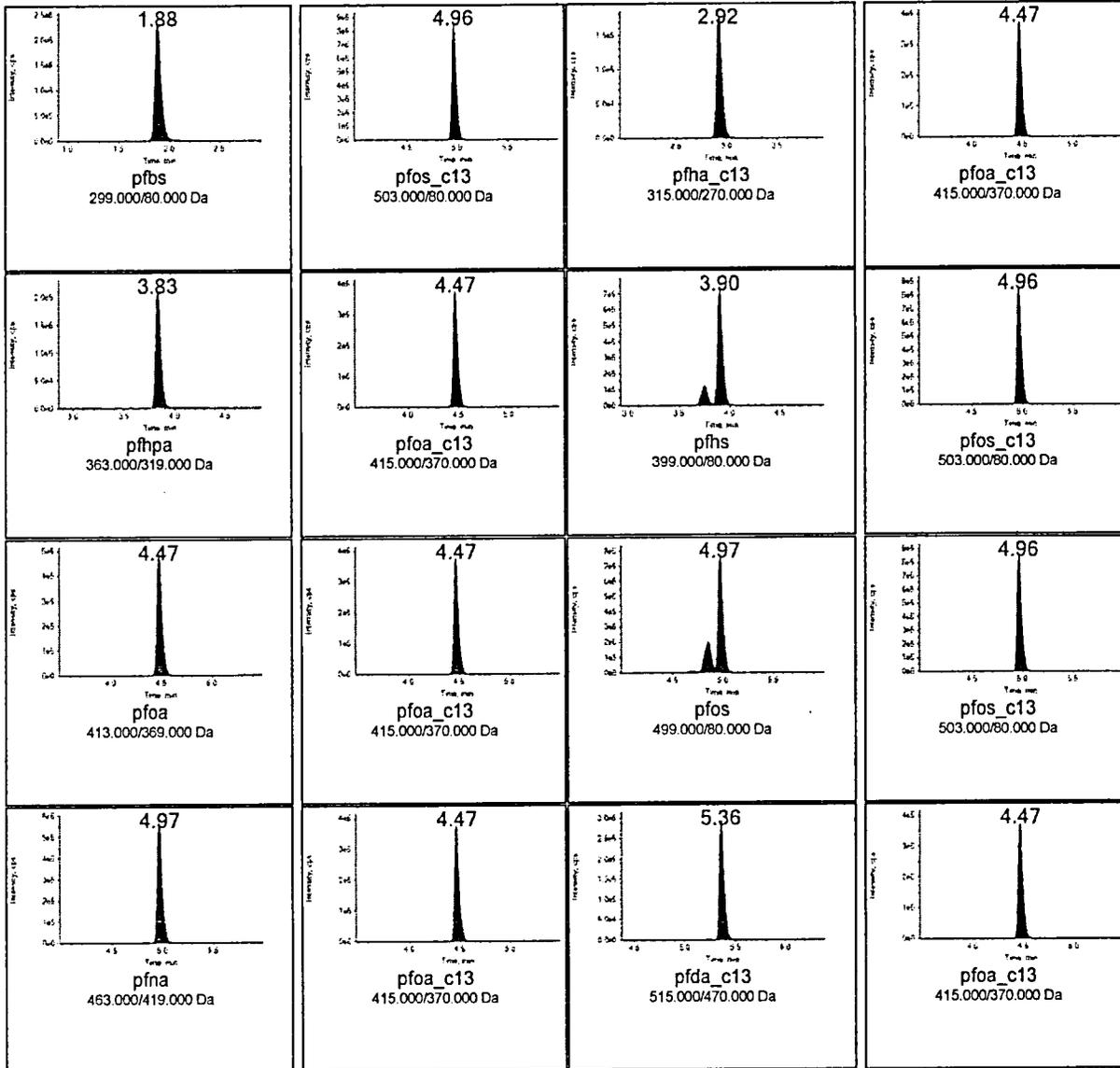
Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	2791000	1.88	10388000	83.10	No
pfha_c13	pfoa_c13	1271200	2.92	702530	8.85	No
pfhpa	pfoa_c13	1271200	3.83	785380	9.15	No
pfs	pfos_c13	2791000	3.90	3182200	29.10	No
pfoa	pfoa_c13	1271200	4.47	1769300	19.10	No
pfos	pfos_c13	2791000	4.97	3687300	37.60	No
pfna	pfoa_c13	1271200	4.97	1997500	19.20	No
pfda_c13	pfoa_c13	1271200	5.36	1001700	8.04	No

OCT 07 2016



Quantitative Peak Review

KQ1612321-01



Before After



ls

Project	Ewan's Projects\EPA 537		
Data File	100416\0156.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	KQ1612321-02 <i>K11172-1 DM></i>	Injection Volume	1
Acquisition Date	10/5/2016 8:55:07 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	29	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	3028300	1.88	10507000	77.50	No
pfa_c13	pfoa_c13	1395700	2.93	731440	8.39	No
pftpa	pfoa_c13	1395700	3.84	818060	8.68	No
pfs	pfos_c13	3028300	3.90	3241300	27.40	No
pfoa	pfoa_c13	1395700	4.48	1755000	17.20	No
pfos	pfos_c13	3028300	4.98	3610800	33.90	No
pfa	pfoa_c13	1395700	4.97	1954000	17.10	No
pfa_c13	pfoa_c13	1395700	5.37	1011100	7.39	No

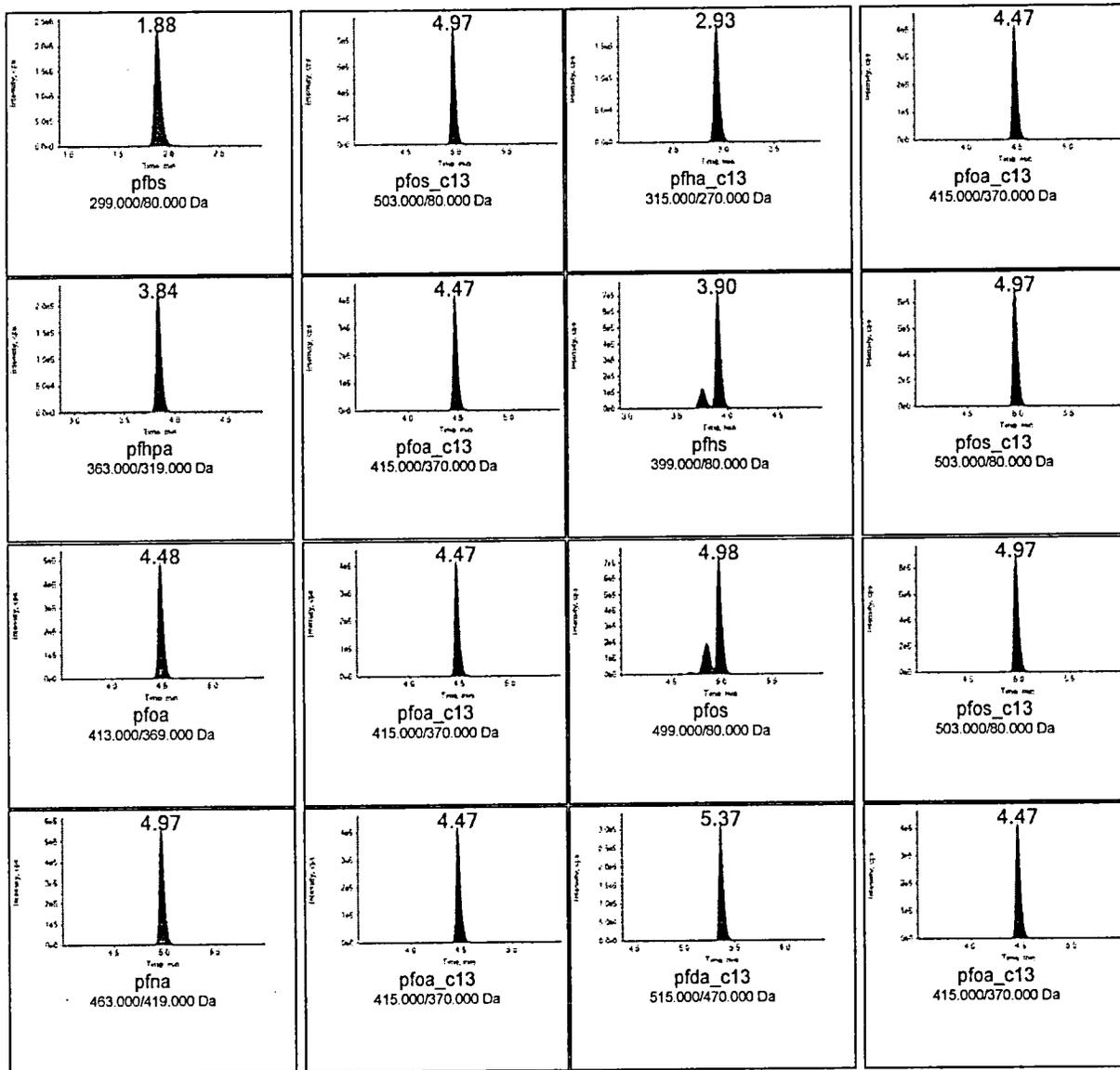
OCT 07 2016

ls



Quantitative Peak Review

KQ1612321-02



Before After



lr

Project	Ewan's Projects\EPA 537	Result Table	100416 043-0191.rdb
Data File	100416\0151.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	KQ1612321-03 <i>LCS</i>	Injection Vial	24
Acquisition Date	10/5/2016 8:09:47 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	LCS	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfbs	1.89 (1.90)	pfos_c13	2700900	2920600	22.50	24.10	107	No
pfna_c13	2.93 (2.95)	pfoa_c13	1179600	694090	10.00	9.42	94	No
pfhpa	3.84 (3.85)	pfoa_c13	1179600	214270	2.50	2.69	108	No
pfhs	3.91 (3.91)	pfos_c13	2700900	856480	7.50	8.11	108	No
pfoa	4.48 (4.48)	pfoa_c13	1179600	448240	5.00	5.21	104	No
pfos	4.97 (4.97)	pfos_c13	2700900	1004500	10.00	10.60	106	No
pfna	4.97 (4.98)	pfoa_c13	1179600	517830	5.00	5.36	107	No
pfda_c13	5.36 (5.37)	pfoa_c13	1179600	1041700	10.00	9.00	90	No

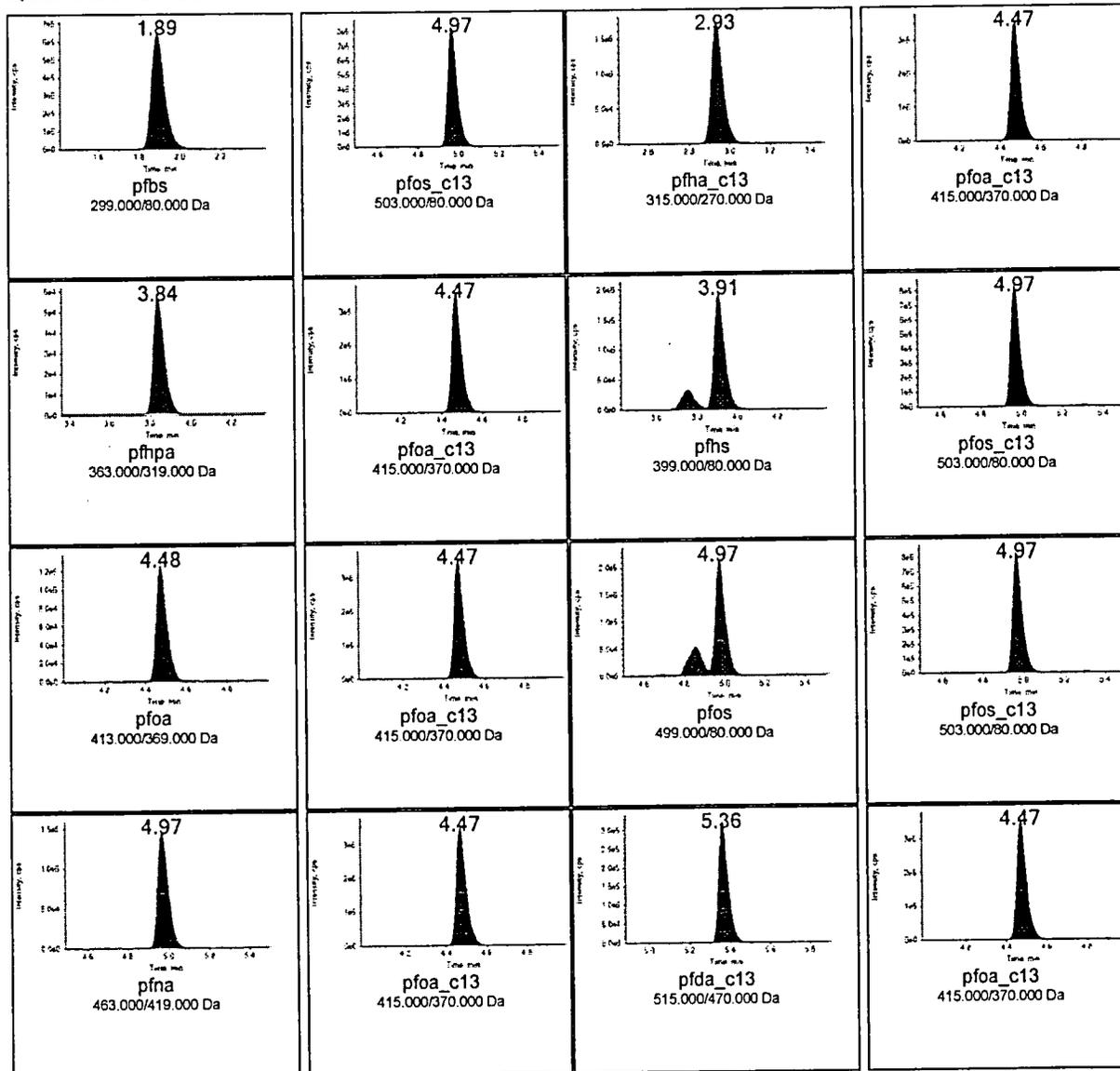
OCT 07 2016

lr



Quantitative Peak Review

KQ1612321-03



Before After

Date: 10/04/16 21-042

By: JMS/EJD



ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

2nd Review: *SP* OCT 06 2016 ReleasedInjection Log
LCMS02 - API 5000

LIMS ID: 517469,

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases A: 5mM Ammonium Acetate in H2O (15-OLC-01-99A) B: 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder: Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments	
1	537 IB	16-OLC-01-10I	100416\0001.wiff	EPA 537.dam	1	x	
2	537 CAL 1-9ppb	16-OLC-01-10A	100416\0002.wiff	EPA 537.dam	1	x	
3	537 CAL 2.5-22.5ppb	16-OLC-01-10B	100416\0003.wiff	EPA 537.dam	1	x	
4	537 CAL 5-45ppb	16-OLC-01-10C	100416\0004.wiff	EPA 537.dam	1	x	
5	537 CAL 10-90ppb	16-OLC-01-10D	100416\0005.wiff	EPA 537.dam	1	x	
6	537 CAL 20-180ppb	16-OLC-01-10E	100416\0006.wiff	EPA 537.dam	1	x	
7	537 CAL 50-450ppb	16-OLC-01-10F	100416\0007.wiff	EPA 537.dam	1	x	
8	537 CAL 100-900ppb	16-OLC-01-10G	100416\0008.wiff	EPA 537.dam	1	x	
9	537 IB	16-OLC-01-10I	100416\0009.wiff	EPA 537.dam	1	x	
10	537 ICV 50ppb	16-OLC-01-10H	100416\0010.wiff	EPA 537.dam	1	x	
11	537 IB	16-OLC-01-10I	100416\0011.wiff	EPA 537.dam	1	x	
12	537 CCV 2.5-22.5ppb	16-OLC-01-10B	100416\0012.wiff	EPA 537.dam	1	x	LIMS run 517469 start
13	KQ1611093-04	MB	100416\0013.wiff	EPA 537.dam	1	x	
14	KQ1611093-03	LCS	100416\0014.wiff	EPA 537.dam	1	x	
15	K1610521-001		100416\0015.wiff	EPA 537.dam	1	x	
16	K1610624-001		100416\0016.wiff	EPA 537.dam	1	x	
17	K1610624-002		100416\0017.wiff	EPA 537.dam	1	x	
18	K1610624-003		100416\0018.wiff	EPA 537.dam	1	x	
19	K1610624-004		100416\0019.wiff	EPA 537.dam	1	x	
20	K1610624-005		100416\0020.wiff	EPA 537.dam	1	x	
21	537 CCV 10-90ppb	16-OLC-01-10D	100416\0021.wiff	EPA 537.dam	1	x	
22	537 IB	16-OLC-01-10I	100416\0022.wiff	EPA 537.dam	1	x	
23	K1610624-006		100416\0023.wiff	EPA 537.dam	1	x	
24	K1610624-007		100416\0024.wiff	EPA 537.dam	1	x	
25	K1610624-008		100416\0025.wiff	EPA 537.dam	1	x	
26	K1610624-009		100416\0026.wiff	EPA 537.dam	1	x	
27	K1610624-010		100416\0027.wiff	EPA 537.dam	1	x	
28	K1610624-011		100416\0028.wiff	EPA 537.dam	1	x	
29	K1610624-012		100416\0029.wiff	EPA 537.dam	1	x	
30	K1610624-013		100416\0030.wiff	EPA 537.dam	1	x	
31	KQ1611093-01	K1610624-013 MS	100416\0031.wiff	EPA 537.dam	1	x	
32	KQ1611093-02	K1610624-013 DMS	100416\0032.wiff	EPA 537.dam	1	x	
33	537 CCV 20-180ppb	16-OLC-01-10E	100416\0033.wiff	EPA 537.dam	1	x	
34	537 IB	16-OLC-01-10I	100416\0034.wiff	EPA 537.dam	1	x	
35	K1610624-014		100416\0035.wiff	EPA 537.dam	1	x	

Date: 10/04/16

By: JMS/EJD



ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

2nd Review: _____

Injection Log
LCMS02 - API 5000

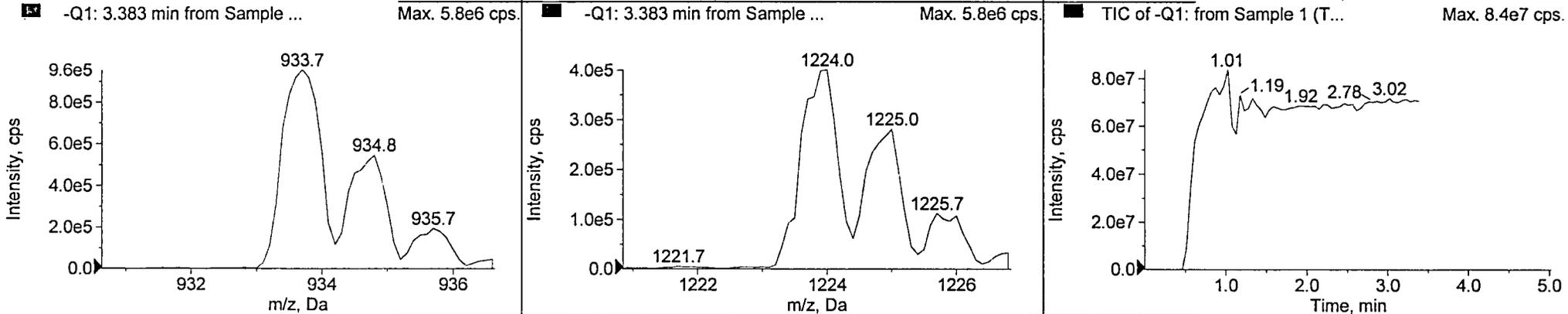
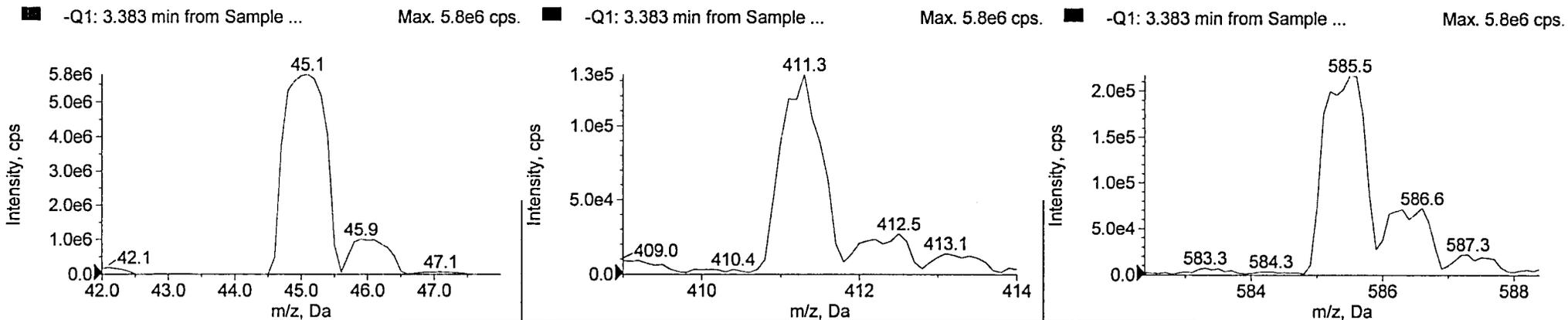
LIMS ID: 517469,

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases **A:** 5mM Ammonium Acetate in H2O (15-OLC-01-99A) **B:** 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder: Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments
36	K1610624-015	100416\0036.wiff	EPA 537.dam	1	x	
37	K1610624-016	100416\0037.wiff	EPA 537.dam	1	x	
38	K1610634-001	100416\0038.wiff	EPA 537.dam	1	x	
39	K1610634-002	100416\0039.wiff	EPA 537.dam	1	x	
40	K1610634-003	100416\0040.wiff	EPA 537.dam	1	x	
41	537 CCV 10-90ppb	16-OLC-01-10D	100416\0041.wiff	1	x	
42	537 IB	16-OLC-01-10I	100416\0042.wiff	1	x	LIMS run 517469 end



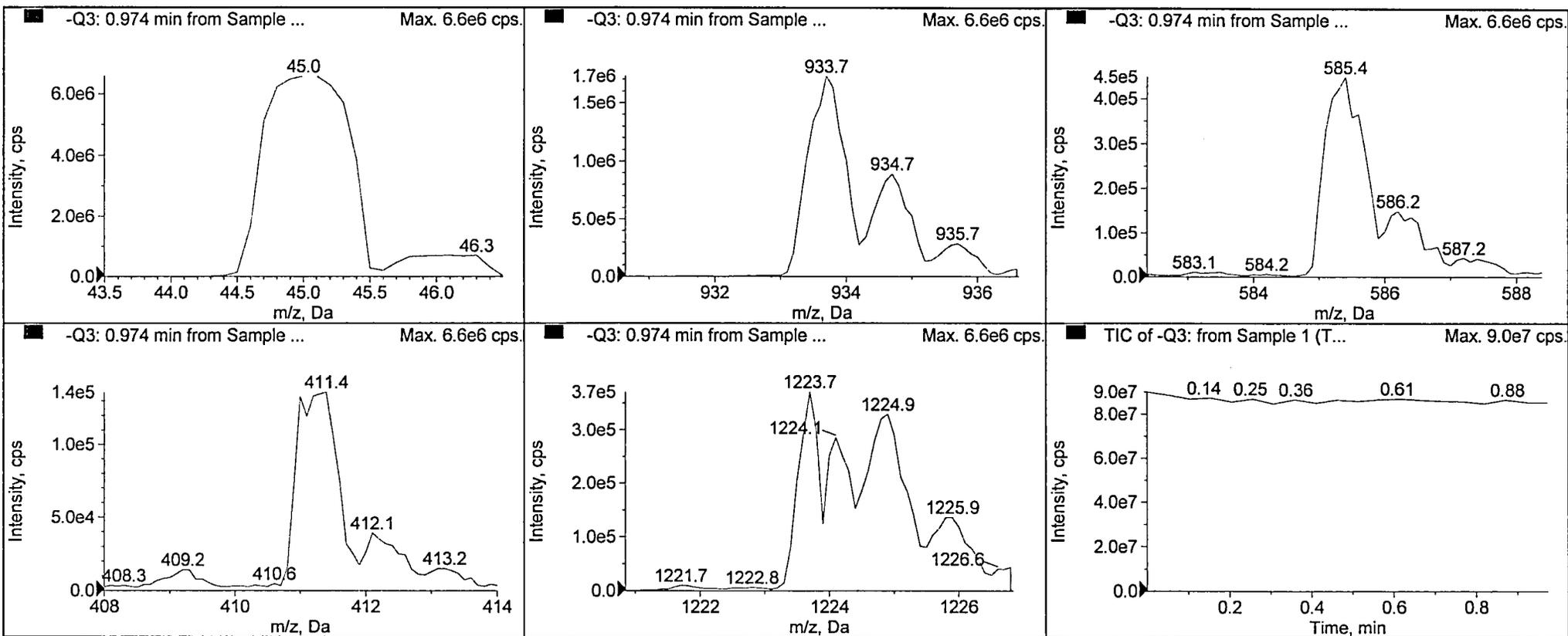
Peak List for "-Q1: 3.383 min from Sample 1 (TuneSampleID) of MT20161004184352.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)
1	44.9980	45.0542	5.7881e6	0.7621
2	411.2590	411.2439	1.3419e5	0.6419
3	585.3850	585.4077	2.1690e5	0.7390
4	933.6360	933.6830	9.5640e5	0.6799
5	1223.8450	1223.8731	4.0120e5	0.6309

Mass Shift (Da)
-0.0562
0.0151
-0.0227
-0.0470
-0.0281

Q1 New Tune Check
 soln -PPG $3 \times 10^{-5} M$
 ABSU. Ex lot # A6138
 ESD
 10-4-16

QC1 06 2116



Peak List for "-Q3: 0.974 min from Sample 1 (TuneSampleID) of MT20161004184918.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0211	6.5739e6	0.7692	-0.0231
2	411.2590	411.2429	1.3600e5	0.7189	0.0161
3	585.3850	585.3741	4.4800e5	0.7393	0.0109
4	933.6360	933.6982	1.7270e6	0.6776	-0.0622
5	1223.8450	1223.6923	3.7080e5	0.3815	0.1527

Q3 Neg. tune check
 Soln - PPG $3 \times 10^{-5} \mu$
 AB Sci Ex lot # A6135 EJD
 10-4-16

OCT 06 2016
 PK



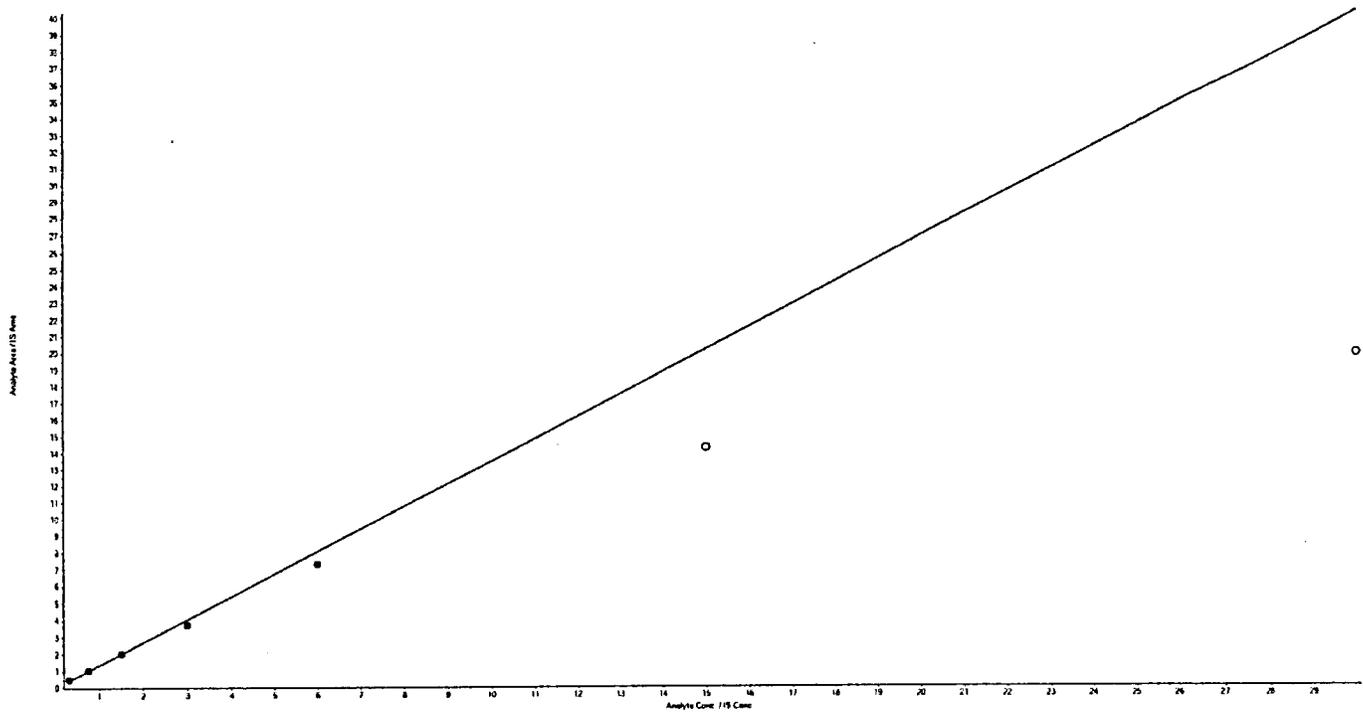
ESD

Analyte Name: pfb
Internal Standard: pfos_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 1.34x$ (std. dev. = 0.142) ✓ 10.5

Exp Conc (ng/mL)	# of Values	Mean Calc. Conc (ng/mL)	% Accuracy	STD	%CV
9	1	10.55	117	NaN	NaN
22.5	1	22.74	101	NaN	NaN
45	1	44.45	99	NaN	NaN
90	1	83.30	93	NaN	NaN
180	1	162.74	90	NaN	NaN



OCT 06 2016

CAJ



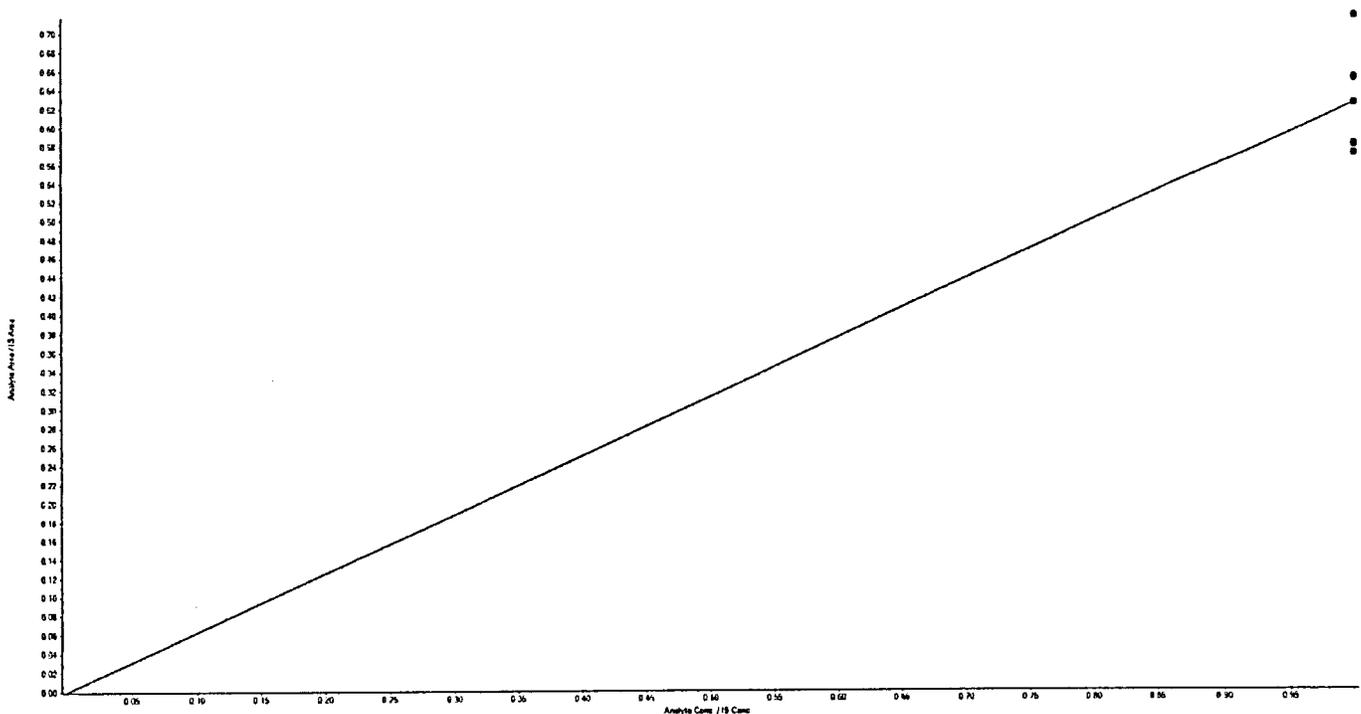
ESTD

Analyte Name: ppha_c13
Internal Standard: pfoa_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 0.625 x$ (std. dev. = 0.0529) ✓

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
10	7	10.00	100	0.85	8.5 /



OCT 06 2016

QA



EST

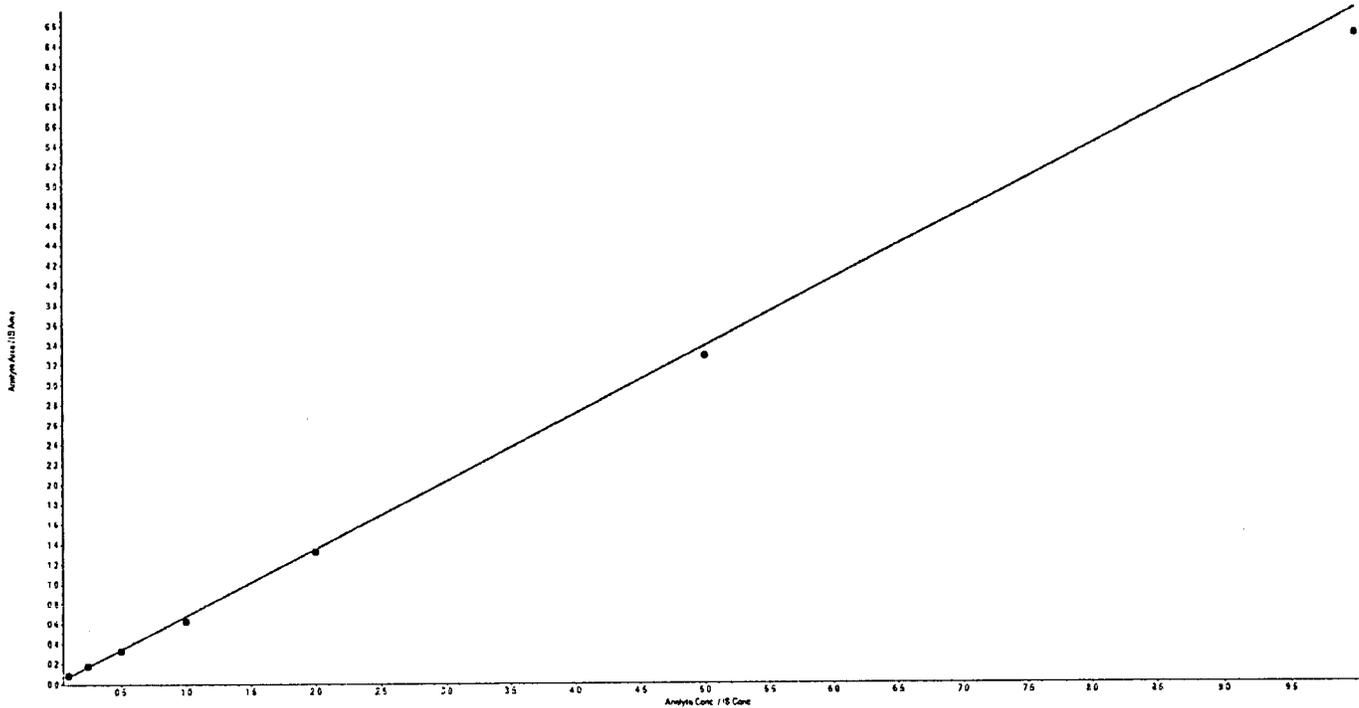
Analyte Name: pfhpa
 Internal Standard: pfoa_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 0.676 x$ (std. dev. = 0.0615) ✓

91 ✓

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
1	1	1.19	119	NaN	NaN
2.5	1	2.55	102	NaN	NaN
5	1	4.78	96	NaN	NaN
10	1	9.18	92	NaN	NaN
20	1	19.59	98	NaN	NaN
50	1	48.52	97	NaN	NaN
100	1	96.19	96	NaN	NaN



OCT 06 2016

Handwritten signature



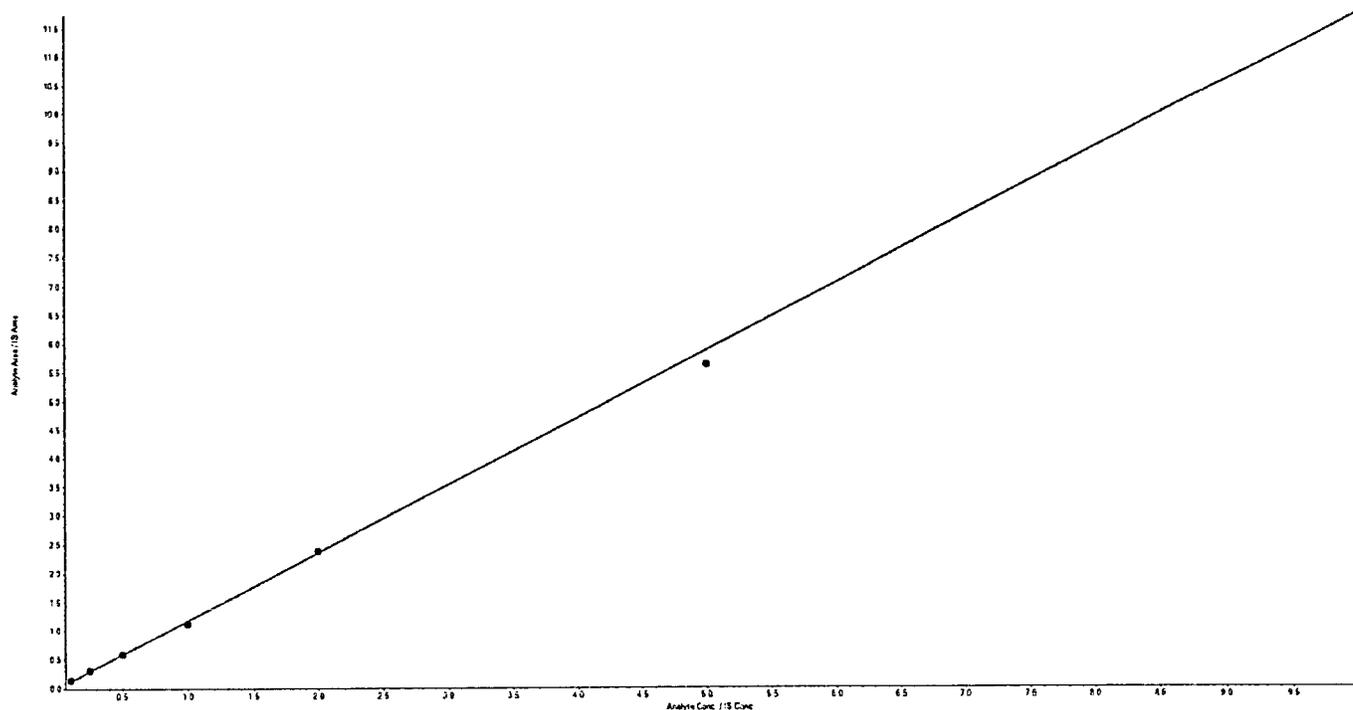
Handwritten mark

Analyte Name: pfhs
Internal Standard: pfos_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 1.17 x$ (std. dev. = 0.106) ✓ 9.1

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
3	1	3.56	119	NaN	NaN
7.5	1	7.52	100	NaN	NaN
15	1	14.84	99	NaN	NaN
30	1	28.40	95	NaN	NaN
60	1	60.68	101	NaN	NaN
150	1	143.64	96	NaN	NaN
300	1	271.66	91	NaN	NaN



OCT 06 2016

Handwritten signature



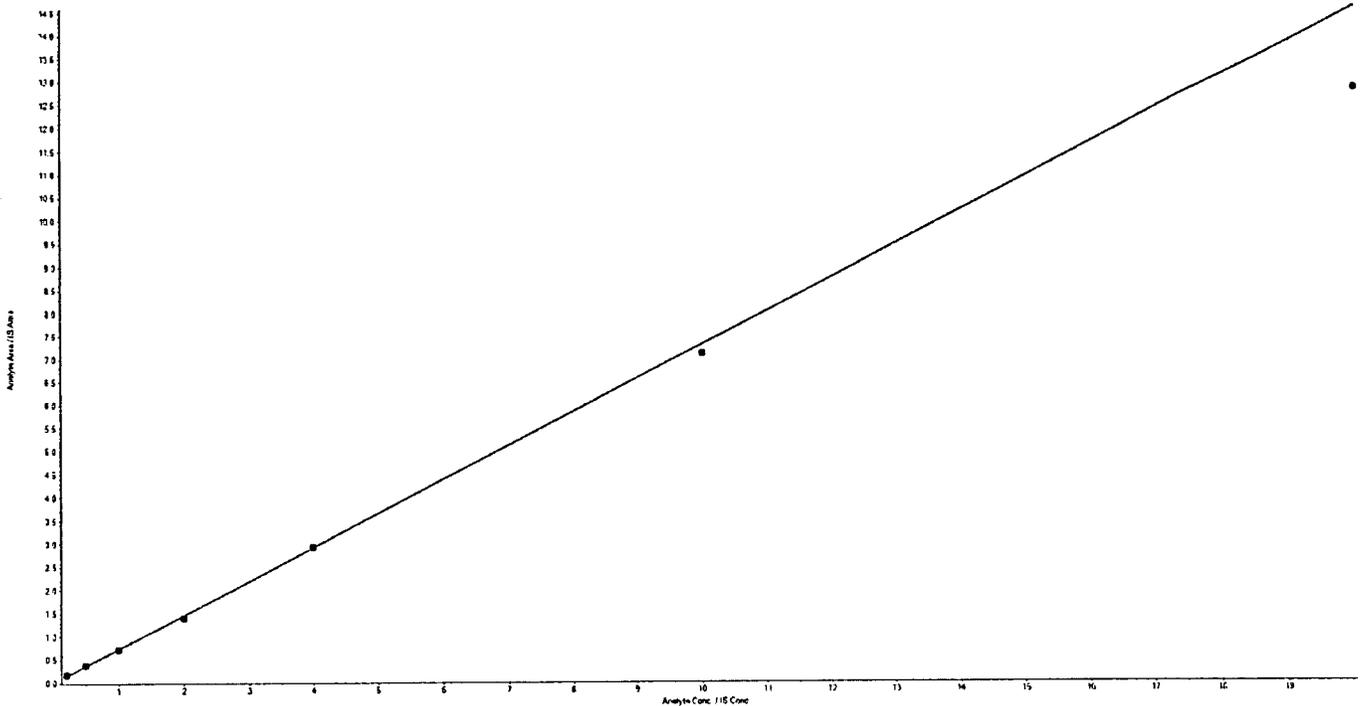
ESD

Analyte Name: pfoa
Internal Standard: pfoa_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 0.729 x$ (std. dev. = 0.0682) ✓ 9.4 /

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
2	1	2.37	119	NaN	NaN
5	1	5.09	102	NaN	NaN
10	1	9.79	98	NaN	NaN
20	1	19.26	96	NaN	NaN
40	1	40.11	100	NaN	NaN
100	1	97.32	97	NaN	NaN
200	1	175.53	88	NaN	NaN



OCT 06 2016

[Signature]



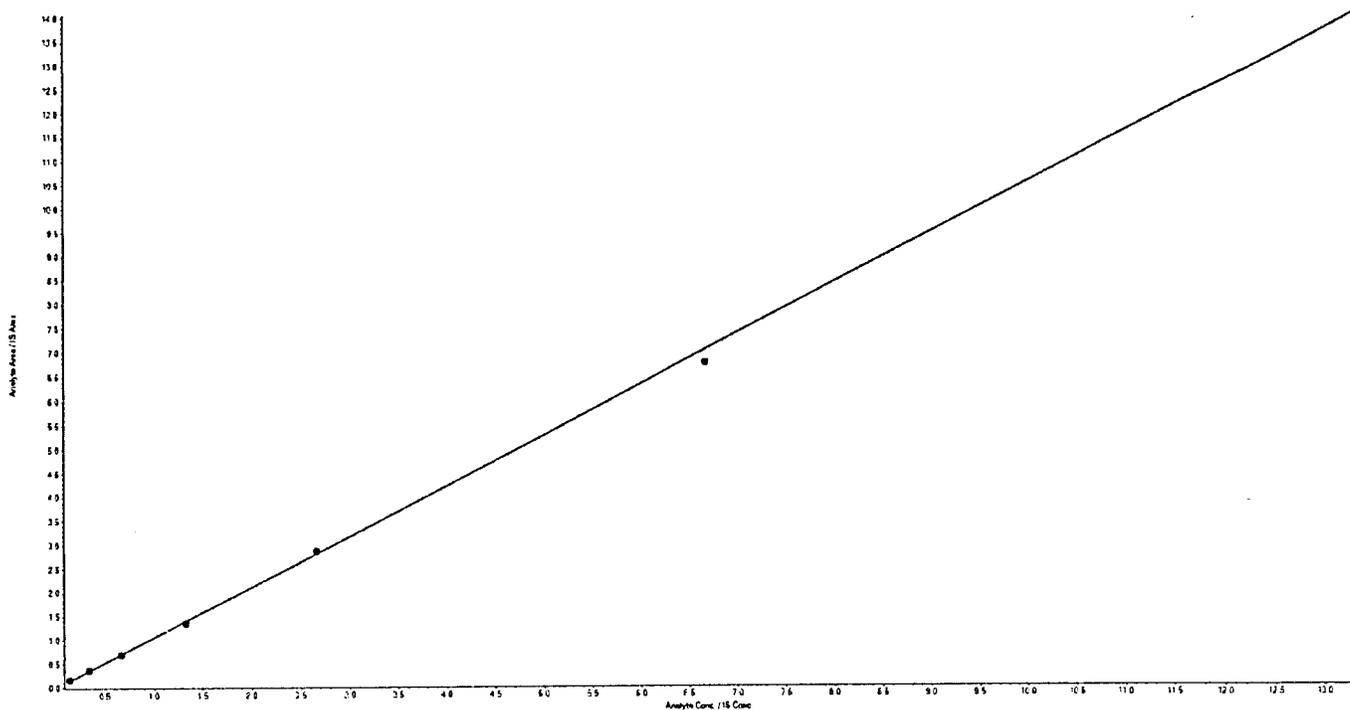
EST

Analyte Name: pfos
Internal Standard: pfos_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 1.05 x$ (std. dev. = 0.0846) ✓ 8.1

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
4	1	4.66	116	NaN	NaN
10	1	10.05	100	NaN	NaN
20	1	19.68	98	NaN	NaN
40	1	38.39	96	NaN	NaN
80	1	81.27	102	NaN	NaN
200	1	192.18	96	NaN	NaN
400	1	364.36	91	NaN	NaN



OCT 06 2016

[Signature]



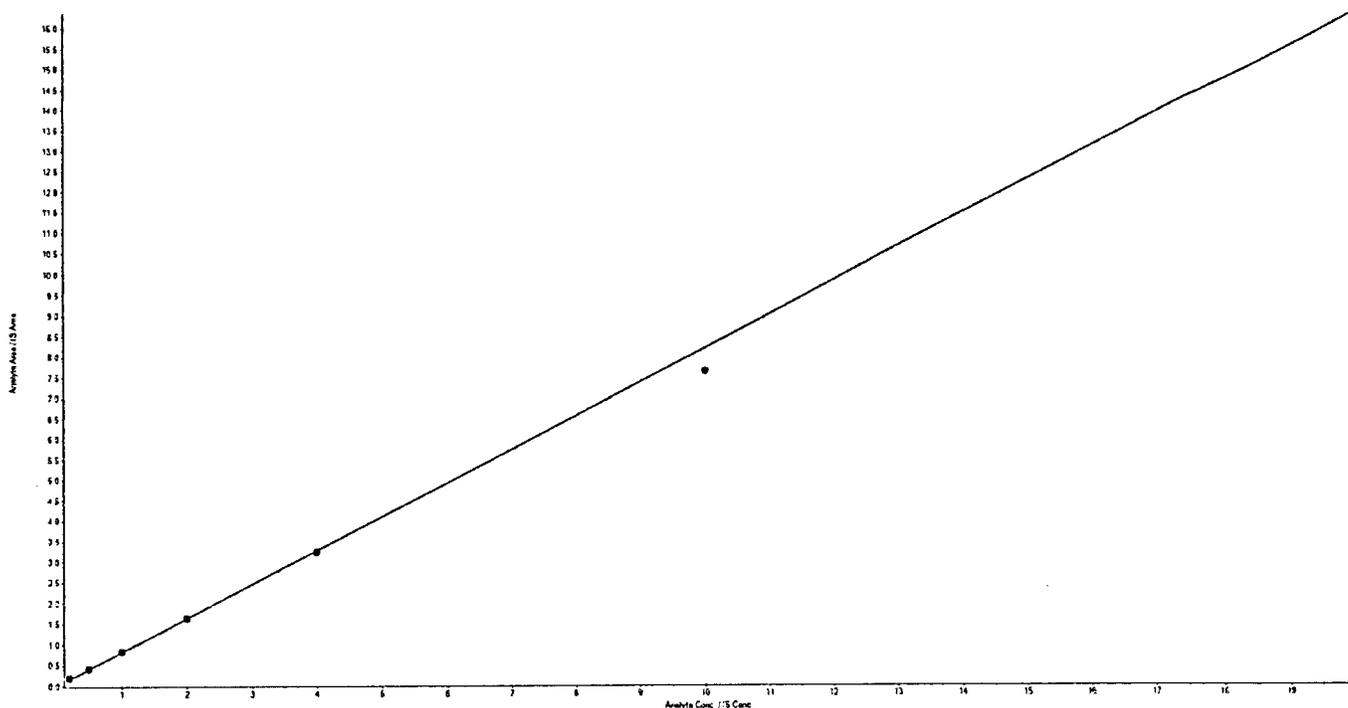
ESD

Analyte Name: pfna
Internal Standard: pfoa_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 0.819 x$ (std. dev. = 0.106) ✓ 12.9

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
2	1	2.47	124	NaN	NaN
5	1	5.13	103	NaN	NaN
10	1	10.13	101	NaN	NaN
20	1	20.01	100	NaN	NaN
40	1	39.59	99	NaN	NaN
100	1	93.17	93	NaN	NaN
200	1	160.76	80	NaN	NaN



OCT 06 2016



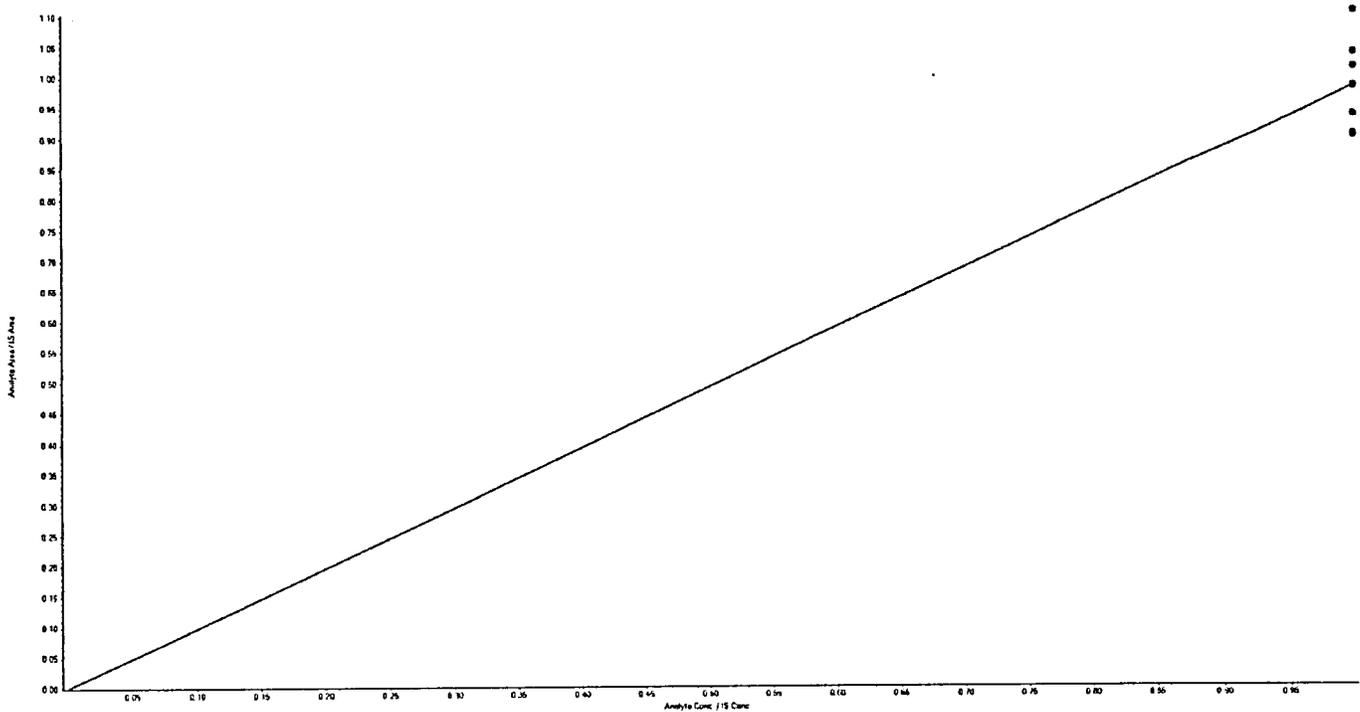
EST

Analyte Name: pfa_c13
Internal Standard: pfoa_c13

Data File	100416\0001.wiff	Result Table	100416.rdb
Acquisition Date	10/4/2016 8:30:06 PM	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Project	Ewan's Projects\EPA 537		

Regression Equation: $y = 0.981 x$ (std. dev. = 0.0751) ✓

Exp Conc (ng/mL)	# of Values	Mean Calc Conc (ng/mL)	% Accuracy	STD	%CV
10	7	10.00	100	0.77	7.7 /



OCT 06 2016



ESD

Project	Ewan's Projects\EPA 537		
Data File	100416\0001.wiff		
Result Table	100416.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/4/2016 8:30:06 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	3058813	0.00	0	N/A	No
pfha_c13	pfoa_c13	1354315	2.96	808535	9.56	No
pfhpa	pfoa_c13	1354315	0.00	0	N/A	No
pfhs	pfos_c13	3058813	0.00	0	N/A	No
pfoa	pfoa_c13	1354315	0.00	0	N/A	No
pfos	pfos_c13	3058813	0.00	0	N/A	No
pfna	pfoa_c13	1354315	0.00	0	N/A	No
pfda_c13	pfoa_c13	1354315	5.38	1295397	9.75	No

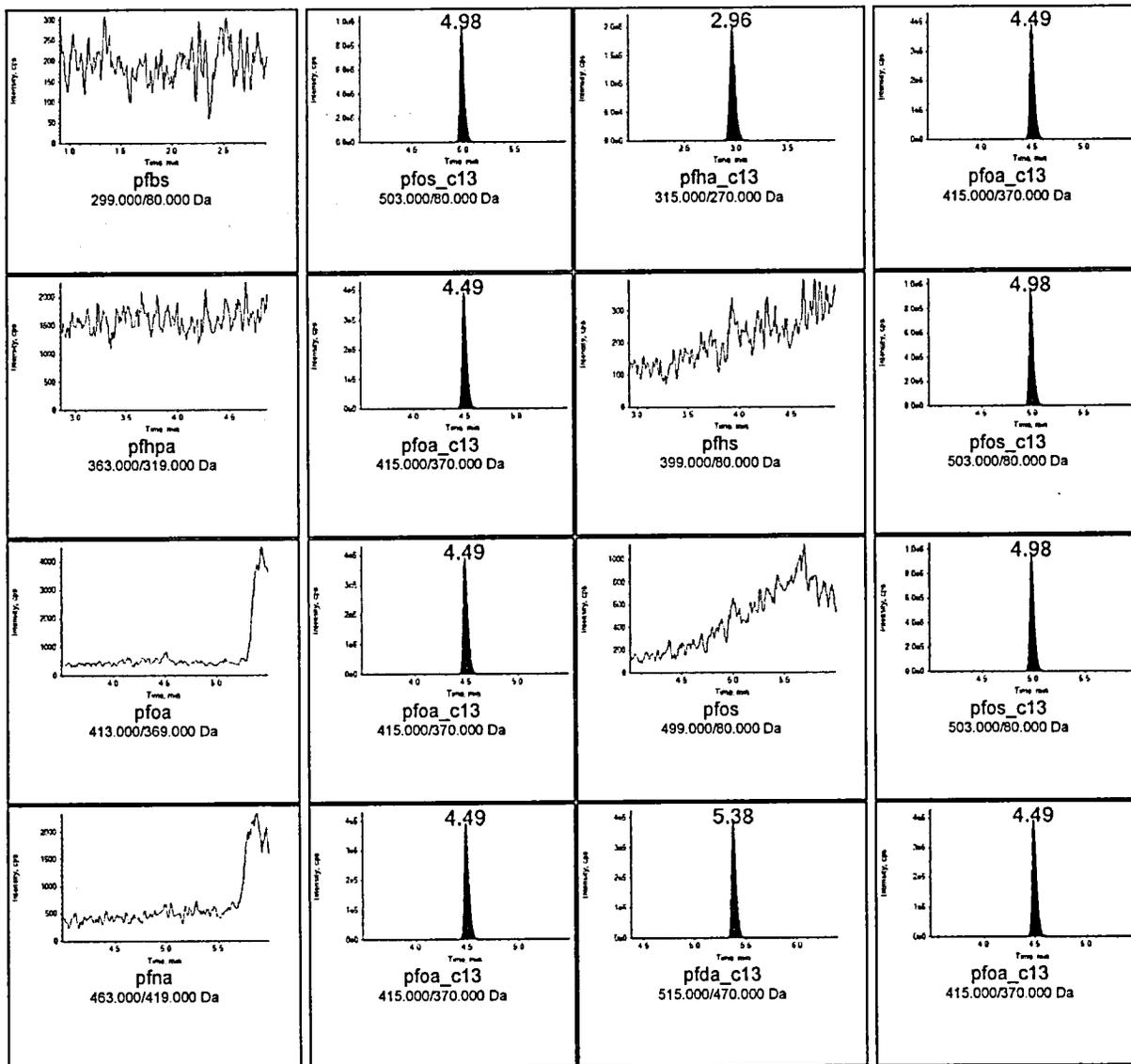
OCT 06 2016

OK



Quantitative Peak Review

537 IB



Before After

OCT 06 2016



ESD

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0002.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 1-9ppb	Injection Vial	20002
Acquisition Date	10/4/2016 8:39:07 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10A	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%) /	Mod? /
pfbs	1.90 (1.91) /	pfos_c13	2600442	1228780	9.00	10.55	117	No
pfna_c13	2.95 (2.96)	pfoa_c13	1138834	816106	10.00	11.47	115	No
pfhpa	3.86 (3.86)	pfoa_c13	1138834	91906	1.00	1.20	119	No
pfhs	3.92 (3.92) /	pfos_c13	2600442	362317	3.00	3.56	119	No
pfoa	4.50 (4.50)	pfoa_c13	1138834	197003	2.00	2.37	119	No
pfos	4.99 (4.99)	pfos_c13	2600442	425777	4.00	4.66	116	No
pfna	4.99 (4.99) /	pfoa_c13	1138834	230554	2.00	2.47	124	No
pfda_c13	5.38 (5.39)	pfoa_c13	1138834	1256543	10.00	11.25	113	No

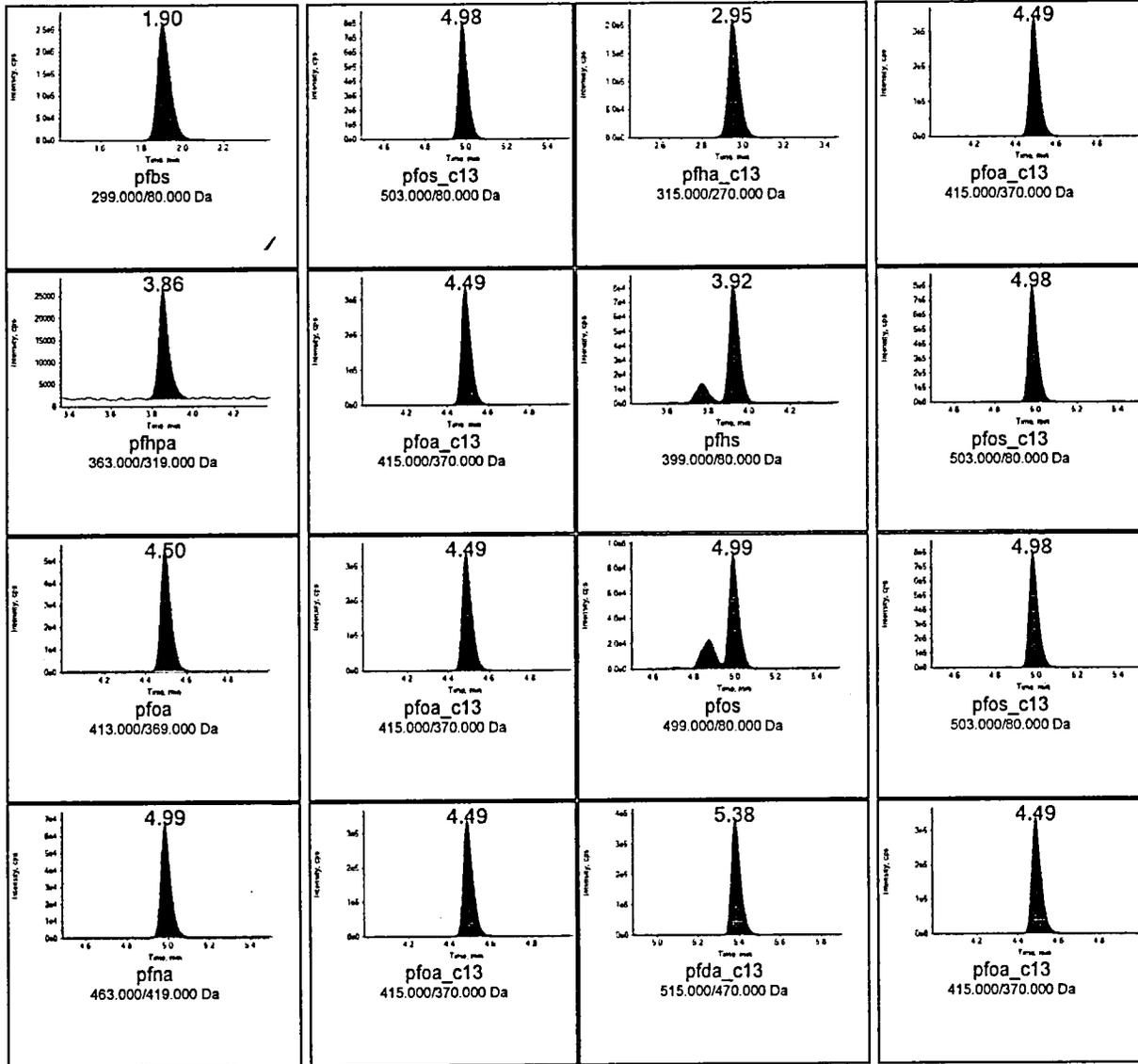
OCT 06 2016

[Signature]



Quantitative Peak Review

537 CAL 1-9ppb



Before After



EST

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0003.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 2.5-22.5ppb	Injection Vial	20003
Acquisition Date	10/4/2016 8:48:15 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10B	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.91 (1.91)	pfs_c13	2770622	2821926	22.50	22.74	101	No
pfa_c13	2.96 (2.96)	pfoa_c13	1221405	795818	10.00	10.43	104	No
pfhpa	3.86 (3.86)	pfoa_c13	1221405	210333	2.50	2.55	102	No
pfs	3.93 (3.92)	pfs_c13	2770622	814872	7.50	7.52	100	No
pfoa	4.50 (4.50)	pfoa_c13	1221405	453582	5.00	5.09	102	No
pfs	4.99 (4.99)	pfs_c13	2770622	978705	10.00	10.05	100	No
pfna	4.99 (4.99)	pfoa_c13	1221405	512603	5.00	5.13	103	No
pfda_c13	5.38 (5.39)	pfoa_c13	1221405	1234932	10.00	10.31	103	No

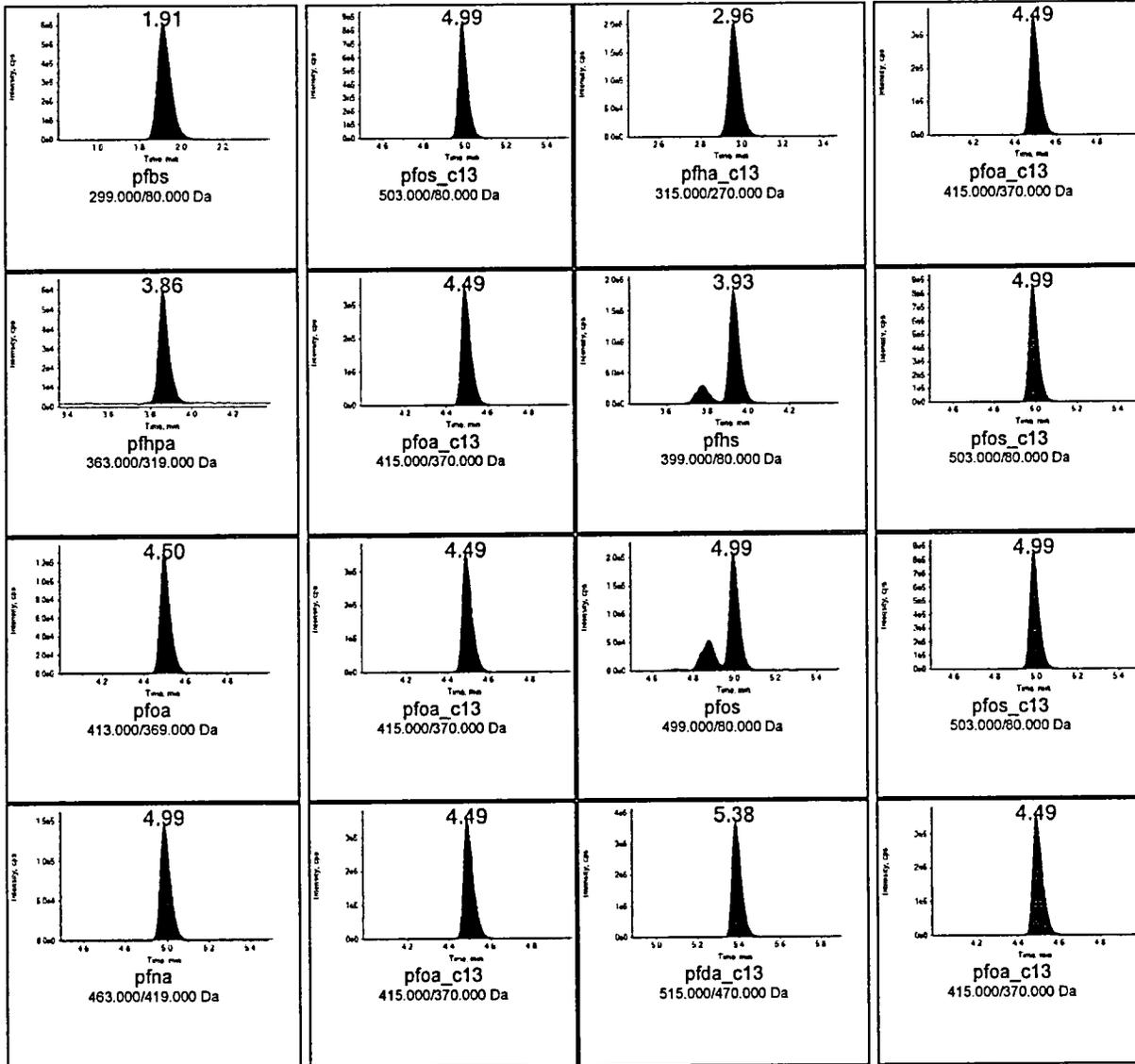
OCT 06 2016

[Handwritten signature]



Quantitative Peak Review

537 CAL 2.5-22.5ppb



Before After



ES

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0004.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 5-45ppb	Injection Vial	20004
Acquisition Date	10/4/2016 8:57:17 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10C	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

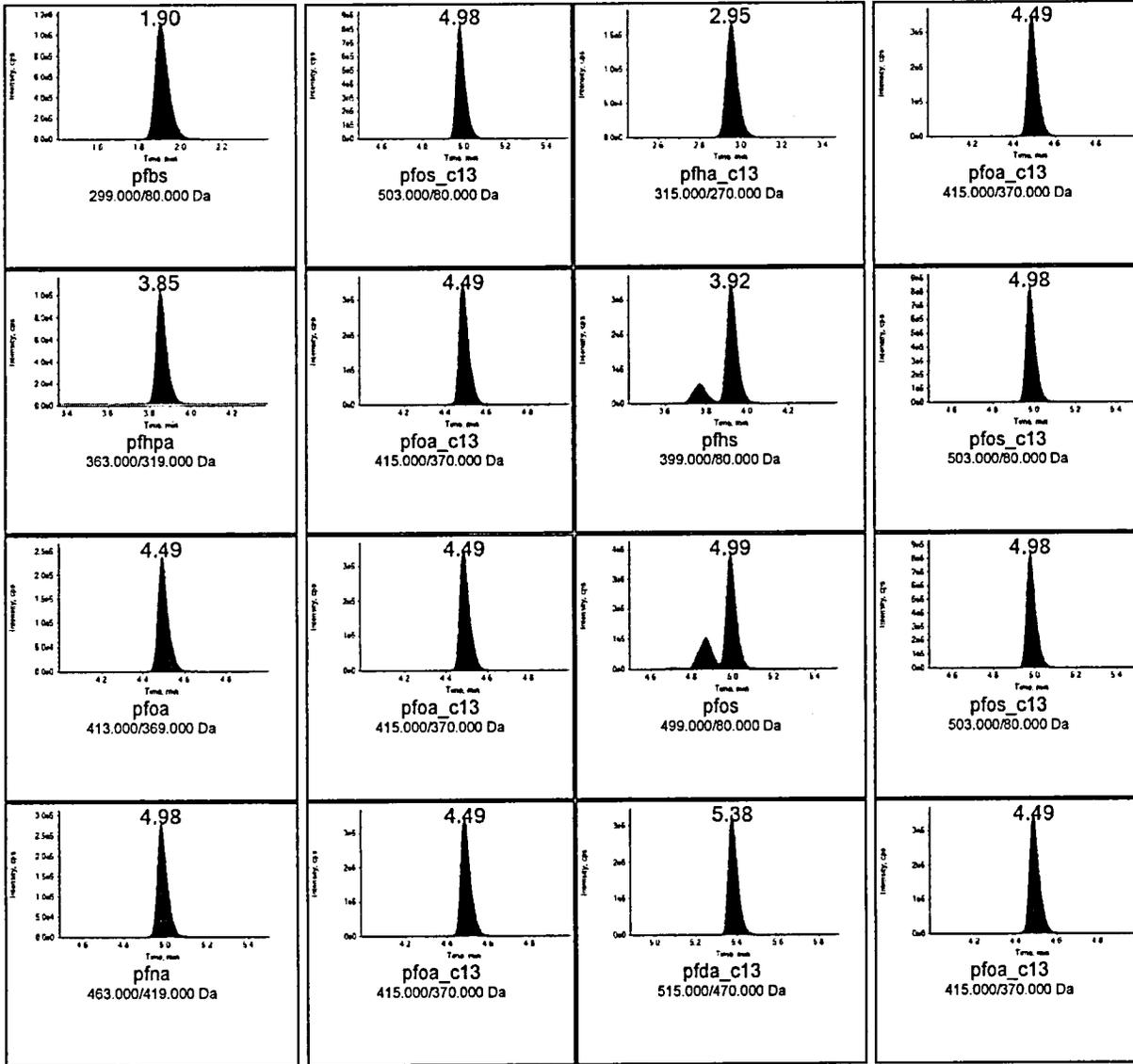
Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfbs	1.90 (1.90)	pfos_c13	2666118	5309165	45.00	44.45	99	No
pfha_c13	2.95 (2.95)	pfoa_c13	1187674	677699	10.00	9.14	91	No
pfhpa	3.85 (3.86)	pfoa_c13	1187674	383561	5.00	4.78	96	No
pfhs	3.92 (3.92)	pfos_c13	2666118	1547713	15.00	14.84	99	No
pfoa	4.49 (4.50)	pfoa_c13	1187674	848085	10.00	9.79	98	No
pfos	4.99 (4.99)	pfos_c13	2666118	1844637	20.00	19.68	98	No
pfna	4.98 (4.99)	pfoa_c13	1187674	985201	10.00	10.13	101	No
pfda_c13	5.38 (5.39)	pfoa_c13	1187674	1071056	10.00	9.20	92	No

OCT 06 2016



Quantitative Peak Review

537 CAL 5-45ppb



Before After



ESD

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0005.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 10-90ppb	Injection Vial	20005
Acquisition Date	10/4/2016 9:06:25 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10D	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

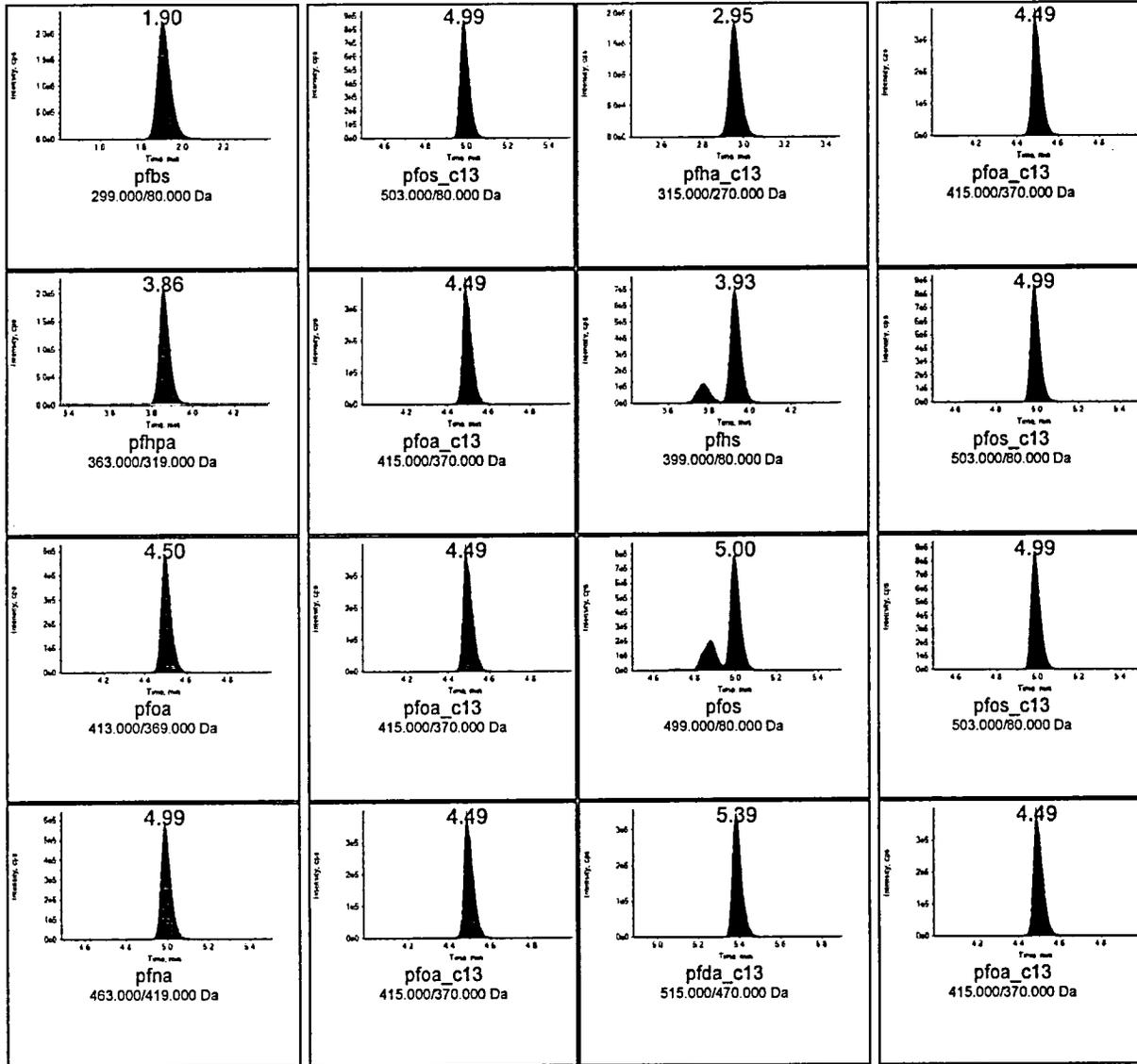
Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfb	1.90 (1.91)	pfos_c13	2798276	10442711	90.00	83.30	93	No
pfa_c13	2.95 (2.95)	pfoa_c13	1234545	716165	10.00	9.29	93	No
pftpa	3.88 (3.88)	pfoa_c13	1234545	765182	10.00	9.18	92	No
pfts	3.93 (3.92)	pfos_c13	2798276	3108264	30.00	28.40	95	No
pfoa	4.50 (4.50)	pfoa_c13	1234545	1733801	20.00	19.26	96	No
pfos	5.00 (4.99)	pfos_c13	2798276	3776778	40.00	38.39	96	No
pfna	4.99 (4.99)	pfoa_c13	1234545	2022807	20.00	20.01	100	No
pfda_c13	5.39 (5.39)	pfoa_c13	1234545	1110616	10.00	9.17	92	No

OCT 06 2016



Quantitative Peak Review

537 CAL 10-90ppb



Before After



ESD

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0006.wiff	Algorithm Used	SQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 20-180ppb	Injection Vial	20006
Acquisition Date	10/4/2016 9:15:30 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10E	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.91 (1.91)	pfos_c13	2827867	20616371	180.00	162.74	90	No
pfha_c13	2.96 (2.96)	pfoa_c13	1279153	798676	10.00	10.00	100	No
pfhpa	3.86 (3.87)	pfoa_c13	1279153	1693055	20.00	19.59	98	No
pfs	3.93 (3.92)	pfos_c13	2827867	6712312	60.00	60.68	101	No
pfoa	4.50 (4.50)	pfoa_c13	1279153	3741762	40.00	40.11	100	No
pfos	4.99 (5.00)	pfos_c13	2827867	8080102	80.00	81.27	102	No
pfna	4.99 (5.00)	pfoa_c13	1279153	4147041	40.00	39.59	99	No
pfda_c13	5.38 (5.39)	pfoa_c13	1279153	1253381	10.00	9.99	100	No

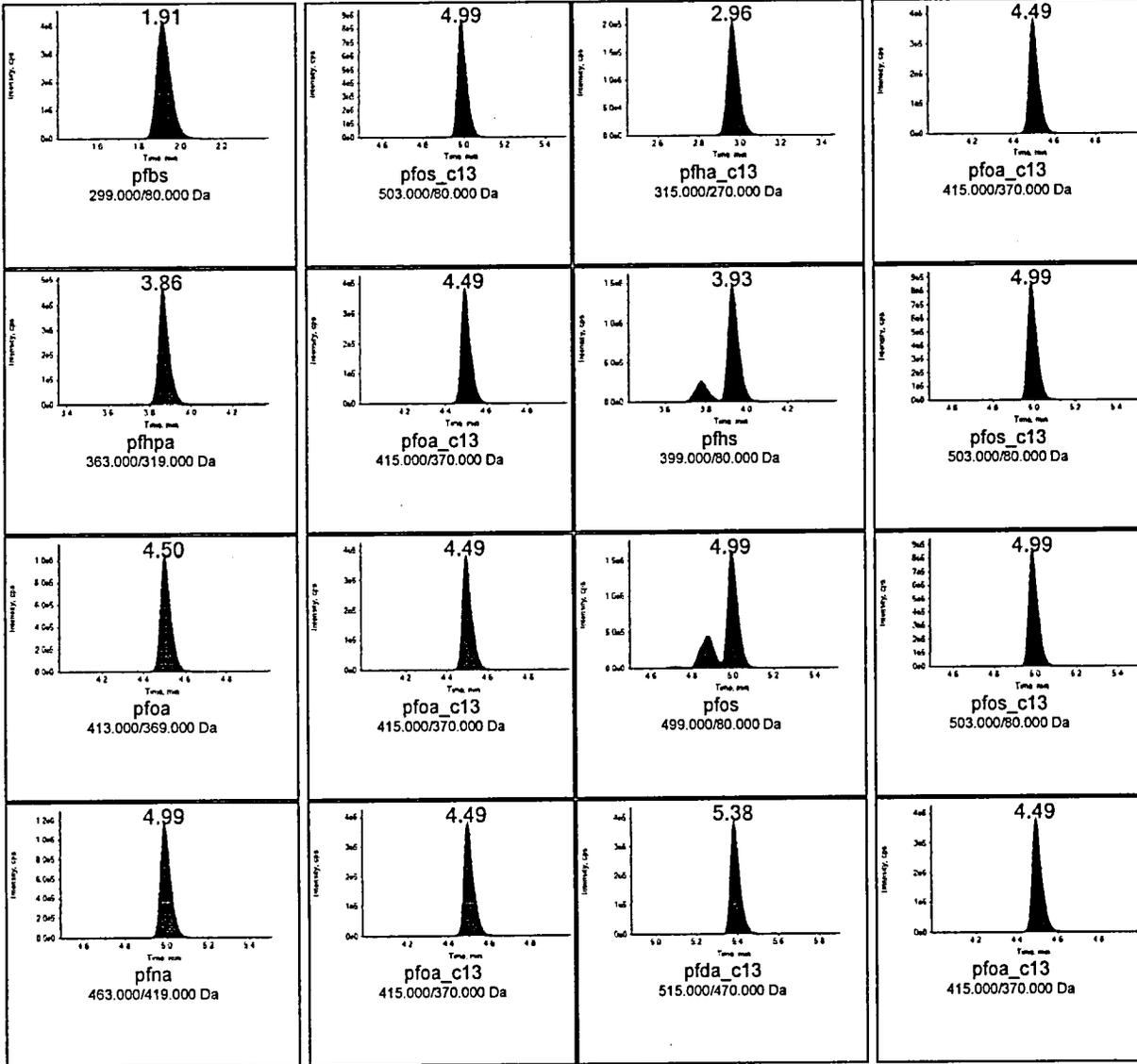
OCT 06 2016

Handwritten signature



Quantitative Peak Review

537 CAL 20-180ppb



Before After



ES

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0007.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 50-450ppb	Injection Vial	20007
Acquisition Date	10/4/2016 9:24:35 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10F	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.90 (1.90)	pfos_c13	2632831	37518539	450.00	318.10	71	No
pfa_c13	2.95 (2.95)	pfoa_c13	1161368	754481	10.00	10.40	104	No
pftpa	3.85 (3.86)	pfoa_c13	1161368	3806137	50.00	48.52	97	No
pfs	3.92 (3.92)	pfos_c13	2632831	14793243	150.00	143.64	96	No
pfoa	4.49 (4.49)	pfoa_c13	1161368	8242877	100.00	97.32	97	No
pfos	4.99 (4.99)	pfos_c13	2632831	17790118	200.00	192.18	96	No
pfna	4.98 (4.99)	pfoa_c13	1161368	8860722	100.00	93.17	93	No
pfda_c13	5.38 (5.38)	pfoa_c13	1161368	1201480	10.00	10.55	105	No

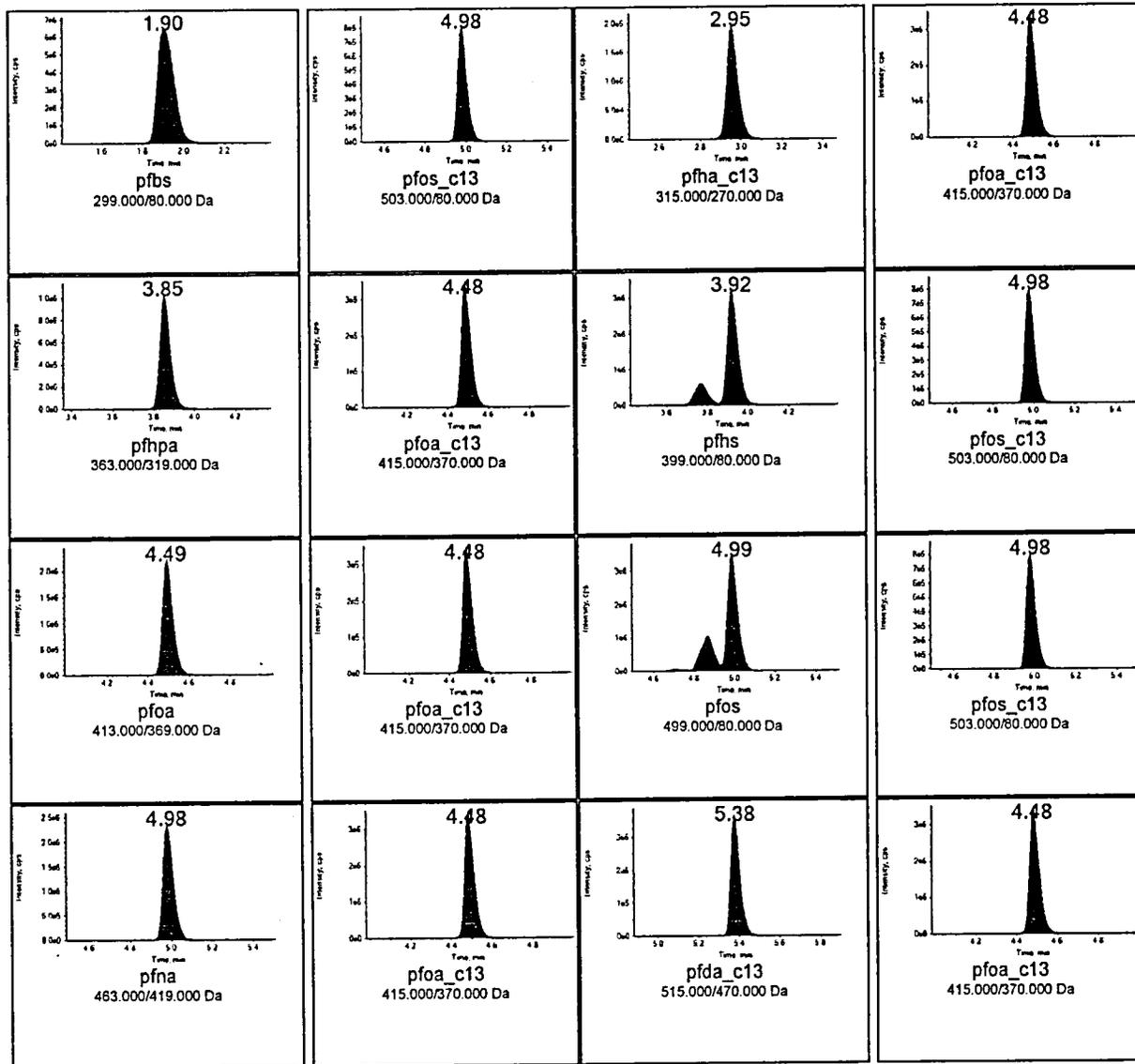
OCT 06 2016

OK



Quantitative Peak Review

537 CAL 50-450ppb



Before After



ESD

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0008.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CAL 100-900ppb	Injection Vial	20008
Acquisition Date	10/4/2016 9:33:40 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Standard
Sample ID	16-OLC-01-10G	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.89 (1.91)	pfos_c13	2465840	49036804	900.00	443.91	49	No
pfha_c13	2.95 (2.96)	pfoa_c13	1124115	650754	10.00	9.27	93	No
pfhpa	3.86 (3.86)	pfoa_c13	1124115	7304267	100.00	96.19	96	No
pfhs	3.93 (3.92)	pfos_c13	2465840	26204253	300.00	271.66	91	No
pfoa	4.50 (4.50)	pfoa_c13	1124115	14390454	200.00	175.53	88	No
pfos	5.00 (4.99)	pfos_c13	2465840	31590079	400.00	364.36	91	No
pfna	4.99 (4.99)	pfoa_c13	1124115	14798073	200.00	160.76	80	No
pfda_c13	5.39 (5.39)	pfoa_c13	1124115	1050413	10.00	9.53	95	No

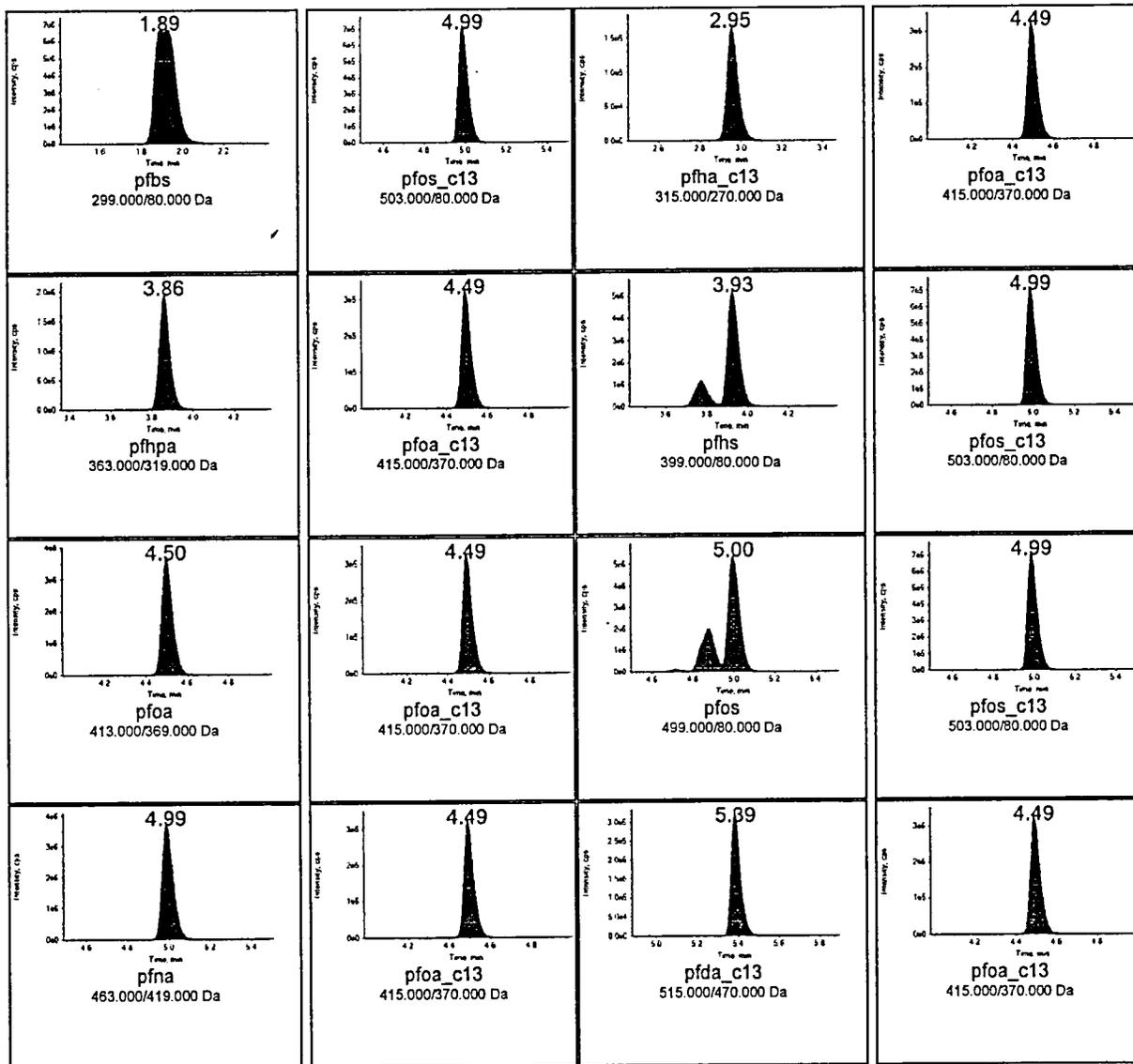
OCT 06 2016

ESD



Quantitative Peak Review

537 CAL 100-900ppb



Before After



EST

Project	Ewan's Projects\EPA 537		
Data File	100416\0009.wiff		
Result Table	100416.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/4/2016 9:42:45 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	3035993	0.00	0	N/A	No
pfna_c13	pfoa_c13	1338999	2.96	824571	9.65	No
pfhpa	pfoa_c13	1338999	0.00	0	N/A	No
pfhs	pfos_c13	3035993	0.00	0	N/A	No
pfoa	pfoa_c13	1338999	0.00	0	N/A	No
pfos	pfos_c13	3035993	0.00	0	N/A	No
pfna	pfoa_c13	1338999	0.00	0	N/A	No
pfda_c13	pfoa_c13	1338999	5.38	1267245	9.65	No

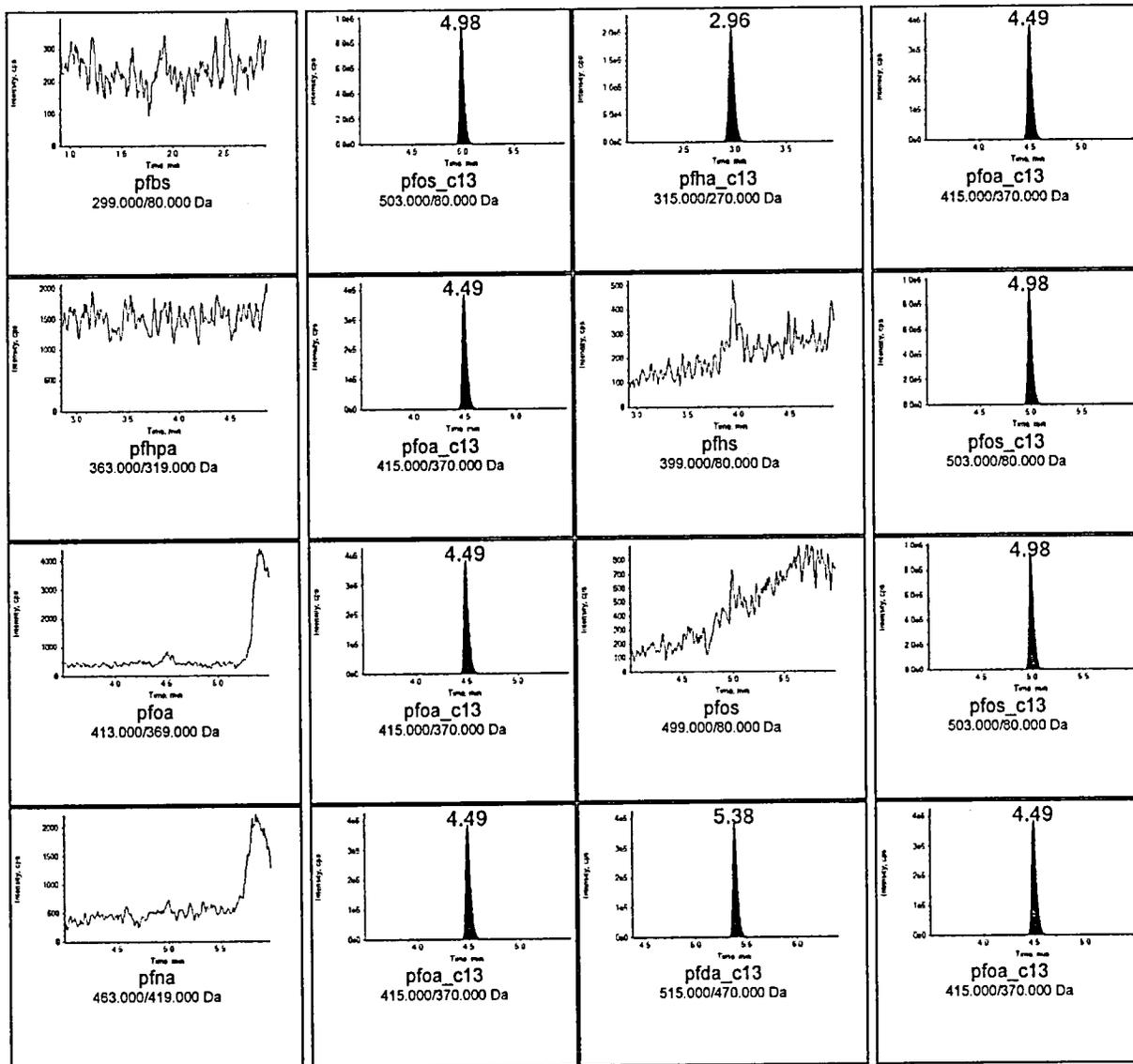
OCT 06 2016

JCR



Quantitative Peak Review

537 IB



Before After



ESD

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0010.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 ICV 50ppb	Injection Vial	20009
Acquisition Date	10/4/2016 9:51:51 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	16-OLC-01-10H	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfbs	1.91 (1.90)	pfos_c13	2655767	5728374	44.30	48.15	109	No
pfha_c13	2.95 (2.96)	pfoa_c13	1206153	713201	10.00	9.47	95	No
pfhpa	3.86 (3.86)	pfoa_c13	1206153	4360189	50.00	53.51	107	No
pfhs	3.92 (3.92)	pfos_c13	2655767	5492547	47.30	52.87	112	No
pfoa	4.49 (4.50)	pfoa_c13	1206153	4794107	50.00	54.50	109	No
pfos	4.99 (4.99)	pfos_c13	2655767	4143222	47.80	44.37	93	No
pfna	4.98 (4.99)	pfoa_c13	1206153	5524334	50.00	55.93	112	No
pfda_c13	5.38 (5.39)	pfoa_c13	1206153	1081942	10.00	9.15	92	No

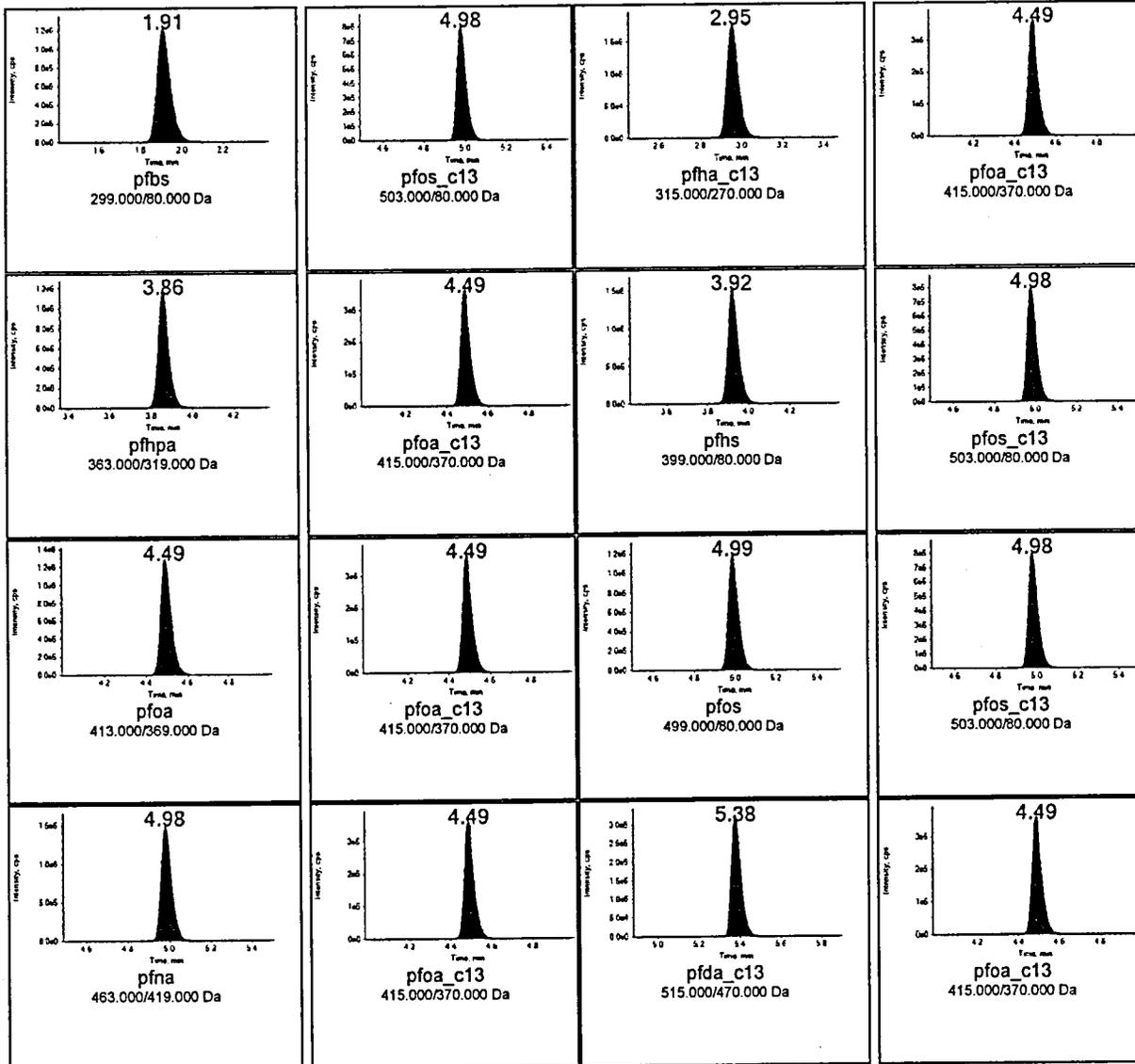
OCT 06 2016

ESD



Quantitative Peak Review

537 ICV 50ppb



Before After



23

Project	Ewan's Projects\EPA 537		
Data File	100416\0011.wiff		
Result Table	100416.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/4/2016 10:00:57 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfbs	pfos_c13	2986594	0.00	0	N/A	No
pfha_c13	pfoa_c13	1353352	2.95	795615	9.41	No
pfhpa	pfoa_c13	1353352	0.00	0	N/A	No
pfhs	pfos_c13	2986594	0.00	0	N/A	No
pfoa	pfoa_c13	1353352	0.00	0	N/A	No
pfos	pfos_c13	2986594	0.00	0	N/A	No
pfna	pfoa_c13	1353352	0.00	0	N/A	Yes
pfda_c13	pfoa_c13	1353352	5.39	1285732	9.69	No

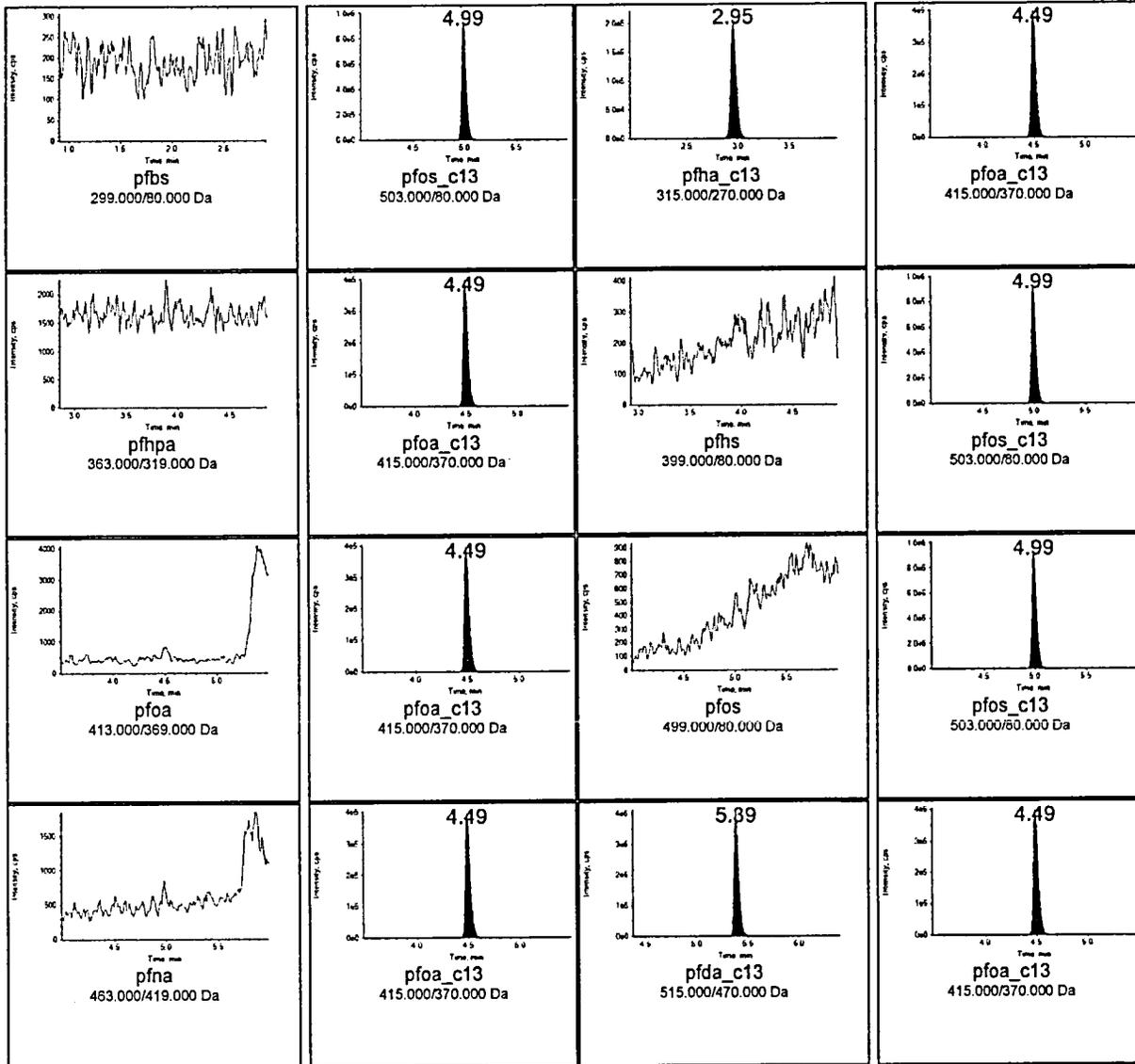
OCT 06 2016

[Handwritten signature]



Quantitative Peak Review

537 IB



Before After

Quantitation Report

Data File:	100416\0012.wiff	Instrument:	K-LCMS-02
Acqu Date:	10/4/16 22:10:02	Vial:	1
Run Type:	CCV	Dilution:	1
Lab ID:	KQ1612550-01	Raw Units:	ng/mL

Bottle ID:		Tier:	II	Matrix:	Drinking Water
Prod Code:	PerfAlkylAcids	Collect Date:	9/6/16	Receive Date:	9/8/16

Analysis Lot:	517469	Prep Lot:		Report Group:	KQ1612550
Analysis Method:	537	Prep Method:			
		Prep Date:			

Title:	Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/M	Calibration ID:	KC1600169
		Report List ID:	16269

Internal Standard Compounds

Parameter Name	RT	Response	Solution Conc	Area Criteria
Perfluoro-n-[1,2-13C2]octanoic acid	4.49	1228653.11	10.0	OK
Sodium perfluoro-1-[1,2,3,4-13C4] octanesulf	4.98	2742943.85	30.0	OK

Surrogate Compounds

Parameter Name	RT	Response	Solution Conc	% Rec	% Rec Criteria	Rpt?
Perfluoro-n-[1,2-13C2] hexanoic acid	2.96	790472.56	10.301			Y
Perfluoro-n-[1,2-13C2] decanoic acid	5.38	1239118.08	10.284			Y

Target Compounds

Parameter Name	RT	Response	Solution Conc	Final Conc	Q	Rpt?
Perfluorooctylsulfonic Acid	4.99	977170.72	10.132	10.1		Y
Perfluorooctanoic Acid	4.50	452969.02	5.055	5.06		Y
Perfluoroheptanoic Acid	3.86	198499.47	2.392	2.39		Y
Perfluorononanoic Acid	4.99	519371.85	5.162	5.16		Y
Perfluorobutanesulfonic Acid	1.91	2822917.89	22.973	23.0		Y
Perfluorohexylsulfonic Acid	3.93	803853.40	7.492	7.49		Y

U: Undetected at or above MDL
 J: Analyte detected above MDL, but below MRL
 B: Hit above MRL also found in Method Blank
 E: Analyte concentration above high point of ICAL
 N: Presumptive evidence of compound

D: Result from dilution
 m: Manual integration performed
 d: Compound manually deleted
 NR: Analyte not reported from this analysis

*: Result fails acceptance criteria
 #: Acceptance criteria not applicable
 ?: Insufficient information to determine acceptance
 e: Result >= MRL, but MRL less than low point of ICAL
 c: check for co-elution

Continuing Calibration Verification Summary

Calibration ID: KC1600169
QAP Name: LAB QAP
List Name: Standard List

Spec Set: #74717 v. 12
List ID: #16269
Signal ID: 1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	10.0	10.1	1.055	1.069	1.3		± 30%	Average RF
Perfluorooctanoic Acid	5.00	5.06	0.7293	0.7373	1.1		± 30%	Average RF
Perfluoroheptanoic Acid	2.50	2.39	0.6755	0.6462	-4.3		± 30%	Average RF
Perfluorononanoic Acid	5.00	5.16	0.8189	0.8454	3.2		± 30%	Average RF
Perfluorobutanesulfonic Acid	22.5	23.0	1.344	1.372	2.1		± 30%	Average RF
Perfluorohexylsulfonic Acid	7.50	7.49	1.174	1.172	-0.1		± 30%	Average RF
Perfluoro-n-[1,2- ¹³ C ₂] hexanoic acid	10.0	10.3	0.6245	0.6434	3.0		± 30%	Average RF
Perfluoro-n-[1,2- ¹³ C ₂] decanoic acid	10.0	10.3	0.9807	1.009	2.8		± 30%	Average RF

Continuing Calibration Verification Summary

Calibration ID: KC1600169

Spec Set: #94144 v. 5

QAP Name: LAB QAP ng/L

List ID: #16269

List Name: Standard List

Signal ID: 1

ESD 5-Oct-16
5-053 5/16/16

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perfluorooctylsulfonic Acid	10.0	10.1	1.055	1.069	1.3		± 30%	Average RF
Perfluorooctanoic Acid	5.00	5.06	0.7293	0.7373	1.1		± 30%	Average RF
Perfluoroheptanoic Acid	2.50	2.39	0.6755	0.6462	-4.3		± 30%	Average RF
Perfluorononanoic Acid	5.00	5.16	0.8189	0.8454	3.2		± 30%	Average RF
Perfluorobutanesulfonic Acid	22.5	23.0	1.344	1.372	2.1		± 30%	Average RF
Perfluorohexylsulfonic Acid	7.50	7.49	1.174	1.172	-0.1		± 30%	Average RF
Perfluoro-n-[1,2-13C2] hexanoic acid	10.0	10.3	0.6245	0.6434	3.0		± 30%	Average RF
Perfluoro-n-[1,2-13C2] decanoic acid	10.0	10.3	0.9807	1.009	2.8		± 30%	Average RF



ESD

Project	Ewan's Projects\EPA 537	Result Table	100416.rdb
Data File	100416\0012.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CCV 2.5-22.5ppb	Injection Vial	20003
Acquisition Date	10/4/2016 10:10:02 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	16-OLC-01-10B	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

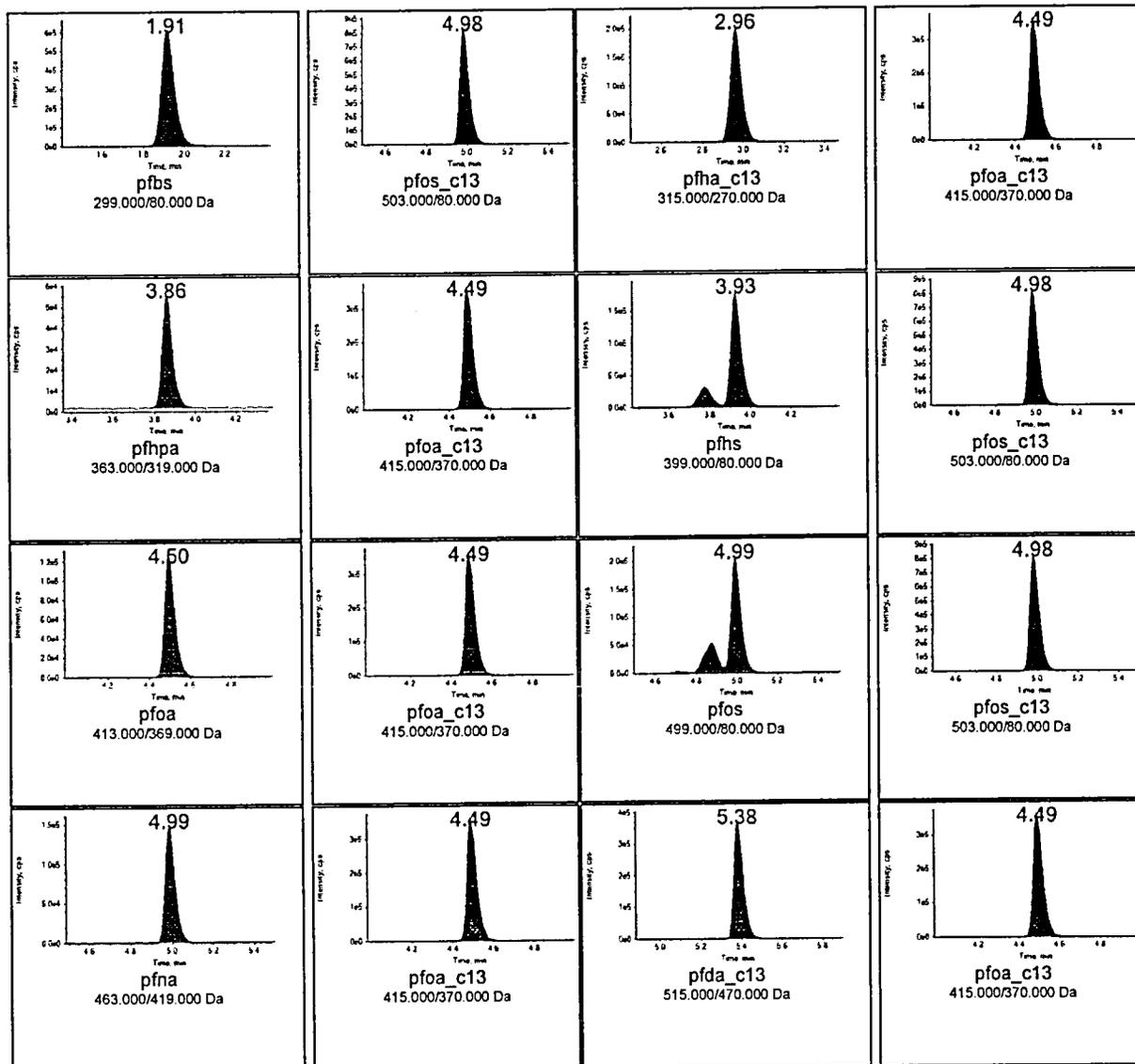
Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.91 (1.90)	pfos_c13	2742944	2822918	22.50	22.97	102	No
pfa_c13	2.96 (2.95)	pfoa_c13	1228653	790473	10.00	10.30	103	No
pfp	3.86 (3.86)	pfoa_c13	1228653	198499	2.50	2.39	96	No
pfs	3.93 (3.92)	pfos_c13	2742944	803853	7.50	7.49	100	No
pfoa	4.50 (4.50)	pfoa_c13	1228653	452969	5.00	5.06	101	No
pfs	4.99 (4.99)	pfos_c13	2742944	977171	10.00	10.13	101	No
pfa	4.99 (4.99)	pfoa_c13	1228653	519372	5.00	5.16	103	No
pfa_c13	5.38 (5.39)	pfoa_c13	1228653	1239118	10.00	10.28	103	No

OCT 06 2016



Quantitative Peak Review

537 CCV 2.5-22.5ppb



Before After

Quantitation Report

Data File: 100416\0013.wiff	<i>MB < 1/3 MRL</i> <i>ESD</i> <i>5/3/16</i>	Instrument: K-LCMS-02
Acqu Date: 10/4/16 22:19:05		Vial: 20
Run Type: MB		Dilution: 1
Lab ID: KQ1611093-04		Raw Units: ng/mL

Bottle ID:	Tier: II	Matrix: Drinking Water
Prod Code: PerfAlkylAcids	Collect Date: 9/7/16	Receive Date: 9/9/16

Analysis Lot: 517469	Prep Lot: 270662	Report Group: KQ1611093
Analysis Method: 537	Prep Method: Method	
	Prep Date: 9/12/16	

Title: Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/M	Calibration ID: KC1600169
	Report List ID: 9001

Internal Standard Compounds

Parameter Name	RT	Response	Solution Conc	Area Criteria
Sodium perfluoro-1-[1,2,3,4-13C4] octanesulf	4.98	2703506.44	30.0	OK

Surrogate Compounds

Parameter Name	RT	Response	Solution Conc	% Rec	% Rec Criteria	Rpt?
Perfluoro-n-[1,2-13C2] hexanoic acid	2.95	650371.96	8.751	88	70 - 130	Y
Perfluoro-n-[1,2-13C2] decanoic acid	5.38	1019956.68	8.740	87	70 - 130	Y

Target Compounds

Parameter Name	RT	Response	Solution Conc	Final Conc	Q	Rpt?
Perfluorooctylsulfonic Acid	0.00	0.00	0	0	U	Y
Perfluorooctanoic Acid	4.49	4291.01	0.049	0.000196	U	Y
Perfluoroheptanoic Acid	0.00	0.00	0	0	U	Y
Perfluorononanoic Acid	4.98	2626.89	0.027	0.000108	U	Y
Perfluorobutanesulfonic Acid	0.00	0.00	0	0	U	Y
Perfluorohexylsulfonic Acid	0.00	0.00	0	0	U	Y

Final Conc.Units: ug/L

Prep Amount: 250 mL	Dilution: 1	
Prep Final Amount: 1.00 mL	Basis Factor: 100.00	

U: Undetected at or above MDL
 J: Analyte detected above MDL, but below MRL
 B: Hit above MRL also found in Method Blank
 E: Analyte concentration above high point of ICAL
 N: Presumptive evidence of compound
 Printed: 10/5/16 19:50

D: Result from dilution
 m: Manual integration performed
 d: Compound manually deleted
 NR: Analyte not reported from this analysis

*: Result fails acceptance criteria
 #: Acceptance criteria not applicable
 ?: Insufficient information to determine acceptance
 e: Result >= MRL, but MRL less than low point of ICAL
 c: check for co-elution



Project	Ewan's Projects\EPA 537		
Data File	100416\0148.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/5/2016 7:42:34 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfb	pfos_c13	3164100	0.00	0	N/A	No
pfna_c13	pfoa_c13	1431000	2.93	857480	9.59	No
pfnpa	pfoa_c13	1431000	0.00	0	N/A	No
pfns	pfos_c13	3164100	0.00	0	N/A	No
pfoa	pfoa_c13	1431000	0.00	0	N/A	No
pfos	pfos_c13	3164100	0.00	0	N/A	No
pfna	pfoa_c13	1431000	0.00	0	N/A	No
pfda_c13	pfoa_c13	1431000	5.36	1325000	9.44	No

OCT 07 2016



Project	Ewan's Projects\EPA 537	Result Table	100416 043-0191.rdb
Data File	100416\0149.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CCV 2.5-22.5ppb	Injection Vial	20003
Acquisition Date	10/5/2016 7:51:39 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	16-OLC-01-10B	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

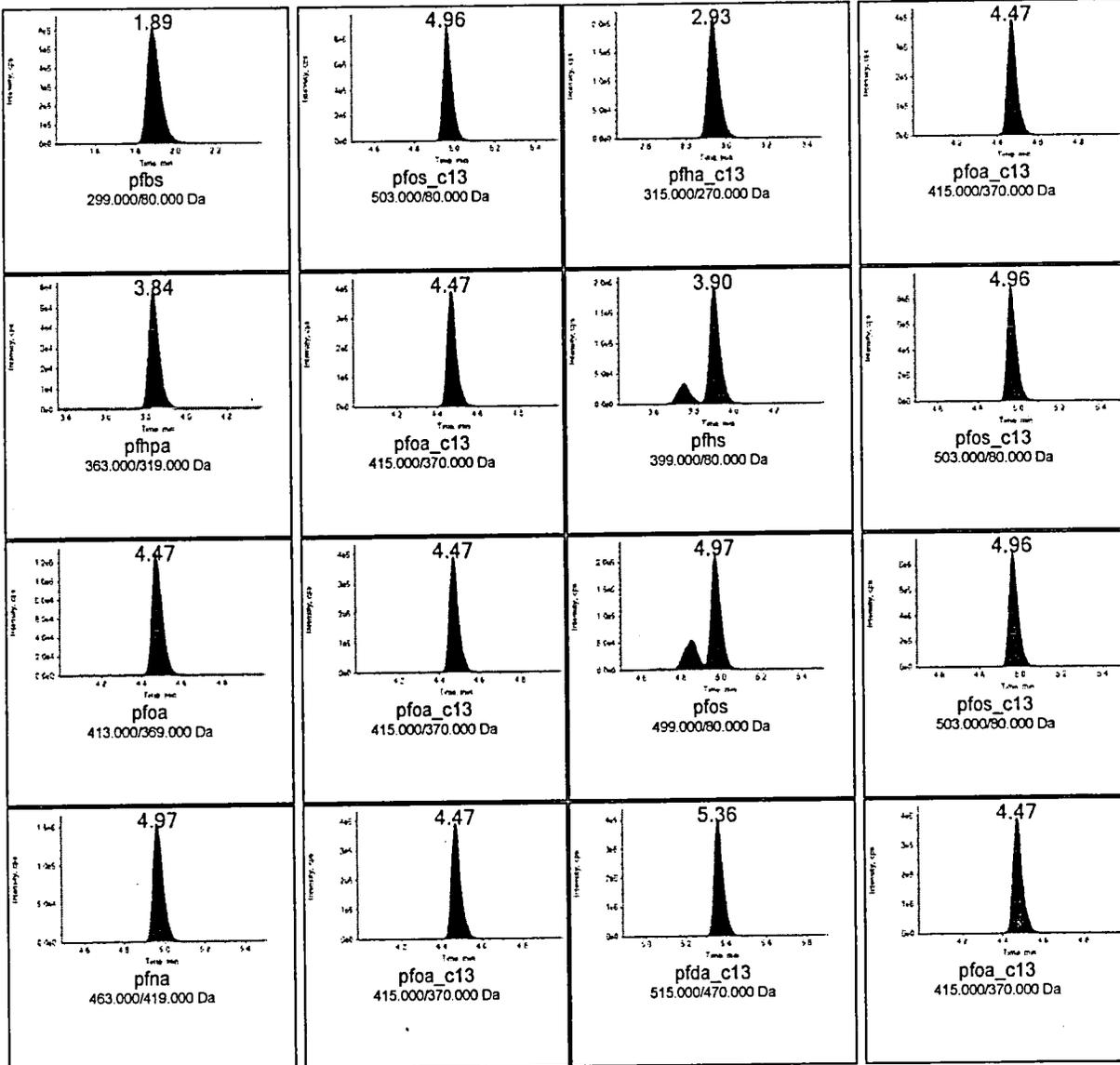
Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%) /	Mod?
pfs	1.89 (1.90)	pfs_c13	2854400	2869800	22.50	22.40	100	No
pfa_c13	2.93 (2.94)	pfa_c13	1304600	829740	10.00	10.20	102	No
pfa	3.84 (3.85)	pfa_c13	1304600	214330	2.50	2.43	97	No
pfs	3.90 (3.90)	pfs_c13	2854400	855630	7.50	7.66	102	No
pfa	4.47 (4.48)	pfa_c13	1304600	466220	5.00	4.90	98	No
pfs	4.97 (4.97)	pfs_c13	2854400	1012300	10.00	10.10	101	No
pfa	4.97 (4.97)	pfa_c13	1304600	543600	5.00	5.09	102	No
pfa_c13	5.36 (5.37)	pfa_c13	1304600	1297100	10.00	10.10	101	No

OCT 07 2016



Quantitative Peak Review

537 CCV 2.5-22.5ppb



Before After



Project	Ewan's Projects\EPA 537	Result Table	100416 043-0191.rdb
Data File	100416\0160.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CCV 20-180ppb	Injection Vial	20006
Acquisition Date	10/5/2016 9:31:28 PM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	16-OLC-01-10E	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

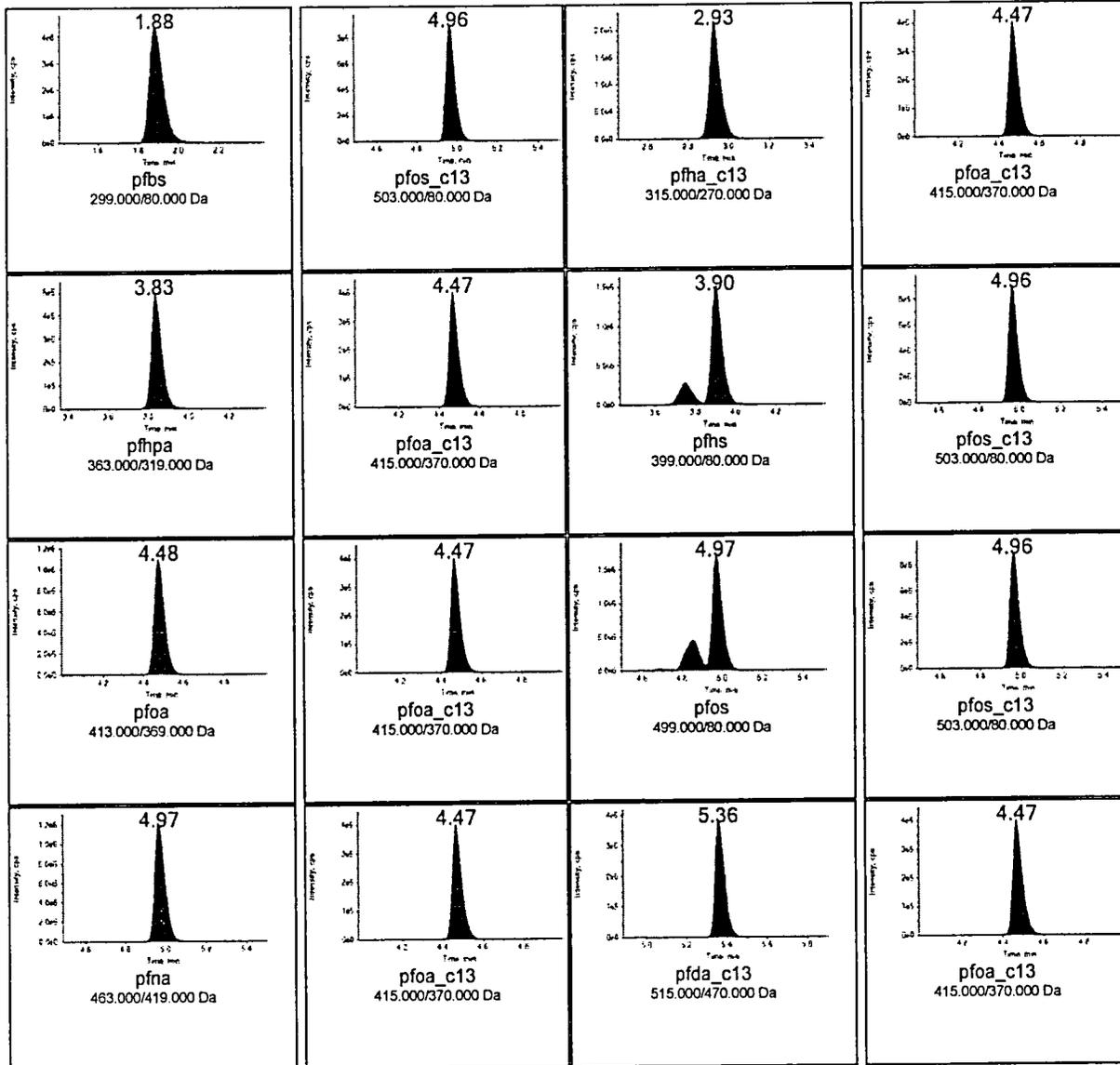
Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.88 (1.90)	pfos_c13	2940100	21392000	180.00	162.00	90	No
pfa_c13	2.93 (2.94)	pfoa_c13	1319900	828080	10.00	10.00	100	No
pftpa	3.83 (3.85)	pfoa_c13	1319900	1801800	20.00	20.20	101	No
pfts	3.90 (3.91)	pfos_c13	2940100	7030200	60.00	61.10	102	No
pfoa	4.48 (4.48)	pfoa_c13	1319900	3972800	40.00	41.30	103	No
pfos	4.97 (4.97)	pfos_c13	2940100	8394700	80.00	81.20	102	No
pfna	4.97 (4.97)	pfoa_c13	1319900	4385000	40.00	40.60	101	No
pfda_c13	5.36 (5.36)	pfoa_c13	1319900	1271800	10.00	9.83	98	No

OCT 07 2016



Quantitative Peak Review

537 CCV 20-180ppb



Before After



LS

Project	Ewan's Projects\EPA 537		
Data File	100416\0161.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/5/2016 9:40:32 PM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfbs	pfos_c13	3175500	0.00	0	N/A	No
pfha_c13	pfoa_c13	1380000	2.93	809120	9.39	No
pfhpa	pfoa_c13	1380000	0.00	0	N/A	No
pfhs	pfos_c13	3175500	0.00	0	N/A	No
pfoa	pfoa_c13	1380000	0.00	0	N/A	No
pfos	pfos_c13	3175500	0.00	0	N/A	No
pfna	pfoa_c13	1380000	0.00	0	N/A	No
pfda_c13	pfoa_c13	1380000	5.36	1283200	9.48	No

OCT 07 2016

LS



ll

Project	Ewan's Projects\EPA 537	Result Table	100416 043-0191.rdb
Data File	100416\0185.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CCV 10-90ppb	Injection Vial	20005
Acquisition Date	10/6/2016 1:18:32 AM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	16-OLC-01-10D	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod? /
pfs	1.88 (1.90)	pfos_c13	2862200	10761000	90.00	83.90	93	No
pfa_c13	2.93 (2.94)	pfoa_c13	1286200	759880	10.00	9.46	95	No
ppha	3.83 (3.84)	pfoa_c13	1286200	848450	10.00	9.77	98	No
pfs	3.90 (3.90)	pfos_c13	2862200	3352400	30.00	29.90	100	No
pfoa	4.47 (4.47)	pfoa_c13	1286200	1784900	20.00	19.00	95	No
pfos	4.97 (4.97)	pfos_c13	2862200	3916800	40.00	38.90	97	No
pfa	4.96 (4.97)	pfoa_c13	1286200	1984600	20.00	18.80	94	No
pfda_c13	5.36 (5.36)	pfoa_c13	1286200	1123800	10.00	8.91	89	No

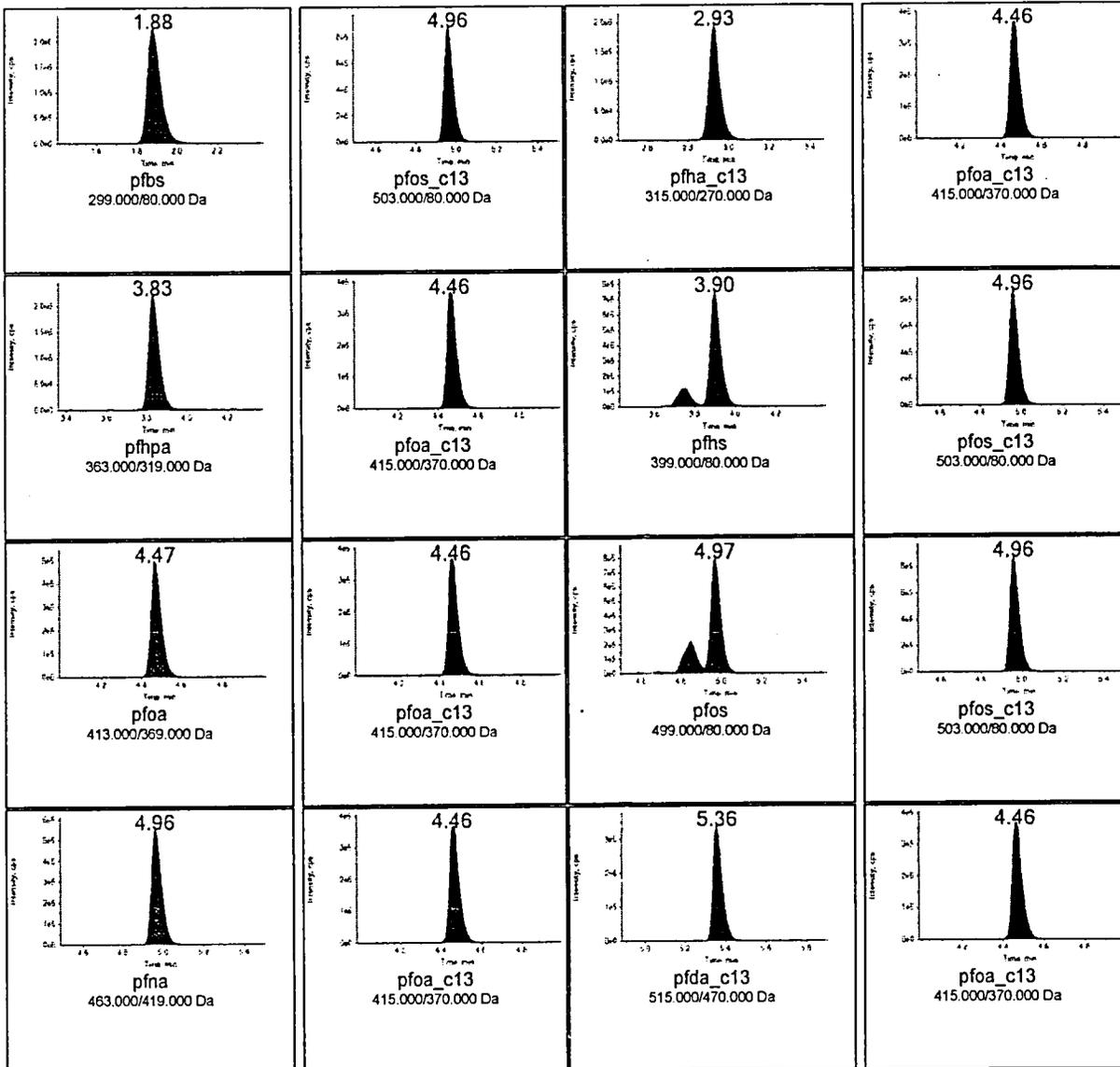
OCT 07 2016

ll



Quantitative Peak Review

537 CCV 10-90ppb



Before After



LS

Project	Ewan's Projects\EPA 537		
Data File	100416\0186.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	IB	Injection Volume	1
Acquisition Date	10/6/2016 1:27:35 AM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	3137600	0.00	0	N/A	No
pfa_c13	pfoa_c13	1369100	2.92	829540	9.70	No
pnpa	pfoa_c13	1369100	0.00	0	N/A	No
pfs	pfos_c13	3137600	0.00	0	N/A	No
pfoa	pfoa_c13	1369100	0.00	0	N/A	No
pfs	pfos_c13	3137600	0.00	0	N/A	No
pfa	pfoa_c13	1369100	0.00	0	N/A	No
pfa_c13	pfoa_c13	1369100	5.36	1256700	9.36	No

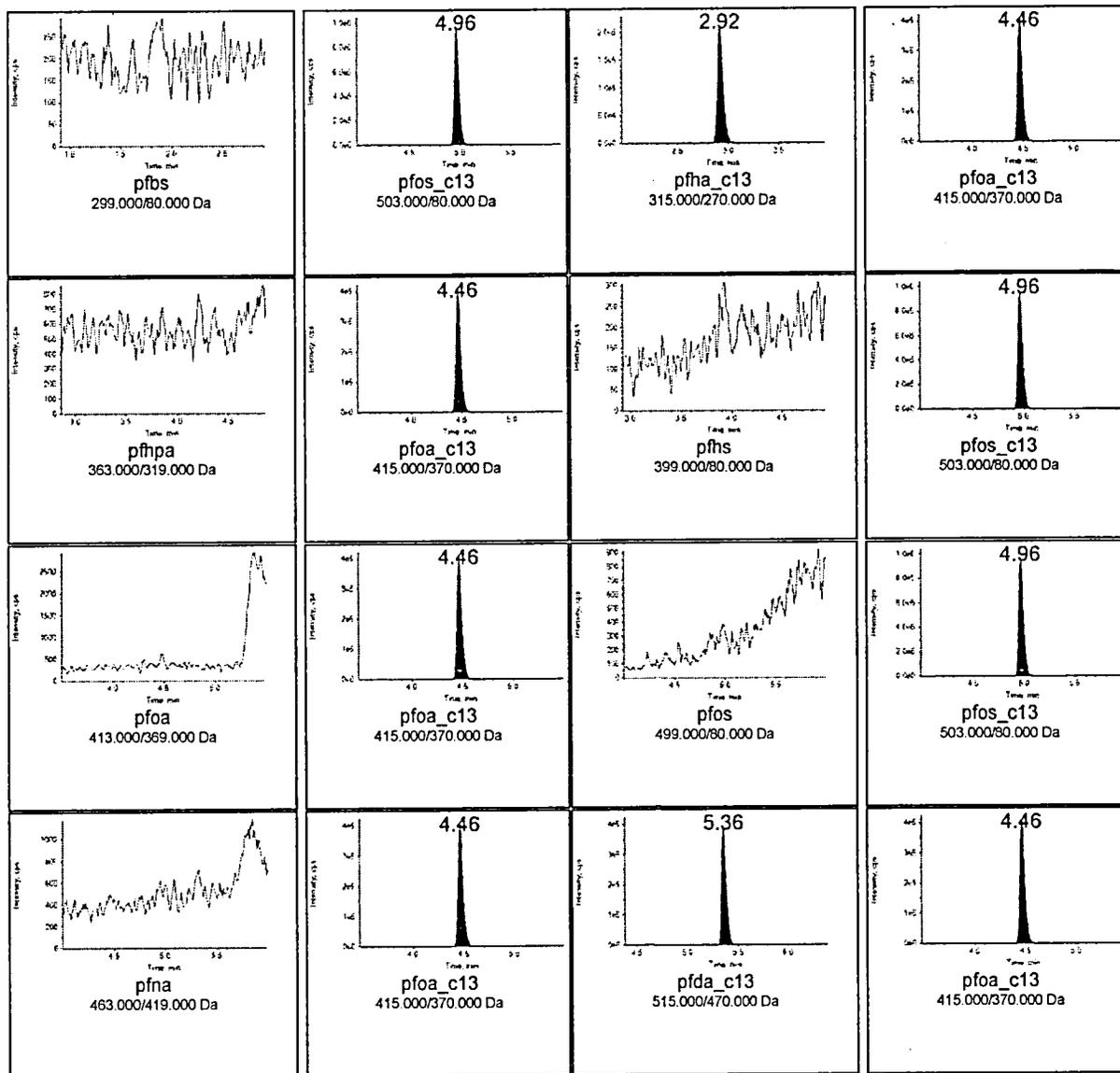
OCT 07 2016

LS



Quantitative Peak Review

IB



Before After



lv

Project	Ewan's Projects\EPA 537		
Data File	100416\0187.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/6/2016 2:33:35 AM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfbis	pfos_c13	3111600	0.00	0	N/A	No
pfha_c13	pfoa_c13	1428600	2.96	830080	9.30	No
pfnpa	pfoa_c13	1428600	0.00	0	N/A	No
pfhs	pfos_c13	3111600	0.00	0	N/A	No
pfoa	pfoa_c13	1428600	0.00	0	N/A	No
pfos	pfos_c13	3111600	0.00	0	N/A	No
pfna	pfoa_c13	1428600	0.00	0	N/A	No
pfda_c13	pfoa_c13	1428600	5.37	1287500	9.19	No

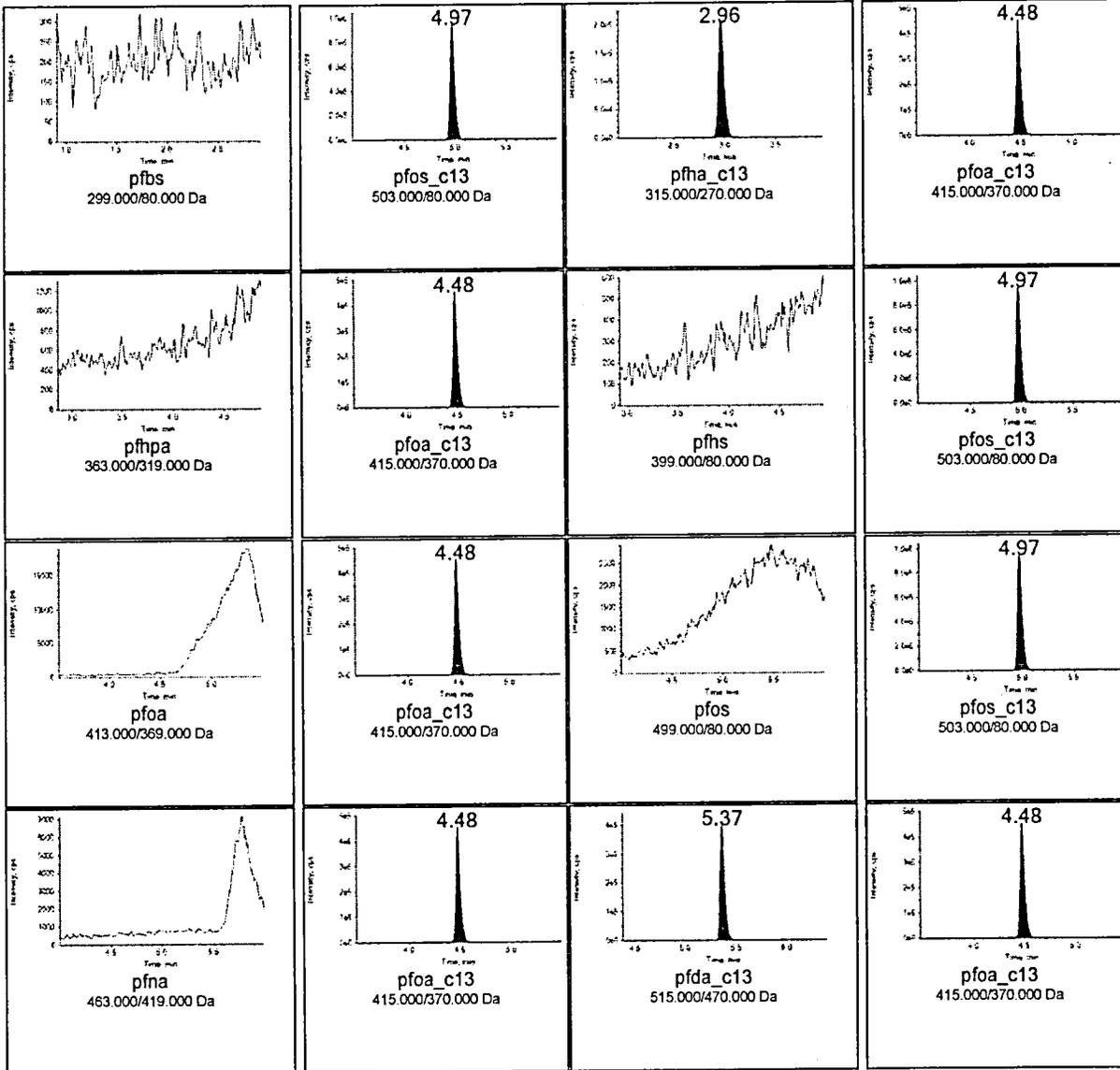
OCT 07 2016

lv



Quantitative Peak Review

537 IB



Before After



Project	Ewan's Projects\EPA 537	Result Table	100416 043-0191.rdb
Data File	100416\0190.wiff	Algorithm Used	MQL
Acquisition Method	EPA 537.dam	Instrument Name	LCMS02
Sample Name	537 CCV 20-180ppb	Injection Vial	20006
Acquisition Date	10/6/2016 3:00:50 AM	Injection Volume	1
Acquisition Method	EPA 537.dam	Sample Type	Quality Control
Sample ID	16-OLC-01-10E	Dilution Factor	1.00
Sample Comment	<i>No data for Sample Comment</i>	Weight to Volume	0.00

Results Summary

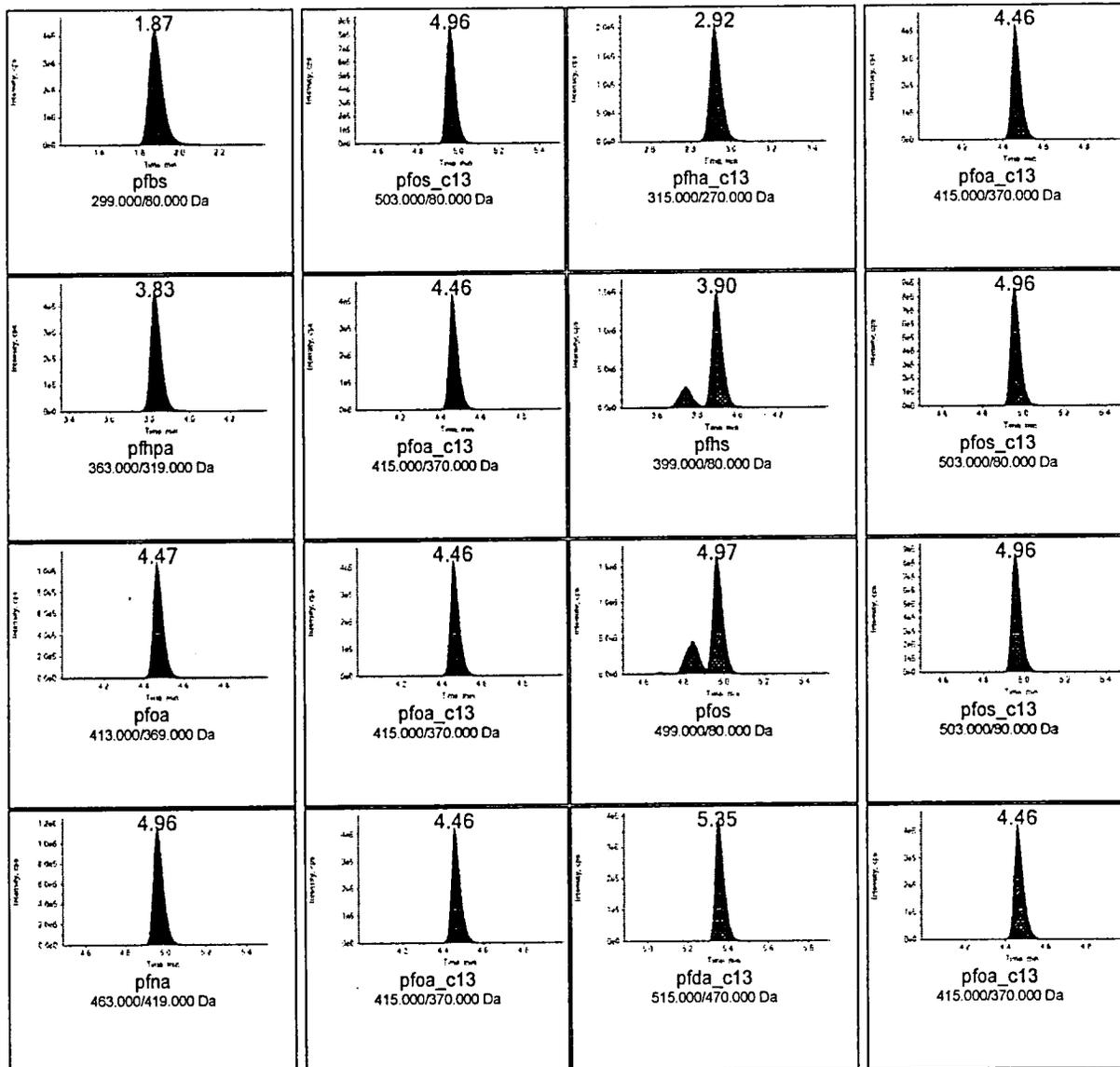
Analyte Name	Analyte RT (Expected)	IS Name	IS Area	Analyte Area	Exp Conc (ng/mL)	Calc. Conc (ng/mL)	Accuracy (%)	Mod?
pfs	1.87 (1.90)	pfos_c13	2915300	20820000	180.00	159.00	89	No
pfa_c13	2.92 (2.94)	pfoa_c13	1349000	799180	10.00	9.49	95	No
pfa	3.83 (3.84)	pfoa_c13	1349000	1740500	20.00	19.10	96	No
pfs	3.90 (3.90)	pfos_c13	2915300	6869100	60.00	60.20	100	No
pfoa	4.47 (4.47)	pfoa_c13	1349000	3827700	40.00	38.90	97	No
pfs	4.97 (4.97)	pfos_c13	2915300	8269000	80.00	80.70	101	No
pfa	4.96 (4.96)	pfoa_c13	1349000	4150900	40.00	37.60	94	No
pfa_c13	5.35 (5.35)	pfoa_c13	1349000	1249100	10.00	9.44	94	No

001 07 2016



Quantitative Peak Review

537 CCV 20-180ppb



Before After



low

Project	Ewan's Projects\EPA 537		
Data File	100416\0191.wiff		
Result Table	100416 043-0191.rdb		
Instrument Name	LCMS02		
Sample Name	537 IB	Injection Volume	1
Acquisition Date	10/6/2016 3:09:54 AM	Sample Type	Unknown
Acquisition Method	EPA 537.dam	Dilution Factor	1.00
Injection Vial	20001	Weight to Volume	0.00

Results Summary

Analyte Name	IS Name	IS Area	Analyte RT (Exp RT)	Analyte Area	Calc. Conc (ng/mL)	Modified?
pfs	pfos_c13	3190800	0.00	0	N/A	No
pfa_c13	pfoa_c13	1394900	2.92	831340	9.54	No
pfpa	pfoa_c13	1394900	0.00	0	N/A	No
pfs	pfos_c13	3190800	0.00	0	N/A	No
pfoa	pfoa_c13	1394900	0.00	0	N/A	No
pfos	pfos_c13	3190800	0.00	0	N/A	No
pfa	pfoa_c13	1394900	0.00	0	N/A	No
pfda_c13	pfoa_c13	1394900	5.36	1302700	9.52	No

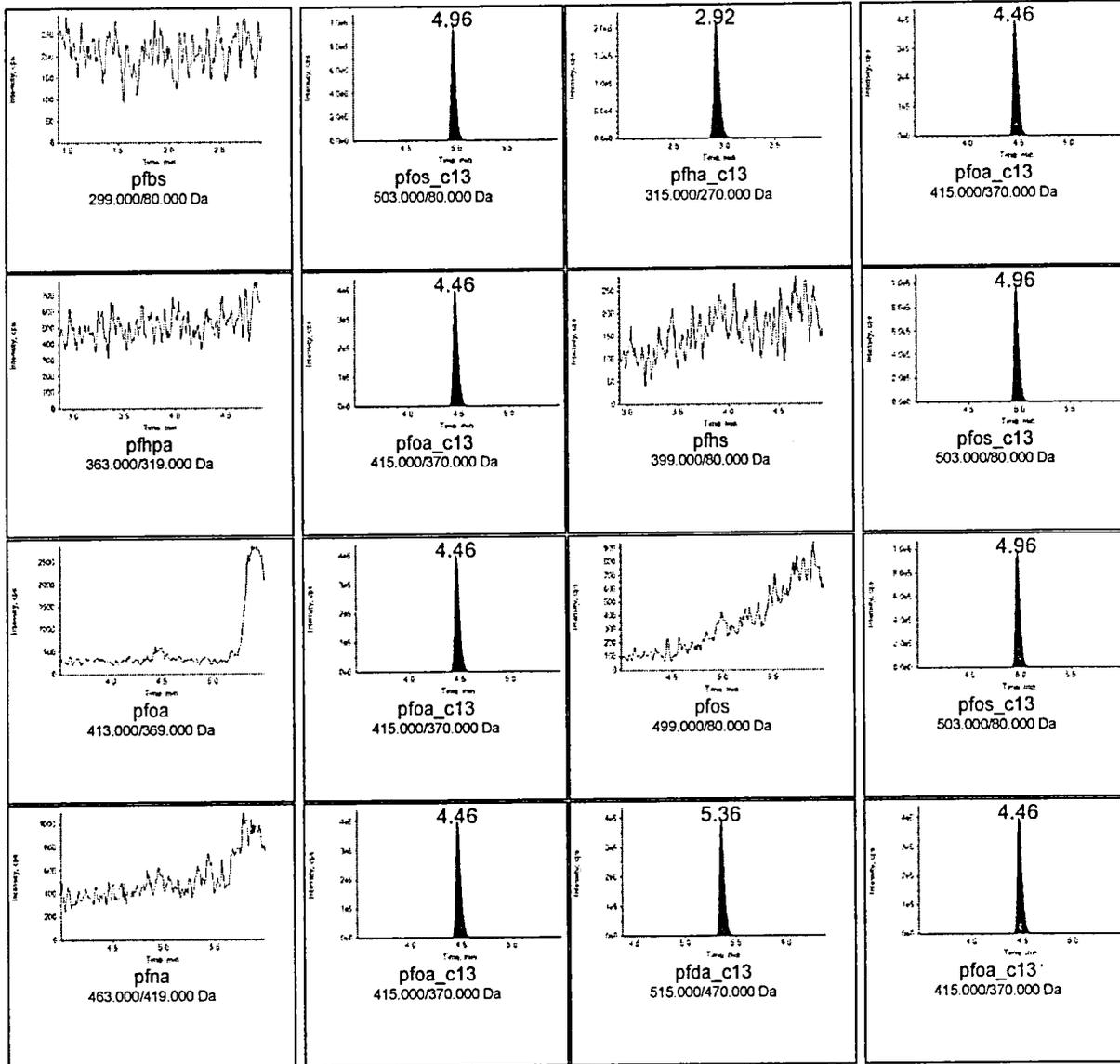
OCT 07 2016

low



Quantitative Peak Review

537 IB



Before After

Date: 10/04/16 0043 to 0191

By: JMS/cfs

10/7/16



Environmental

ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

2nd Review:

ACT 07 2016 Released

Injection Log
LCMS02 - API 5000

LIMS ID:

517606, 517608,
517609, 517610,
517611, 517612

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases

A: 5mM Ammonium Acetate in H2O (15-OLC-01-99A)

B: 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder:

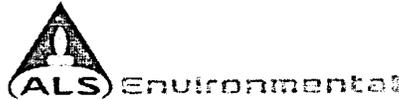
Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments	
1	537 IB	16-OLC-01-10I	100416\0001.wiff	EPA 537.dam	1	x	
2	537 CAL 1-9ppb	16-OLC-01-10A	100416\0002.wiff	EPA 537.dam	1	x	
3	537 CAL 2.5-22.5ppb	16-OLC-01-10B	100416\0003.wiff	EPA 537.dam	1	x	
4	537 CAL 5-45ppb	16-OLC-01-10C	100416\0004.wiff	EPA 537.dam	1	x	
5	537 CAL 10-90ppb	16-OLC-01-10D	100416\0005.wiff	EPA 537.dam	1	x	
6	537 CAL 20-180ppb	16-OLC-01-10E	100416\0006.wiff	EPA 537.dam	1	x	
7	537 CAL 50-450ppb	16-OLC-01-10F	100416\0007.wiff	EPA 537.dam	1	x	
8	537 CAL 100-900ppb	16-OLC-01-10G	100416\0008.wiff	EPA 537.dam	1	x	
9	537 IB	16-OLC-01-10I	100416\0009.wiff	EPA 537.dam	1	x	
10	537 ICV 50ppb	16-OLC-01-10H	100416\0010.wiff	EPA 537.dam	1	x	
11	537 IB	16-OLC-01-10I	100416\0011.wiff	EPA 537.dam	1	x	
12	537 CCV 2.5-22.5ppb	16-OLC-01-10B	100416\0012.wiff	EPA 537.dam	1	x	
13	537 IB	16-OLC-01-10I	100416\0042.wiff	EPA 537.dam	1	x	
14	537 CCV 2.5-22.5ppb	16-OLC-01-10B	100416\0043.wiff	EPA 537.dam	1	x	LIMS 517606
15	KQ1611137-04	MB	100416\0044.wiff	EPA 537.dam	1		NR -- IS failure
16	KQ1611137-03	LCS	100416\0045.wiff	EPA 537.dam	1	x	
17	K1610629-001		100416\0046.wiff	EPA 537.dam	1	x	
18	K1610629-002		100416\0047.wiff	EPA 537.dam	1	x	
19	K1610629-003		100416\0048.wiff	EPA 537.dam	1	x	
20	K1610629-004		100416\0049.wiff	EPA 537.dam	1		NR -- IS failure
21	K1610629-005		100416\0050.wiff	EPA 537.dam	1		NR -- IS failure
22	K1610629-006		100416\0051.wiff	EPA 537.dam	1	x	
23	537 CCV 10-90ppb	16-OLC-01-10D	100416\0052.wiff	EPA 537.dam	1	x	
24	IB	16-OLC-01-10I	100416\0053.wiff	EPA 537.dam	1	x	
25	K1610629-007		100416\0054.wiff	EPA 537.dam	1	x	
26	K1610629-008		100416\0055.wiff	EPA 537.dam	1	x	
27	K1610629-009		100416\0056.wiff	EPA 537.dam	1		NR -- IS failure
28	K1610629-010		100416\0057.wiff	EPA 537.dam	1	x	
29	K1610629-011		100416\0058.wiff	EPA 537.dam	1		NR -- IS failure
30	K1610629-012		100416\0059.wiff	EPA 537.dam	1	x	
31	K1610629-013		100416\0060.wiff	EPA 537.dam	1	x	
32	K1610629-014		100416\0061.wiff	EPA 537.dam	1	x	
33	K1610629-015		100416\0062.wiff	EPA 537.dam	1		NR -- IS failure
34	K1610629-016		100416\0063.wiff	EPA 537.dam	1	x	
35	537 CCV 20-180ppb	16-OLC-01-10E	100416\0064.wiff	EPA 537.dam	1	x	
36	537 IB	16-OLC-01-10I	100416\0065.wiff	EPA 537.dam	1	x	

Date: 10/04/16 0043 to 0191

By: JMS/cfs

10/17/16



ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

517606, 517608,
517609, 517610,
517611, 517612

2nd Review: _____

Injection Log
LCMS02 - API 5000

LIMS ID: _____

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases **A:** 5mM Ammonium Acetate in H2O (15-OLC-01-99A) **B:** 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder: Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments
37	K16010632-001		100416\0066.wiff EPA 537.dam	1	x	
38	KQ1611137-01	K1610632-001 MS	100416\0067.wiff EPA 537.dam	1		NR -- IS failure
39	KQ1611137-02	K1610632-001 DMS	100416\0068.wiff EPA 537.dam	1	x	
40	537 CCV 10-90ppb	16-OLC-01-10D	100416\0069.wiff EPA 537.dam	1	x	
41	IB	16-OLC-01-10I	100416\0070.wiff EPA 537.dam	1	x	
42	537 CCV 2.5-22.5ppb	16-OLC-01-10B	100416\0071.wiff EPA 537.dam	1	x	LIMS 517608
43	KQ1611198-04	MB	100416\0072.wiff EPA 537.dam	1		NR -- IS failure
44	KQ1611198-03	LCS	100416\0073.wiff EPA 537.dam	1	x	Re-extract batch -- LCS failure
45	K1610630-001		100416\0074.wiff EPA 537.dam	1	x	Re-extract
46	K1610630-002		100416\0075.wiff EPA 537.dam	1		NR -- IS failure
47	K1610630-003		100416\0076.wiff EPA 537.dam	1	x	FRB -- narrate
48	K1610630-004		100416\0077.wiff EPA 537.dam	1	x	FRB -- narrate
49	K1610630-005		100416\0078.wiff EPA 537.dam	1		NR -- IS failure
50	K1610630-006		100416\0079.wiff EPA 537.dam	1	x	Re-extract
51	K1610630-007		100416\0080.wiff EPA 537.dam	1	x	FRB -- narrate
52	K1610630-008		100416\0081.wiff EPA 537.dam	1		NR -- IS failure
53	K1610630-009		100416\0082.wiff EPA 537.dam	1	x	Re-extract
54	K1610630-010		100416\0083.wiff EPA 537.dam	1		NR -- IS failure
55	537 CCV 10-90ppb	16-OLC-01-10D	100416\0084.wiff EPA 537.dam	1	x	
56	IB	16-OLC-01-10I	100416\0085.wiff EPA 537.dam	1	x	
57	K1610630-011		100416\0086.wiff EPA 537.dam	1	x	FRB -- narrate
58	K1610630-012		100416\0087.wiff EPA 537.dam	1	x	Re-extract
59	K1610630-013		100416\0088.wiff EPA 537.dam	1	x	FRB -- narrate
60	K1610630-014		100416\0089.wiff EPA 537.dam	1		NR -- IS failure
61	K1610630-015		100416\0090.wiff EPA 537.dam	1	x	Re-extract
62	K1610630-016		100416\0091.wiff EPA 537.dam	1		NR -- IS failure
63	K1610762-001		100416\0092.wiff EPA 537.dam	1	x	need resp from client (re-ext or cancel)
64	K1610798-001		100416\0093.wiff EPA 537.dam	1	x	Cancel -- resample
65	KQ1611198-05	K1610798-001 MS	100416\0094.wiff EPA 537.dam	1	x	Cancel -- resample
66	KQ1611198-06	K1610798-001 DMS	100416\0095.wiff EPA 537.dam	1	x	Cancel -- resample
67	537 CCV 20-180ppb	16-OLC-01-10E	100416\0096.wiff EPA 537.dam	1	x	
68	537 IB	16-OLC-01-10I	100416\0097.wiff EPA 537.dam	1	x	
69	537 CCV 2.5-22.5ppb	16-OLC-01-10B	100416\0098.wiff EPA 537.dam	1	x	LIMS 517609
70	KQ1611540-04	MB	100416\0099.wiff EPA 537.dam	1	x	
71	KQ1611540-03	LCS	100416\0100.wiff EPA 537.dam	1	x	
72	K1610937-001		100416\0101.wiff EPA 537.dam	1	x	
73	K1610937-002		100416\0102.wiff EPA 537.dam	1	x	
74	K1610937-003		100416\0103.wiff EPA 537.dam	1	x	

Date: 10/04/16 0043 to 0191

By: JMS/cfs

10/17/16



ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

517606, 517608,
517609, 517610,
517611, 517612

2nd Review: _____

Injection Log LCMS02 - API 5000

LIMS ID: _____

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases

A: 5mM Ammonium Acetate in H2O (15-OLC-01-99A)

B: 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder: Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments
75	K1610937-004	100416\0104.wiff	EPA 537.dam	1	x	
76	K1610937-005	100416\0105.wiff	EPA 537.dam	1	x	
77	K1610937-006	100416\0106.wiff	EPA 537.dam	1	x	
78	537 CCV 10-90ppb	16-OLC-01-10D	100416\0107.wiff	EPA 537.dam	1	x
79	IB	16-OLC-01-10I	100416\0108.wiff	EPA 537.dam	1	x
80	K1610937-007	100416\0109.wiff	EPA 537.dam	1	x	
81	K1610937-008	100416\0110.wiff	EPA 537.dam	1	x	
82	K1610937-009	100416\0111.wiff	EPA 537.dam	1	x	
83	K1610937-010	100416\0112.wiff	EPA 537.dam	1	x	
84	K1610937-011	100416\0113.wiff	EPA 537.dam	1	x	
85	KQ1611540-01	K1610937-011 MS	100416\0114.wiff	EPA 537.dam	1	x
86	KQ1611540-02	K1610937-011 DMS	100416\0115.wiff	EPA 537.dam	1	x
87	K1610937-012	100416\0116.wiff	EPA 537.dam	1	x	
88	537 CCV 20-180ppb	16-OLC-01-10E	100416\0117.wiff	EPA 537.dam	1	x
89	537 IB	16-OLC-01-10I	100416\0118.wiff	EPA 537.dam	1	x
90	K1610937-013	100416\0119.wiff	EPA 537.dam	1	x	
91	K1610937-014	100416\0120.wiff	EPA 537.dam	1	x	
92	K1610937-015	100416\0121.wiff	EPA 537.dam	1	x	
93	K1610937-016	100416\0122.wiff	EPA 537.dam	1	x	
94	K1610937-017	100416\0123.wiff	EPA 537.dam	1	x	
95	K1610937-018	100416\0124.wiff	EPA 537.dam	1	x	
96	K1610937-019	100416\0125.wiff	EPA 537.dam	1	x	
97	K1610937-020	100416\0126.wiff	EPA 537.dam	1	x	
98	537 CCV 10-90ppb	16-OLC-01-10D	100416\0127.wiff	EPA 537.dam	1	x
99	IB	16-OLC-01-10I	100416\0128.wiff	EPA 537.dam	1	x
100	537 IB	16-OLC-01-10I	100416\0129.wiff	EPA 537.dam	1	x
101	537 CCV 2.5-22.5ppb	16-OLC-01-10B	100416\0130.wiff	EPA 537.dam	1	x LIMS 517610
102	KQ1611137-04	MB	100416\0131.wiff	EPA 537.dam	1	x
103	KQ1611198-04	MB	100416\0132.wiff	EPA 537.dam	1	x Re-extract
104	KQ1611198-03	LCS	100416\0133.wiff	EPA 537.dam	1	x Re-extract
105	KQ1611137-01	K1610632-001 MS	100416\0134.wiff	EPA 537.dam	1	x
106	537 CCV 10-90ppb	16-OLC-01-10D	100416\0135.wiff	EPA 537.dam	1	x
107	IB	16-OLC-01-10I	100416\0136.wiff	EPA 537.dam	1	x
108	K1610629-004	100416\0137.wiff	EPA 537.dam	1	x	
109	K1610629-005	100416\0138.wiff	EPA 537.dam	1	x	
110	K1610629-009	100416\0139.wiff	EPA 537.dam	1	x	
111	K1610629-011	100416\0140.wiff	EPA 537.dam	1	x	
112	K1610630-002	100416\0141.wiff	EPA 537.dam	1	x	Re-extract
113	K1610630-005	100416\0142.wiff	EPA 537.dam	1	x	Re-extract

Date: 10/04/16 0043 to 0191

By: JMS/cfs

Oct 10/17/16



ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

517606, 517608,
517609, 517610,
517611, 517612

2nd Review: _____

Injection Log LCMS02 - API 5000

LIMS ID: _____

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases A: 5mM Ammonium Acetate in H2O (15-OLC-01-99A) B: 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder: Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments
114	K1610630-008	1004160143.wiff	EPA 537.dam	1	x	FRB -- narrate
115	K1610630-010	1004160144.wiff	EPA 537.dam	1	x	FRB -- narrate
116	K1610630-014	1004160145.wiff	EPA 537.dam	1	x	FRB -- narrate
117	K1610937-005	1004160146.wiff	EPA 537.dam	1	x	confirms orig
118	537 CCV 20-180ppb	16-OLC-01-10E	1004160147.wiff	EPA 537.dam	1	x
119	537 IB	16-OLC-01-10I	1004160148.wiff	EPA 537.dam	1	x
120	537 CCV 2.5-22.5ppb	16-OLC-01-10B	1004160149.wiff	EPA 537.dam	1	x LIMS 517611
121	KQ1612321-04	MB	1004160150.wiff	EPA 537.dam	1	x
122	KQ1612321-03	LCS	1004160151.wiff	EPA 537.dam	1	x
123	K1611125-001		1004160152.wiff	EPA 537.dam	1	x
124	K1611125-002		1004160153.wiff	EPA 537.dam	1	x
125	K1611172-001		1004160154.wiff	EPA 537.dam	1	x
126	KQ1612321-01	K1611172-001 MS	1004160155.wiff	EPA 537.dam	1	NR -- IS failure
127	KQ1612321-02	K1611172-001 DMS	1004160156.wiff	EPA 537.dam	1	x
128	K1611172-002		1004160157.wiff	EPA 537.dam	1	x
129	K1611172-003		1004160158.wiff	EPA 537.dam	1	x
130	K1611172-004		1004160159.wiff	EPA 537.dam	1	x
131	537 CCV 20-180ppb	16-OLC-01-10E	1004160160.wiff	EPA 537.dam	1	x
132	537 IB	16-OLC-01-10I	1004160161.wiff	EPA 537.dam	1	x
133	K1611226-001		1004160162.wiff	EPA 537.dam	1	x
134	K1611226-002		1004160163.wiff	EPA 537.dam	1	x
135	K1611226-003		1004160164.wiff	EPA 537.dam	1	x
136	K1611226-004		1004160165.wiff	EPA 537.dam	1	x
137	K1611375-001		1004160166.wiff	EPA 537.dam	1	NR -- IS failure
138	K1611375-002		1004160167.wiff	EPA 537.dam	1	x
139	K1611375-003		1004160168.wiff	EPA 537.dam	1	x
140	K1611375-004		1004160169.wiff	EPA 537.dam	1	x
141	K1611375-005		1004160170.wiff	EPA 537.dam	1	x
142	537 CCV 10-90ppb	16-OLC-01-10D	1004160171.wiff	EPA 537.dam	1	x
143	IB	16-OLC-01-10I	1004160172.wiff	EPA 537.dam	1	x
144	K1611508-001		1004160173.wiff	EPA 537.dam	1	x
145	K1611508-002		1004160174.wiff	EPA 537.dam	1	x
146	K1611603-001		1004160175.wiff	EPA 537.dam	1	x
147	K1611603-002		1004160176.wiff	EPA 537.dam	1	x
148	K1611638-001		1004160177.wiff	EPA 537.dam	1	x
149	537 CCV 20-180ppb	16-OLC-01-10E	1004160178.wiff	EPA 537.dam	1	x
150	537 IB	16-OLC-01-10I	1004160179.wiff	EPA 537.dam	1	x
151	537 CCV 2.5-22.5ppb	16-OLC-01-10B	1004160180.wiff	EPA 537.dam	1	x LIMS 517612
152	537 IB	16-OLC-01-10I	1004160181.wiff	EPA 537.dam	1	x

Date: 10/04/16 0043 to 0191

By: JMS/cfs

10-10/7/16



Environmental

ICAL Date: 10/04/16

ICAL ID: KC1600169

Cal. Std .xp: 11/16/16

517606, 517608,

517609, 517610,

517611, 517612

2nd Review: _____

Injection Log
LCMS02 - API 5000

LIMS ID: _____

Column: Kinetex 2.6u XB-C18 100A 75x4.6mm s/n H16-225048

Mobile Phases

A: 5mM Ammonium Acetate in H2O (15-OLC-01-99A)

B: 5mM Ammonium Acetate in MeOH (15-OLC-01-99B)

Project Folder: Ewan's Projects\EPA 537

	Sample Name	File Name	Acquisition Method	Dilution	R	Comments
153	K1610798-001	100416\0182.wiff	EPA 537.dam	1	x	confirms orig
154	K1610629-015	100416\0183.wiff	EPA 537.dam	1	x	
155	K1610630-016	100416\0184.wiff	EPA 537.dam	1	x	
156	537 CCV 10-90ppb	16-OLC-01-10D	100416\0185.wiff	EPA 537.dam	1	x
157	IB	16-OLC-01-10I	100416\0186.wiff	EPA 537.dam	1	x
158	537 IB	16-OLC-01-10I	100416\0187.wiff	EPA 537.dam	1	x
159	KQ1612321-01	K1611172-001MS	100416\0188.wiff	EPA 537.dam	1	x
160	K1611375-001		100416\0189.wiff	EPA 537.dam	1	x
161	537 CCV 20-180ppb	16-OLC-01-10E	100416\0190.wiff	EPA 537.dam	1	x
162	537 IB	16-OLC-01-10I	100416\0191.wiff	EPA 537.dam	1	x

Preparation Information Benchsheet

ep Run#: 272269
 am: Organic LC/RHOLDEN
 Number of Copies to make: 7

Prep WorkFlow: OrgExtAq(14)
 Prep Method: Method

Status: Final Volume
 Prep Date/Time: 10/3/16 04:42 AM

Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
K1611125-001	PAC BEACH	.01	537/PerfAlkylAcids	NA	Water	270.0000mL	1.00mL	
K1611125-002	Field Blank	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611172-001	OLF BLDG 11	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611172-002	OLF BLDG 11-FB	.01	537/PerfAlkylAcids		Water	250.0000mL	1.00mL	
K1611172-003	OLF BLDG 2807	.01	537/PerfAlkylAcids		Water	280.0000mL	1.00mL	
K1611172-004	OLF BLDG 2807-FB	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611226-001	Zelatched Bldg 475	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611226-002	Zelatched Bldg 475-FB	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611226-003	Indian IS. BLDG 874	.01	537/PerfAlkylAcids		Water	260.0000mL	1.00mL	
K1611226-004	Indian IS. BLDG 874-FB	.01	537/PerfAlkylAcids		Water	260.0000mL	1.00mL	
K1611375-001	SEAFAC BLANK	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611375-002	SEAFAC 1	.01	537/PerfAlkylAcids		Water	250.0000mL	1.00mL	
K1611375-003	SEAFAC 2	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611375-004	SEAFAC 3	.01	537/PerfAlkylAcids		Water	250.0000mL	1.00mL	
K1611375-005	SEAFAC 4	.01	537/PerfAlkylAcids		Water	260.0000mL	1.00mL	
K1611508-001	Jim Creek	.01	537/PerfAlkylAcids		Water	270.0000mL	1.00mL	
K1611508-002	Field Blank	.01	537/PerfAlkylAcids		Water	280.0000mL	1.00mL	
K1611603-001	2176463003	.01	537/PerfAlkylAcids		Drinking Water	290.0000mL	1.00mL	
K1611603-002	2176463004	.01	537/PerfAlkylAcids		Drinking Water	280.0000mL	1.00mL	
K1611638-001	Meagan Larson filler	.01	537/PerfAlkylAcids		Water	250mL	1.00mL	
KQ1612321-01	K1611172-001 MS	.02	537/PerfAlkylAcids		Liquid	250mL	1.00mL	
KQ1612321-02	K1611172-001 DMS	.03	537/PerfAlkylAcids		Liquid	250mL	1.00mL	
KQ1612321-03	LCS	/	537/PerfAlkylAcids		Liquid	250mL	1.00mL	
KQ1612321-04	MB	/	537/PerfAlkylAcids		Liquid	250mL	1.00mL	

Preparation Information Benchsheet

ep Run#: 272269
 am: Organic LC/RHOLDEN
 iking Solutions

Prep WorkFlow: OrgExtAq(14)
 Prep Method: Method

Status: Final Volume
 Prep Date/Time: 10/3/16 04:42 AM

Name: 537 low spike Inventory ID 172606 Logbook Ref: 15-OLC-02-79A ✓ Expires On: 11/16/2016 ✓

K1611 5-001	5.00μL	KQ1612321-01	20.00μL	KQ1612321-02	20.00μL	KQ1612321-03	5.00μL		
-------------	-------------------	--------------	---------	--------------	---------	--------------	--------	--	--

Name: 537 surrogate Inventory ID 173937 Logbook Ref: 15-OLC-01-59G ✓ Expires On: 12/27/2016 ✓

K1611125-001	10.00μL	K1611125-002	10.00μL	K1611172-001	10.00μL	K1611172-002	10.00μL	K1611172-003	10.00μL	K1611172-004	10.00μL
K1611226-001	10.00μL	K1611226-002	10.00μL	K1611226-003	10.00μL	K1611226-004	10.00μL	K1611375-001	10.00μL	K1611375-002	10.00μL
K1611375-003	10.00μL	K1611375-004	10.00μL	K1611375-005	10.00μL	K1611508-001	10.00μL	K1611508-002	10.00μL	K1611603-001	10.00μL
K1611603-002	10.00μL	K1611638-001	10.00μL	KQ1612321-01	10.00μL	KQ1612321-02	10.00μL	KQ1612321-03	10.00μL	KQ1612321-04	10.00μL

Name: 537 internal standard Inventory ID 173938 Logbook Ref: 15-OLC-02-100A ✓ Expires On: 12/17/2016 ✓

K1611125-001	10.00μL	K1611125-002	10.00μL	K1611172-001	10.00μL	K1611172-002	10.00μL	K1611172-003	10.00μL	K1611172-004	10.00μL
K1611226-001	10.00μL	K1611226-002	10.00μL	K1611226-003	10.00μL	K1611226-004	10.00μL	K1611375-001	10.00μL	K1611375-002	10.00μL
K1611375-003	10.00μL	K1611375-004	10.00μL	K1611375-005	10.00μL	K1611508-001	10.00μL	K1611508-002	10.00μL	K1611603-001	10.00μL
K1611603-002	10.00μL	K1611638-001	10.00μL	KQ1612321-01	10.00μL	KQ1612321-02	10.00μL	KQ1612321-03	10.00μL	KQ1612321-04	10.00μL

Preparation Steps

Step: Extraction
 Started: 10/3/16 04:42
 Finished: 10/4/16 14:47
 By: BSINKLER
 Comments

Comments: _____

Reviewed By: _____ Date: OCT 07 2016

Chain of Custody

Relinquished By: <u>BSinkler</u>	Date: <u>10/4/16</u>	<u>Extracts Examined</u> Yes No
Received By: <u>[Signature]</u>	Date: <u>10/4/16</u>	

Preparation Information Benchsheet

p Run#: 272269
 m: Organic LC/RHOLDEN
 umber of Copies to make: 7

Prep WorkFlow: OrgExtAq(14)
 Prep Method: Method

Status: Draft
 Prep Date/Time: 10/3/16 04:42 AM

Lab Code	Client ID	B#	✓	Method / Test	Matrix	Amt. Ext. (ml)	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
K1611125-001	PAC BEACH	.01	✓	537 / PerfAlkylAcids	Water	270	NA	NA	1 ml	10 ul	NA
K1611125-002	Field Blank	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611172-001	OLF BLDG 11	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611172-002	OLF BLDG 11-FB	.01	✓	537 / PerfAlkylAcids	Water	250					
K1611172-003	OLF BLDG 2807	.01	✓	537 / PerfAlkylAcids	Water	280					
K1611172-004	OLF BLDG 2807-FB	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611226-001	Zelatched Bldg 475	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611226-002	Zelatched Bldg 475-FB	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611226-003	Indian IS. BLDG 874	.01	✓	537 / PerfAlkylAcids	Water	260					
K1611226-004	Indian IS. BLDG 874-FB	.01	✓	537 / PerfAlkylAcids	Water	260					
K1611375-001	SEAFAC BLANK	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611375-002	SEAFAC 1	.01	✓	537 / PerfAlkylAcids	Water	250					
K1611375-003	SEAFAC 2	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611375-004	SEAFAC 3	.01	✓	537 / PerfAlkylAcids	Water	250					
K1611375-005	SEAFAC 4	.01	✓	537 / PerfAlkylAcids	Water	260					
K1611508-001	Jim Creek	.01	✓	537 / PerfAlkylAcids	Water	270					
K1611508-002	Field Blank	.01	✓	537 / PerfAlkylAcids	Water	280					
K1611603-001	2176463003	.01	✓	537 / PerfAlkylAcids	Drinking Water	290					
K1611603-002	2176463004	.01	✓	537 / PerfAlkylAcids	Drinking Water	280					
K1611638-001	Meagan Larson filler	.01	✓	537 / PerfAlkylAcids	Water	250					
KQ1612321-01	K1611172-001 MS	.02	✓	537 / PerfAlkylAcids	Liquid	250					20 ul
KQ1612321-02	K1611172-001 DMS	.03	✓	537 / PerfAlkylAcids	Liquid	250					20 ul
KQ1612321-03	LCS		✓	537 / PerfAlkylAcids	Liquid	250					5 ul
KQ1612321-04	MB		✓	537 / PerfAlkylAcids	Liquid	250					NA

and Elut - 500mg, Lot# 6332578-01
 agent H₂O Lot# 56006
 dit Lot# 56140
 es: Lot# 116365/117217
 omments:

Surrogate ID: 15-0CC-02-596, 1ppm, XPI 12-27-16

Spike ID: 15-0CC-02-79A, 0.5=4.5ppm, XPI 11-16-16

Witnessed By: No Witness

Analyst: R Holden 10-3-16

Assisted By: BSinkler

Additional prep information for Perfluorinated Alkyl Acids in Drinking water
by LC/MS/MS – SOP: LCP-537

Service Request K161125, 117a, 122b, 1375, 1508 **Workgroup** KQ1617321

500mg 6mL BOND-ELUT-LMS SPE Cartridge Lot #: ^{1663, 1638} 6332578-01

MeOH Lot#: 56140

Reagent Water Lot#: 56006

Extraction (Manifold) Start (Time/Date/Initial): 10/3/16 BS

Extraction (Manifold) Stop (Time/Date/Initial): 10/3/16

TurboVap Start (Temp/Time/Date/Initial): 50, 1125, 10/4/16, BS

TurboVap End (Time/Date/Initial): 1400, 10/4/16, BS

96:4 Methanol/Water Lot#: 15-OLC-01-88L

IS solution Lot #: 15-OLC-02-100A, 10 uL x 12-17-16

Archive storage: "Aaaamazing!"

Extract Storage: top shelf

Completed (Time/Date/Initial): 1447 10/4/16 BS

Comments/Observations: _____

Bench Sheet Review Check List
Hold Times Met (if no, Reason: _____)
Prep date, dept, method, product code correct in LIMS
Spike Information correct
Weights/Volumes and units correct on raw and final bench sheets
Sample IDs have been checked—Bottle numbers appended if required
Names present for: Started by, Completed by, relinquished by, and witnessed by.
Extract Storage recorded
Additional Prep Sheet completely filled out (NA or line out Blanks)
All clean-ups have been noted on additional prep sheet
Signed service request with Form V, if applicable, has been attached