N60087_003892
BRUNSWICK_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE, 320-35682-1, NAS BRUNSWICK ME

02/22/2018

TESTAMERICA LABORATORIES INC

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 320-35682-1

Job Description: TT: PFAS, Brunswick, Discharge

For:
Tetra Tech, Inc.
Foster Plaza VII
661 Anderson Drive
Foster Plaza 7
Pittsburgh, PA 15220

Attention: Jeff Orient

Approved for release.
David R Alltucker
Project Manager I
2/22/2018 3:27 PM

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02/22/2018

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Qualifiers

LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
E	Result exceeded calibration range.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

Glossary

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

Job Narrative
320-35682-1

Receipt
The samples were received on 2/2/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9º C.

LCMS
Method(s) 537 (modified): The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Method(s) 537 (modified): The concentration of Perfluorooctanoic acid (PFOA) and Perfluorohexanesulfonic acid (PFHxS) associated with the following sample exceeded the instrument calibration range: TP-PFC-026-TPI (320-35682-1). These analytes have been qualified; however, the peaks did not saturate the instrument detector. The sample was also run at dilution to bring the analytes within the calibration range.

Method(s) 537 (modified): The following sample was diluted to bring the concentration of target analytes within the calibration range: TP-PFC-026-TPI (320-35682-1). Elevated reporting limits (RLs) are provided.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for 13C2-PFTeDA: TP-PFC-026-TPI (320-35682-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. This IDA compound was within limits in the undiluted analysis of this extract.

Method(s) 537 (modified): The results for Perfluorooctanoic acid (PFOA) did not match between these duplicate samples. The samples were re-extracted and the results matched better. Both sets of data are reported. TP-PFC-026-TPE (320-35682-3) and TP-PFC-026-TPE-D (320-35682-4)

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

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with 320-208463.

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

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Client Sample ID: TP-PFC-026-TPI — Lab Sample ID: 320-35682-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	69	M	1.9	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	190		1.9	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	340		1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	71		1.9	0.59	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1400	M E	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.6		1.9	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.81	J	1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	51		1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	370	E	1.9	0.37	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	7.0		1.9	0.36	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	340		3.8	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	69	D	19	5.7	ng/L	10		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	190	D	19	4.1	ng/L	10		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	340	D	19	4.5	ng/L	10		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	66	D	19	5.9	ng/L	10		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	1800	D M	19	5.2	ng/L	10		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	47	D	19	4.4	ng/L	10		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	410	D	19	3.7	ng/L	10		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS) - DL	8.8	J D	19	3.6	ng/L	10		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	330	D	38	11	ng/L	10		537 (modified)	Total/NA

Client Sample ID: TP-PFC-026-MID-CARBON — Lab Sample ID: 320-35682-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	120		1.9	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	180		1.9	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	85		1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		1.9	0.59	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	17	M	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	1.9	0.37	ng/L	1		537 (modified)	Total/NA

Client Sample ID: TP-PFC-026-TPE — Lab Sample ID: 320-35682-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	130		1.9	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	130		1.9	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	33		1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.71	J M	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.51	J	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.2	J	3.8	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA) - RE	130	M	1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - RE	130		1.7	0.37	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - RE	34		1.7	0.40	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.68	J	1.7	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - RE	0.54	J	1.7	0.39	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TP-PFC-026-TPE (Continued) Lab Sample ID: 320-35682-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS) - RE	0.37	J	1.7	0.32	ng/L	1		537 (modified)	Total/NA

Client Sample ID: TP-PFC-026-TPE-D Lab Sample ID: 320-35682-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	120	M	2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	130		2.0	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	33		2.0	0.47	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.82	J	2.0	0.60	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15	M	2.0	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.53	J	2.0	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA) - RE	130	M	1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - RE	130		1.7	0.37	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - RE	33		1.7	0.40	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.64	J M	1.7	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.66	J	1.7	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - RE	0.54	J	1.7	0.39	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TP-PFC-026-TPI

Lab Sample ID: 320-35682-1
Date Collected: 02/01/18 09:45
Matrix: Water
Date Received: 02/02/18 09:05

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**69**	**M**	1.9	0.57	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluoropentanoic acid (PFPeA)	**190**		1.9	0.41	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorohexanoic acid (PFHxA)	**340**		1.9	0.45	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluoroheptanoic acid (PFHpA)	**71**		1.9	0.59	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorooctanoic acid (PFOA)	**1400**	**M E**	1.9	0.52	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorononanoic acid (PFNA)	**2.6**		1.9	0.50	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorodecanoic acid (PFDA)	**0.81**	**J**	1.9	0.46	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	0.69	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	0.50	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	0.73	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	0.80	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorobutanesulfonic acid (PFBS)	**51**		1.9	0.44	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorohexanesulfonic acid (PFHxS)	**370**	**E**	1.9	0.37	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	**7.0**		1.9	0.36	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorooctanesulfonic acid (PFOS)	**340**		3.8	1.1	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	0.54	ng/L		02/06/18 08:50	02/07/18 14:59	1
Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	1.3	ng/L		02/06/18 08:50	02/07/18 14:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*112*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C4 PFBA	*120*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C2 PFHxA	*115*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C4 PFOA	*96*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C5 PFNA	*119*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C2 PFDA	*128*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C2 PFUnA	*118*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C2 PFDoA	*115*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
18O2 PFHxS	*116*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C4 PFOS	*116*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C2-PFTeDA	*134*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C4-PFHpA	*116*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C5 PFPeA	*124*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*
13C3-PFBS	*116*		*25 - 150*	*02/06/18 08:50*	*02/07/18 14:59*	*1*

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**69**	**D**	19	5.7	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluoropentanoic acid (PFPeA)	**190**	**D**	19	4.1	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorohexanoic acid (PFHxA)	**340**	**D**	19	4.5	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluoroheptanoic acid (PFHpA)	**66**	**D**	19	5.9	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorooctanoic acid (PFOA)	**1800**	**D M**	19	5.2	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorononanoic acid (PFNA)	14	U	19	5.0	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorodecanoic acid (PFDA)	9.6	U	19	4.6	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluoroundecanoic acid (PFUnA)	14	U	19	6.9	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorododecanoic acid (PFDoA)	14	U	19	5.0	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorotridecanoic Acid (PFTriA)	29	U	38	7.3	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorotetradecanoic acid (PFTeA)	29	U	38	8.0	ng/L		02/06/18 08:50	02/08/18 23:12	10

Client Sample ID: TP-PFC-026-TPI — Lab Sample ID: 320-35682-1

Date Collected: 02/01/18 09:45 — **Matrix: Water**
Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	**47**	**D**	19	4.4	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorohexanesulfonic acid (PFHxS)	**410**	**D**	19	3.7	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluoroheptanesulfonic Acid (PFHpS)	**8.8**	**J D**	19	3.6	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorooctanesulfonic acid (PFOS)	**330**	**D**	38	11	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorodecanesulfonic acid (PFDS)	14	U	19	5.4	ng/L		02/06/18 08:50	02/08/18 23:12	10
Perfluorooctane Sulfonamide (FOSA)	29	U	38	13	ng/L		02/06/18 08:50	02/08/18 23:12	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*86*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C4 PFBA	*102*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C2 PFHxA	*100*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C4 PFOA	*97*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C5 PFNA	*101*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C2 PFDA	*85*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C2 PFUnA	*74*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C2 PFDoA	*52*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
18O2 PFHxS	*97*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C4 PFOS	*93*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C2-PFTeDA	*8*	*Q*	*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C4-PFHpA	*103*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C5 PFPeA	*101*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*
13C3-PFBS	*101*		*25 - 150*	*02/06/18 08:50*	*02/08/18 23:12*	*10*

Client Sample ID: TP-PFC-026-MID-CARBON — Lab Sample ID: 320-35682-2

Date Collected: 02/01/18 09:50 — **Matrix: Water**
Date Received: 02/02/18 09:05

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**120**		1.9	0.57	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluoropentanoic acid (PFPeA)	**180**		1.9	0.41	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorohexanoic acid (PFHxA)	**85**		1.9	0.45	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluoroheptanoic acid (PFHpA)	**3.3**		1.9	0.59	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorooctanoic acid (PFOA)	**17**	**M**	1.9	0.52	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorononanoic acid (PFNA)	1.4	U	1.9	0.50	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorodecanoic acid (PFDA)	0.96	U	1.9	0.46	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	0.69	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	0.50	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	0.73	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	0.80	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorobutanesulfonic acid (PFBS)	**2.2**		1.9	0.44	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorohexanesulfonic acid (PFHxS)	**1.3**	**J**	1.9	0.37	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.96	U	1.9	0.36	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorooctanesulfonic acid (PFOS)	2.9	U M	3.8	1.1	ng/L		02/06/18 08:50	02/07/18 15:07	1
Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	0.54	ng/L		02/06/18 08:50	02/07/18 15:07	1

Client Sample ID: TP-PFC-026-MID-CARBON — Lab Sample ID: 320-35682-2

Date Collected: 02/01/18 09:50 **Matrix: Water**
Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	1.2	ng/L		02/06/18 08:50	02/07/18 15:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*97*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C4 PFBA	*109*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C2 PFHxA	*105*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C4 PFOA	*106*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C5 PFNA	*106*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C2 PFDA	*110*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C2 PFUnA	*104*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C2 PFDoA	*103*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
18O2 PFHxS	*99*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C4 PFOS	*98*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C2-PFTeDA	*111*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C4-PFHpA	*103*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C5 PFPeA	*99*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*
13C3-PFBS	*102*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:07*	*1*

Client Sample ID: TP-PFC-026-TPE — Lab Sample ID: 320-35682-3

Date Collected: 02/01/18 09:55 **Matrix: Water**
Date Received: 02/02/18 09:05

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**130**		1.9	0.57	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluoropentanoic acid (PFPeA)	**130**		1.9	0.41	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorohexanoic acid (PFHxA)	**33**		1.9	0.45	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluoroheptanoic acid (PFHpA)	1.4	U M	1.9	0.58	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorooctanoic acid (PFOA)	**0.71**	**J M**	1.9	0.52	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorononanoic acid (PFNA)	1.4	U	1.9	0.50	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorodecanoic acid (PFDA)	0.96	U	1.9	0.46	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	0.69	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	0.50	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	0.73	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	0.80	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorobutanesulfonic acid (PFBS)	**0.51**	**J**	1.9	0.44	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorohexanesulfonic acid (PFHxS)	0.96	U	1.9	0.36	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.96	U	1.9	0.35	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorooctanesulfonic acid (PFOS)	**1.2**	**J**	3.8	1.1	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	0.54	ng/L		02/06/18 08:50	02/07/18 15:15	1
Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	1.2	ng/L		02/06/18 08:50	02/07/18 15:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*94*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:15*	*1*
13C4 PFBA	*105*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:15*	*1*
13C2 PFHxA	*101*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:15*	*1*
13C4 PFOA	*97*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:15*	*1*
13C5 PFNA	*93*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:15*	*1*
13C2 PFDA	*103*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:15*	*1*

Client Sample ID: TP-PFC-026-TPE — Lab Sample ID: 320-35682-3

Date Collected: 02/01/18 09:55 — **Matrix: Water**
Date Received: 02/02/18 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	94		25 - 150	02/06/18 08:50	02/07/18 15:15	1
13C2 PFDoA	92		25 - 150	02/06/18 08:50	02/07/18 15:15	1
18O2 PFHxS	98		25 - 150	02/06/18 08:50	02/07/18 15:15	1
13C4 PFOS	96		25 - 150	02/06/18 08:50	02/07/18 15:15	1
13C2-PFTeDA	102		25 - 150	02/06/18 08:50	02/07/18 15:15	1
13C4-PFHpA	106		25 - 150	02/06/18 08:50	02/07/18 15:15	1
13C5 PFPeA	101		25 - 150	02/06/18 08:50	02/07/18 15:15	1
13C3-PFBS	102		25 - 150	02/06/18 08:50	02/07/18 15:15	1

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**130**	**M**	1.7	0.50	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluoropentanoic acid (PFPeA)	**130**		1.7	0.37	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorohexanoic acid (PFHxA)	**34**		1.7	0.40	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluoroheptanoic acid (PFHpA)	1.3	U M	1.7	0.52	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorooctanoic acid (PFOA)	**0.68**	**J**	1.7	0.46	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorononanoic acid (PFNA)	1.3	U	1.7	0.44	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorodecanoic acid (PFDA)	0.85	U	1.7	0.41	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluoroundecanoic acid (PFUnA)	1.3	U	1.7	0.61	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorododecanoic acid (PFDoA)	1.3	U	1.7	0.44	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorotridecanoic Acid (PFTriA)	2.6	U	3.4	0.65	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorotetradecanoic acid (PFTeA)	2.6	U	3.4	0.71	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorobutanesulfonic acid (PFBS)	**0.54**	**J**	1.7	0.39	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorohexanesulfonic acid (PFHxS)	**0.37**	**J**	1.7	0.32	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.85	U	1.7	0.31	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.4	0.94	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorodecanesulfonic acid (PFDS)	1.3	U	1.7	0.48	ng/L		02/14/18 19:07	02/16/18 16:35	1
Perfluorooctane Sulfonamide (FOSA)	2.6	U	3.4	1.1	ng/L		02/14/18 19:07	02/16/18 16:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	58		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C4 PFBA	59		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C2 PFHxA	60		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C4 PFOA	60		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C5 PFNA	58		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C2 PFDA	57		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C2 PFUnA	58		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C2 PFDoA	55		25 - 150	02/14/18 19:07	02/16/18 16:35	1
18O2 PFHxS	59		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C4 PFOS	56		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C2-PFTeDA	67		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C4-PFHpA	61		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C5 PFPeA	62		25 - 150	02/14/18 19:07	02/16/18 16:35	1
13C3-PFBS	58		25 - 150	02/14/18 19:07	02/16/18 16:35	1

Client Sample ID: TP-PFC-026-TPE-D

Date Collected: 02/01/18 00:00
Date Received: 02/02/18 09:05

Lab Sample ID: 320-35682-4

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**120**	**M**	2.0	0.58	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluoropentanoic acid (PFPeA)	**130**		2.0	0.43	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorohexanoic acid (PFHxA)	**33**		2.0	0.47	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluoroheptanoic acid (PFHpA)	**0.82**	**J**	2.0	0.60	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorooctanoic acid (PFOA)	**15**	**M**	2.0	0.54	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorononanoic acid (PFNA)	1.5	U	2.0	0.52	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorodecanoic acid (PFDA)	0.99	U	2.0	0.48	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	0.71	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	0.52	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	0.75	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	0.82	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorobutanesulfonic acid (PFBS)	**0.53**	**J**	2.0	0.46	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorohexanesulfonic acid (PFHxS)	0.99	U	2.0	0.38	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.99	U	2.0	0.37	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.1	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	0.56	ng/L		02/06/18 08:50	02/07/18 15:23	1
Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	1.3	ng/L		02/06/18 08:50	02/07/18 15:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*94*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C4 PFBA	*101*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C2 PFHxA	*102*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C4 PFOA	*100*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C5 PFNA	*101*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C2 PFDA	*107*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C2 PFUnA	*103*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C2 PFDoA	*101*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
18O2 PFHxS	*103*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C4 PFOS	*96*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C2-PFTeDA	*106*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C4-PFHpA	*100*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C5 PFPeA	*99*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*
13C3-PFBS	*96*		*25 - 150*	*02/06/18 08:50*	*02/07/18 15:23*	*1*

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**130**	**M**	1.7	0.50	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluoropentanoic acid (PFPeA)	**130**		1.7	0.37	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorohexanoic acid (PFHxA)	**33**		1.7	0.40	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluoroheptanoic acid (PFHpA)	**0.64**	**J M**	1.7	0.52	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorooctanoic acid (PFOA)	**0.66**	**J**	1.7	0.46	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorononanoic acid (PFNA)	1.3	U	1.7	0.44	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorodecanoic acid (PFDA)	0.85	U	1.7	0.41	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluoroundecanoic acid (PFUnA)	1.3	U	1.7	0.61	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorododecanoic acid (PFDoA)	1.3	U	1.7	0.44	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorotridecanoic Acid (PFTriA)	2.6	U	3.4	0.65	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorotetradecanoic acid (PFTeA)	2.6	U	3.4	0.71	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorobutanesulfonic acid (PFBS)	**0.54**	**J**	1.7	0.39	ng/L		02/14/18 19:07	02/16/18 16:43	1

Client Sample ID: TP-PFC-026-TPE-D **Lab Sample ID: 320-35682-4**
Date Collected: 02/01/18 00:00 **Matrix: Water**
Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	0.85	U	1.7	0.32	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.85	U	1.7	0.31	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U	3.4	0.94	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorodecanesulfonic acid (PFDS)	1.3	U	1.7	0.48	ng/L		02/14/18 19:07	02/16/18 16:43	1
Perfluorooctane Sulfonamide (FOSA)	2.6	U	3.4	1.1	ng/L		02/14/18 19:07	02/16/18 16:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*57*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C4 PFBA	*58*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C2 PFHxA	*60*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C4 PFOA	*59*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C5 PFNA	*59*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C2 PFDA	*59*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C2 PFUnA	*58*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C2 PFDoA	*54*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
18O2 PFHxS	*59*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C4 PFOS	*54*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C2-PFTeDA	*70*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C4-PFHpA	*62*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C5 PFPeA	*61*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*
13C3-PFBS	*59*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:43*	*1*

Default Detection Limits

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: 3535

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	2.0	0.46	ng/L	537 (modified)
Perfluorobutanoic acid (PFBA)	2.0	0.59	ng/L	537 (modified)
Perfluorodecanesulfonic acid (PFDS)	2.0	0.56	ng/L	537 (modified)
Perfluorodecanoic acid (PFDA)	2.0	0.48	ng/L	537 (modified)
Perfluorododecanoic acid (PFDoA)	2.0	0.52	ng/L	537 (modified)
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	0.37	ng/L	537 (modified)
Perfluoroheptanoic acid (PFHpA)	2.0	0.61	ng/L	537 (modified)
Perfluorohexanesulfonic acid (PFHxS)	2.0	0.38	ng/L	537 (modified)
Perfluorohexanoic acid (PFHxA)	2.0	0.47	ng/L	537 (modified)
Perfluorononanoic acid (PFNA)	2.0	0.52	ng/L	537 (modified)
Perfluorooctane Sulfonamide (FOSA)	4.0	1.3	ng/L	537 (modified)
Perfluorooctanesulfonic acid (PFOS)	4.0	1.1	ng/L	537 (modified)
Perfluorooctanoic acid (PFOA)	2.0	0.54	ng/L	537 (modified)
Perfluoropentanoic acid (PFPeA)	2.0	0.43	ng/L	537 (modified)
Perfluorotetradecanoic acid (PFTeA)	4.0	0.83	ng/L	537 (modified)
Perfluorotridecanoic Acid (PFTriA)	4.0	0.76	ng/L	537 (modified)
Perfluoroundecanoic acid (PFUnA)	2.0	0.72	ng/L	537 (modified)

Isotope Dilution Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
320-35682-1	TP-PFC-026-TPI	112	120	115	96	119	128	118	115
320-35682-1 - DL	TP-PFC-026-TPI	86	102	100	97	101	85	74	52
320-35682-2	TP-PFC-026-MID-CARBON	97	109	105	106	106	110	104	103
320-35682-3	TP-PFC-026-TPE	94	105	101	97	93	103	94	92
320-35682-3 - RE	TP-PFC-026-TPE	58	59	60	60	58	57	58	55
320-35682-4	TP-PFC-026-TPE-D	94	101	102	100	101	107	103	101
320-35682-4 - RE	TP-PFC-026-TPE-D	57	58	60	59	59	59	58	54
LCS 320-207074/2-A	Lab Control Sample	97	107 M	102	104	103	109	103	99
LCS 320-208463/2-A	Lab Control Sample	66	74 M	73	73	73	71	71	65
LCSD 320-207074/3-A	Lab Control Sample Dup	95	108	108	102	106	113	109	104
LCSD 320-208463/3-A	Lab Control Sample Dup	55	56 M	58	57	57	58	58	48
MB 320-207074/1-A	Method Blank	89	103 M	101	99	95	107	103	94
MB 320-208463/1-A	Method Blank	66	70 M	71	70	70	72	72	62

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFHxS (25-150)	PFOS (25-150)	PFTDA (25-150)	PFHpA (25-150)	PFPeA (25-150)	3C3-PFBS (25-150)		
320-35682-1	TP-PFC-026-TPI	116	116	134	116	124	116		
320-35682-1 - DL	TP-PFC-026-TPI	97	93	8 Q	103	101	101		
320-35682-2	TP-PFC-026-MID-CARBON	99	98	111	103	99	102		
320-35682-3	TP-PFC-026-TPE	98	96	102	106	101	102		
320-35682-3 - RE	TP-PFC-026-TPE	59	56	67	61	62	58		
320-35682-4	TP-PFC-026-TPE-D	103	96	106	100	99	96		
320-35682-4 - RE	TP-PFC-026-TPE-D	59	54	70	62	61	59		
LCS 320-207074/2-A	Lab Control Sample	106	103	113	104	101	106		
LCS 320-208463/2-A	Lab Control Sample	71	69	82	73	76	66		
LCSD 320-207074/3-A	Lab Control Sample Dup	103	103	111	106	103	97		
LCSD 320-208463/3-A	Lab Control Sample Dup	58	57	71	58	61	54		
MB 320-207074/1-A	Method Blank	100	96	108	101	96	96		
MB 320-208463/1-A	Method Blank	72	67	77	74	74	70		

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFTDA = 13C2-PFTeDA
PFHpA = 13C4-PFHpA
PFPeA = 13C5 PFPeA
13C3-PFBS = 13C3-PFBS

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-207074/1-A
Matrix: Water
Analysis Batch: 207472

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 207074

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.5	U	2.0	0.59	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluoropentanoic acid (PFPeA)	1.0	U	2.0	0.43	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorohexanoic acid (PFHxA)	1.0	U M	2.0	0.47	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	0.61	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorooctanoic acid (PFOA)	1.5	U	2.0	0.54	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorononanoic acid (PFNA)	1.5	U	2.0	0.52	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorodecanoic acid (PFDA)	1.0	U	2.0	0.48	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	0.72	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	0.52	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	0.76	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	0.83	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	0.46	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorohexanesulfonic acid (PFHxS)	1.0	U	2.0	0.38	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	0.37	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.1	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	0.56	ng/L		02/06/18 08:50	02/07/18 13:17	1
Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	1.3	ng/L		02/06/18 08:50	02/07/18 13:17	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*89*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C4 PFBA	*103*	*M*	*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C2 PFHxA	*101*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C4 PFOA	*99*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C5 PFNA	*95*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C2 PFDA	*107*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C2 PFUnA	*103*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C2 PFDoA	*94*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
18O2 PFHxS	*100*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C4 PFOS	*96*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C2-PFTeDA	*108*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C4-PFHpA	*101*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C5 PFPeA	*96*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*
13C3-PFBS	*96*		*25 - 150*	*02/06/18 08:50*	*02/07/18 13:17*	*1*

Lab Sample ID: LCS 320-207074/2-A
Matrix: Water
Analysis Batch: 207472

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 207074

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.3	M	ng/L		103	83 - 118
Perfluoropentanoic acid (PFPeA)	40.0	41.7		ng/L		104	83 - 108
Perfluorohexanoic acid (PFHxA)	40.0	39.4		ng/L		98	83 - 109
Perfluoroheptanoic acid (PFHpA)	40.0	40.1		ng/L		100	80 - 113
Perfluorooctanoic acid (PFOA)	40.0	40.3		ng/L		101	80 - 107
Perfluorononanoic acid (PFNA)	40.0	41.2		ng/L		103	83 - 113
Perfluorodecanoic acid (PFDA)	40.0	42.1		ng/L		105	85 - 113
Perfluoroundecanoic acid (PFUnA)	40.0	39.9		ng/L		100	76 - 105

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

Lab Sample ID: LCS 320-207074/2-A
Matrix: Water
Analysis Batch: 207472

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 207074

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorododecanoic acid (PFDoA)	40.0	41.8		ng/L		105	87 - 116
Perfluorotridecanoic Acid (PFTriA)	40.0	43.9		ng/L		110	75 - 129
Perfluorotetradecanoic acid (PFTeA)	40.0	42.5		ng/L		106	82 - 115
Perfluorobutanesulfonic acid (PFBS)	35.4	37.8		ng/L		107	87 - 120
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.9		ng/L		93	81 - 106
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.2		ng/L		108	80 - 117
Perfluorooctanesulfonic acid (PFOS)	37.1	37.6		ng/L		101	82 - 112
Perfluorodecanesulfonic acid (PFDS)	38.6	39.1		ng/L		101	81 - 114
Perfluorooctane Sulfonamide (FOSA)	40.0	40.1		ng/L		100	85 - 114

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*97*		*25 - 150*
13C4 PFBA	*107*	*M*	*25 - 150*
13C2 PFHxA	*102*		*25 - 150*
13C4 PFOA	*104*		*25 - 150*
13C5 PFNA	*103*		*25 - 150*
13C2 PFDA	*109*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C2 PFDoA	*99*		*25 - 150*
18O2 PFHxS	*106*		*25 - 150*
13C4 PFOS	*103*		*25 - 150*
13C2-PFTeDA	*113*		*25 - 150*
13C4-PFHpA	*104*		*25 - 150*
13C5 PFPeA	*101*		*25 - 150*
13C3-PFBS	*106*		*25 - 150*

Lab Sample ID: LCSD 320-207074/3-A
Matrix: Water
Analysis Batch: 207472

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 207074

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	40.5	M	ng/L		101	83 - 118	2	30
Perfluoropentanoic acid (PFPeA)	40.0	38.6		ng/L		96	83 - 108	8	30
Perfluorohexanoic acid (PFHxA)	40.0	39.0		ng/L		98	83 - 109	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.0		ng/L		103	80 - 113	2	30
Perfluorooctanoic acid (PFOA)	40.0	41.8		ng/L		104	80 - 107	4	30
Perfluorononanoic acid (PFNA)	40.0	40.1		ng/L		100	83 - 113	3	30
Perfluorodecanoic acid (PFDA)	40.0	40.1		ng/L		100	85 - 113	5	30
Perfluoroundecanoic acid (PFUnA)	40.0	37.7		ng/L		94	76 - 105	6	30
Perfluorododecanoic acid (PFDoA)	40.0	38.3		ng/L		96	87 - 116	9	30

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

Lab Sample ID: LCSD 320-207074/3-A
Matrix: Water
Analysis Batch: 207472

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 207074

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotridecanoic Acid (PFTriA)			40.0	40.9		ng/L		102	75 - 129	7	30
Perfluorotetradecanoic acid (PFTeA)			40.0	44.4		ng/L		111	82 - 115	5	30
Perfluorobutanesulfonic acid (PFBS)			35.4	40.7		ng/L		115	87 - 120	7	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.8		ng/L		98	81 - 106	5	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.1		ng/L		103	80 - 117	5	30
Perfluorooctanesulfonic acid (PFOS)			37.1	38.1		ng/L		103	82 - 112	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.1		ng/L		99	81 - 114	3	30
Perfluorooctane Sulfonamide (FOSA)			40.0	41.5		ng/L		104	85 - 114	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*95*		*25 - 150*
13C4 PFBA	*108*		*25 - 150*
13C2 PFHxA	*108*		*25 - 150*
13C4 PFOA	*102*		*25 - 150*
13C5 PFNA	*106*		*25 - 150*
13C2 PFDA	*113*		*25 - 150*
13C2 PFUnA	*109*		*25 - 150*
13C2 PFDoA	*104*		*25 - 150*
18O2 PFHxS	*103*		*25 - 150*
13C4 PFOS	*103*		*25 - 150*
13C2-PFTeDA	*111*		*25 - 150*
13C4-PFHpA	*106*		*25 - 150*
13C5 PFPeA	*103*		*25 - 150*
13C3-PFBS	*97*		*25 - 150*

Lab Sample ID: MB 320-208463/1-A
Matrix: Water
Analysis Batch: 208866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 208463

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.5	U	2.0	0.59	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluoropentanoic acid (PFPeA)	1.0	U M	2.0	0.43	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorohexanoic acid (PFHxA)	1.0	U M	2.0	0.47	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	0.61	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorooctanoic acid (PFOA)	1.5	U M	2.0	0.54	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorononanoic acid (PFNA)	1.5	U	2.0	0.52	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorodecanoic acid (PFDA)	1.0	U	2.0	0.48	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	0.72	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	0.52	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	0.76	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	0.83	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	0.46	ng/L		02/14/18 19:07	02/16/18 16:12	1

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

Lab Sample ID: MB 320-208463/1-A
Matrix: Water
Analysis Batch: 208866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 208463

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	1.0	U	2.0	0.38	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	0.37	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.1	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	0.56	ng/L		02/14/18 19:07	02/16/18 16:12	1
Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	1.3	ng/L		02/14/18 19:07	02/16/18 16:12	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*66*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C4 PFBA	*70*	*M*	*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C2 PFHxA	*71*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C4 PFOA	*70*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C5 PFNA	*70*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C2 PFDA	*72*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C2 PFUnA	*72*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C2 PFDoA	*62*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
18O2 PFHxS	*72*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C4 PFOS	*67*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C2-PFTeDA	*77*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C4-PFHpA	*74*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C5 PFPeA	*74*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*
13C3-PFBS	*70*		*25 - 150*	*02/14/18 19:07*	*02/16/18 16:12*	*1*

Lab Sample ID: LCS 320-208463/2-A
Matrix: Water
Analysis Batch: 208866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 208463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.2	M	ng/L		100	83 - 118
Perfluoropentanoic acid (PFPeA)	40.0	37.7	M	ng/L		94	83 - 108
Perfluorohexanoic acid (PFHxA)	40.0	38.5		ng/L		96	83 - 109
Perfluoroheptanoic acid (PFHpA)	40.0	38.4		ng/L		96	80 - 113
Perfluorooctanoic acid (PFOA)	40.0	39.7		ng/L		99	80 - 107
Perfluorononanoic acid (PFNA)	40.0	37.6		ng/L		94	83 - 113
Perfluorodecanoic acid (PFDA)	40.0	40.3		ng/L		101	85 - 113
Perfluoroundecanoic acid (PFUnA)	40.0	35.7		ng/L		89	76 - 105
Perfluorododecanoic acid (PFDoA)	40.0	41.2		ng/L		103	87 - 116
Perfluorotridecanoic Acid (PFTriA)	40.0	44.1		ng/L		110	75 - 129
Perfluorotetradecanoic acid (PFTeA)	40.0	41.3		ng/L		103	82 - 115
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0		ng/L		113	87 - 120
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9		ng/L		96	81 - 106
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	40.9		ng/L		107	80 - 117
Perfluorooctanesulfonic acid (PFOS)	37.1	37.8	M	ng/L		102	82 - 112

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

Lab Sample ID: LCS 320-208463/2-A
Matrix: Water
Analysis Batch: 208866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 208463

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluorodecanesulfonic acid (PFDS)			38.6	39.5		ng/L		102	81 - 114		
Perfluorooctane Sulfonamide (FOSA)			40.0	41.1		ng/L		103	85 - 114		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*66*		*25 - 150*
13C4 PFBA	*74*	*M*	*25 - 150*
13C2 PFHxA	*73*		*25 - 150*
13C4 PFOA	*73*		*25 - 150*
13C5 PFNA	*73*		*25 - 150*
13C2 PFDA	*71*		*25 - 150*
13C2 PFUnA	*71*		*25 - 150*
13C2 PFDoA	*65*		*25 - 150*
18O2 PFHxS	*71*		*25 - 150*
13C4 PFOS	*69*		*25 - 150*
13C2-PFTeDA	*82*		*25 - 150*
13C4-PFHpA	*73*		*25 - 150*
13C5 PFPeA	*76*		*25 - 150*
13C3-PFBS	*66*		*25 - 150*

Lab Sample ID: LCSD 320-208463/3-A
Matrix: Water
Analysis Batch: 208866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 208463

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	37.8	M	ng/L		95	83 - 118	6	30
Perfluoropentanoic acid (PFPeA)			40.0	35.2	M	ng/L		88	83 - 108	7	30
Perfluorohexanoic acid (PFHxA)			40.0	36.2		ng/L		90	83 - 109	6	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.3		ng/L		96	80 - 113	0	30
Perfluorooctanoic acid (PFOA)			40.0	37.8		ng/L		95	80 - 107	5	30
Perfluorononanoic acid (PFNA)			40.0	36.8		ng/L		92	83 - 113	2	30
Perfluorodecanoic acid (PFDA)			40.0	38.1		ng/L		95	85 - 113	6	30
Perfluoroundecanoic acid (PFUnA)			40.0	32.3		ng/L		81	76 - 105	10	30
Perfluorododecanoic acid (PFDoA)			40.0	41.3		ng/L		103	87 - 116	0	30
Perfluorotridecanoic Acid (PFTriA)			40.0	46.3		ng/L		116	75 - 129	5	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.3		ng/L		98	82 - 115	5	30
Perfluorobutanesulfonic acid (PFBS)			35.4	36.2		ng/L		102	87 - 120	10	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	32.6		ng/L		89	81 - 106	7	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	37.2		ng/L		98	80 - 117	9	30
Perfluorooctanesulfonic acid (PFOS)			37.1	34.4	M	ng/L		93	82 - 112	10	30
Perfluorodecanesulfonic acid (PFDS)			38.6	35.9		ng/L		93	81 - 114	10	30

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

Lab Sample ID: LCSD 320-208463/3-A
Matrix: Water
Analysis Batch: 208866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 208463

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctane Sulfonamide (FOSA)			40.0	37.2		ng/L		93	85 - 114	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*55*		*25 - 150*
13C4 PFBA	*56*	*M*	*25 - 150*
13C2 PFHxA	*58*		*25 - 150*
13C4 PFOA	*57*		*25 - 150*
13C5 PFNA	*57*		*25 - 150*
13C2 PFDA	*58*		*25 - 150*
13C2 PFUnA	*58*		*25 - 150*
13C2 PFDoA	*48*		*25 - 150*
18O2 PFHxS	*58*		*25 - 150*
13C4 PFOS	*57*		*25 - 150*
13C2-PFTeDA	*71*		*25 - 150*
13C4-PFHpA	*58*		*25 - 150*
13C5 PFPeA	*61*		*25 - 150*
13C3-PFBS	*54*		*25 - 150*

LCMS

Prep Batch: 207074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35682-1	TP-PFC-026-TPI	Total/NA	Water	3535	
320-35682-1 - DL	TP-PFC-026-TPI	Total/NA	Water	3535	
320-35682-2	TP-PFC-026-MID-CARBON	Total/NA	Water	3535	
320-35682-3	TP-PFC-026-TPE	Total/NA	Water	3535	
320-35682-4	TP-PFC-026-TPE-D	Total/NA	Water	3535	
MB 320-207074/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-207074/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-207074/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 207472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35682-1	TP-PFC-026-TPI	Total/NA	Water	537 (modified)	207074
320-35682-2	TP-PFC-026-MID-CARBON	Total/NA	Water	537 (modified)	207074
320-35682-3	TP-PFC-026-TPE	Total/NA	Water	537 (modified)	207074
320-35682-4	TP-PFC-026-TPE-D	Total/NA	Water	537 (modified)	207074
MB 320-207074/1-A	Method Blank	Total/NA	Water	537 (modified)	207074
LCS 320-207074/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	207074
LCSD 320-207074/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	207074

Analysis Batch: 207696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35682-1 - DL	TP-PFC-026-TPI	Total/NA	Water	537 (modified)	207074

Prep Batch: 208463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35682-3 - RE	TP-PFC-026-TPE	Total/NA	Water	3535	
320-35682-4 - RE	TP-PFC-026-TPE-D	Total/NA	Water	3535	
MB 320-208463/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-208463/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-208463/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 208866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35682-3 - RE	TP-PFC-026-TPE	Total/NA	Water	537 (modified)	208463
320-35682-4 - RE	TP-PFC-026-TPE-D	Total/NA	Water	537 (modified)	208463
MB 320-208463/1-A	Method Blank	Total/NA	Water	537 (modified)	208463
LCS 320-208463/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	208463
LCSD 320-208463/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	208463

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Client Sample ID: TP-PFC-026-TPI
Lab Sample ID: 320-35682-1
Date Collected: 02/01/18 09:45
Matrix: Water
Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			207074	02/06/18 08:50	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1	207472	02/07/18 14:59	JRB	TAL SAC
Total/NA	Prep	3535	DL		207074	02/06/18 08:50	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10	207696	02/08/18 23:12	JRB	TAL SAC

Client Sample ID: TP-PFC-026-MID-CARBON
Lab Sample ID: 320-35682-2
Date Collected: 02/01/18 09:50
Matrix: Water
Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			207074	02/06/18 08:50	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1	207472	02/07/18 15:07	JRB	TAL SAC

Client Sample ID: TP-PFC-026-TPE
Lab Sample ID: 320-35682-3
Date Collected: 02/01/18 09:55
Matrix: Water
Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			207074	02/06/18 08:50	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1	207472	02/07/18 15:15	JRB	TAL SAC
Total/NA	Prep	3535	RE		208463	02/14/18 19:07	JER	TAL SAC
Total/NA	Analysis	537 (modified)	RE	1	208866	02/16/18 16:35	JRB	TAL SAC

Client Sample ID: TP-PFC-026-TPE-D
Lab Sample ID: 320-35682-4
Date Collected: 02/01/18 00:00
Matrix: Water
Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			207074	02/06/18 08:50	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1	207472	02/07/18 15:23	JRB	TAL SAC
Total/NA	Prep	3535	RE		208463	02/14/18 19:07	JER	TAL SAC
Total/NA	Analysis	537 (modified)	RE	1	208866	02/16/18 16:43	JRB	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-35682-1
Project/Site: TT: PFAS, Brunswick, Discharge

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	4040	01-29-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic Acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctane Sulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic Acid (PFTriA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35682-1	TP-PFC-026-TPI	Water	02/01/18 09:45	02/02/18 09:05
320-35682-2	TP-PFC-026-MID-CARBON	Water	02/01/18 09:50	02/02/18 09:05
320-35682-3	TP-PFC-026-TPE	Water	02/01/18 09:55	02/02/18 09:05
320-35682-4	TP-PFC-026-TPE-D	Water	02/01/18 00:00	02/02/18 09:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 206706

Lab Sample ID: IC 320-206706/2 Client Sample ID:

Date Analyzed: 02/01/18 21:14 Lab File ID: 2018.02.01LLICAL_002.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanoic acid (PFHxA)	1.95	Baseline	hannigana	02/02/18 15:02
Perfluorooctanoic acid (PFOA)	2.63	Baseline	hannigana	02/02/18 15:02
Perfluorooctanesulfonic acid (PFOS)	3.00	Baseline	hannigana	02/02/18 15:02

Lab Sample ID: IC 320-206706/3 Client Sample ID:

Date Analyzed: 02/01/18 21:22 Lab File ID: 2018.02.01LLICAL_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.00	Baseline	hannigana	02/02/18 15:04

Lab Sample ID: IC 320-206706/8 Client Sample ID:

Date Analyzed: 02/01/18 22:01 Lab File ID: 2018.02.01LLICAL_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.98	Isomers	hannigana	02/02/18 15:08

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207314

Lab Sample ID: CCVL 320-207314/1 Client Sample ID:

Date Analyzed: 02/07/18 05:40 Lab File ID: 2018.02.07LLA_055.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoropentanoic acid (PFPeA)	1.67	Baseline	roycea	02/07/18 09:24
Perfluorooctanesulfonic acid (PFOS)	2.98	Isomers	roycea	02/07/18 09:24

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207472

Lab Sample ID: MB 320-207074/1-A Client Sample ID:

Date Analyzed: 02/07/18 13:17 Lab File ID: 2018.02.07LLAA_037.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA	1.42	Incomplete Integration	barnettj	02/08/18 14:14
Perfluorohexanoic acid (PFHxA)	1.95	Baseline	barnettj	02/08/18 14:14

Lab Sample ID: LCS 320-207074/2-A Client Sample ID:

Date Analyzed: 02/07/18 13:25 Lab File ID: 2018.02.07LLAA_038.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA	1.42	Incomplete Integration	barnettj	02/08/18 14:15
Perfluorobutanoic acid (PFBA)	1.42	Incomplete Integration	barnettj	02/08/18 14:16

Lab Sample ID: LCSD 320-207074/3-A Client Sample ID:

Date Analyzed: 02/07/18 13:33 Lab File ID: 2018.02.07LLAA_039.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.43	Incomplete Integration	barnettj	02/08/18 14:17

Lab Sample ID: 320-35682-1 Client Sample ID: TP-PFC-026-TPI

Date Analyzed: 02/07/18 14:59 Lab File ID: 2018.02.07LLAA_050.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.42	Baseline	barnettj	02/08/18 14:11
Perfluorooctanoic acid (PFOA)	2.63	Isomers	barnettj	02/08/18 14:11

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207472

Lab Sample ID: 320-35682-2 Client Sample ID: TP-PFC-026-MID-CARBON

Date Analyzed: 02/07/18 15:07 Lab File ID: 2018.02.07LLAA_051.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.64	Isomers	barnettj	02/12/18 14:58
Perfluorooctanesulfonic acid (PFOS)	2.87	Baseline	barnettj	02/08/18 16:34

Lab Sample ID: 320-35682-3 Client Sample ID: TP-PFC-026-TPE

Date Analyzed: 02/07/18 15:15 Lab File ID: 2018.02.07LLAA_052.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	2.23	Baseline	barnettj	02/08/18 16:36
Perfluorooctanoic acid (PFOA)	2.55	Isomers	barnettj	02/12/18 14:58

Lab Sample ID: 320-35682-4 Client Sample ID: TP-PFC-026-TPE-D

Date Analyzed: 02/07/18 15:23 Lab File ID: 2018.02.07LLAA_053.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.42	Incomplete Integration	barnettj	02/08/18 16:38
Perfluorooctanoic acid (PFOA)	2.63	Isomers	barnettj	02/08/18 16:38

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207668

Lab Sample ID: CCVL 320-207668/1 Client Sample ID:

Date Analyzed: 02/08/18 16:40 Lab File ID: 2018.02.08LLAA_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.42	Incomplete Integration	roycea	02/08/18 18:37
Perfluoropentanoic acid (PFPeA)	1.67	Baseline	roycea	02/08/18 18:37

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207696

Lab Sample ID: CCV 320-207696/1 Client Sample ID:

Date Analyzed: 02/08/18 23:04 Lab File ID: 2018.02.08LLAAX_054.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.99	Isomers	barnettj	02/09/18 16:06

Lab Sample ID: 320-35682-1 DL Client Sample ID: TP-PFC-026-TPI DL

Date Analyzed: 02/08/18 23:12 Lab File ID: 2018.02.08LLAAX_055.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.62	Isomers	barnettj	02/09/18 16:07

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 208660

Lab Sample ID: IC 320-208660/2 Client Sample ID:

Date Analyzed: 02/15/18 14:00 Lab File ID: 2018.02.15LLICAL_002.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.40	Incomplete Integration	roycea	02/15/18 15:21
Perfluoropentanoic acid (PFPeA)	1.64	Baseline	roycea	02/15/18 15:21
Perfluorohexanoic acid (PFHxA)	1.92	Baseline	roycea	02/15/18 15:21
Perfluorooctanoic acid (PFOA)	2.60	Baseline	roycea	02/15/18 15:20
Perfluorononanoic acid (PFNA)	2.97	Baseline	roycea	02/15/18 15:22
Perfluorooctanesulfonic acid (PFOS)	2.97	Baseline	roycea	02/15/18 15:20
Perfluorodecanoic acid (PFDA)	3.33	Baseline	roycea	02/15/18 15:23
Perfluorotetradecanoic acid (PFTeA)	4.44	Baseline	roycea	02/15/18 15:22
Perfluoro-n-octadecanoic acid (PFODA)	5.19	Baseline	roycea	02/15/18 15:26

Lab Sample ID: IC 320-208660/3 Client Sample ID:

Date Analyzed: 02/15/18 14:08 Lab File ID: 2018.02.15LLICAL_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoropentanoic acid (PFPeA)	1.65	Baseline	roycea	02/15/18 15:24
Perfluorohexanoic acid (PFHxA)	1.91	Baseline	roycea	02/15/18 15:25
Perfluorooctanoic acid (PFOA)	2.60	Baseline	roycea	02/15/18 15:24

Lab Sample ID: IC 320-208660/4 Client Sample ID:

Date Analyzed: 02/15/18 14:16 Lab File ID: 2018.02.15LLICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoropentanoic acid (PFPeA)	1.64	Baseline	roycea	02/15/18 15:27

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 208660

Lab Sample ID: IC 320-208660/6 Client Sample ID:

Date Analyzed: 02/15/18 14:58 Lab File ID: 2018.02.15LLICALA_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.99	Isomers	hannigana	02/15/18 15:50

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 208866

Lab Sample ID: CCV 320-208866/1 Client Sample ID:

Date Analyzed: 02/16/18 16:04 Lab File ID: 2018.02.16LLA_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.99	Isomers	barnettj	02/17/18 12:59

Lab Sample ID: MB 320-208463/1-A Client Sample ID:

Date Analyzed: 02/16/18 16:12 Lab File ID: 2018.02.16LLA_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA	1.41	Incomplete Integration	barnettj	02/17/18 13:02
Perfluoropentanoic acid (PFPeA)	1.64	Baseline	barnettj	02/17/18 13:02
Perfluorooctanoic acid (PFOA)	2.61	Baseline	barnettj	02/17/18 13:03
Perfluorohexanoic acid (PFHxA)		Invalid Compound ID	barnettj	02/17/18 13:02

Lab Sample ID: LCS 320-208463/2-A Client Sample ID:

Date Analyzed: 02/16/18 16:20 Lab File ID: 2018.02.16LLA_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA	1.40	Incomplete Integration	barnettj	02/17/18 13:04
Perfluorobutanoic acid (PFBA)	1.40	Incomplete Integration	barnettj	02/17/18 13:05
Perfluoropentanoic acid (PFPeA)	1.64	Baseline	barnettj	02/17/18 13:05
Perfluorooctanesulfonic acid (PFOS)	2.98	Incomplete Integration	roycea	02/17/18 09:52

537 (modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 208866

Lab Sample ID: LCSD 320-208463/3-A Client Sample ID:

Date Analyzed: 02/16/18 16:28 Lab File ID: 2018.02.16LLA_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA	1.40	Incomplete Integration	barnettj	02/17/18 13:07
Perfluorobutanoic acid (PFBA)	1.40	Incomplete Integration	barnettj	02/17/18 13:07
Perfluoropentanoic acid (PFPeA)	1.64	Baseline	barnettj	02/17/18 13:07
Perfluorooctanesulfonic acid (PFOS)	2.98	Incomplete Integration	roycea	02/17/18 09:53

Lab Sample ID: 320-35682-3 RE Client Sample ID: TP-PFC-026-TPE RE

Date Analyzed: 02/16/18 16:35 Lab File ID: 2018.02.16LLA_012.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.40	Incomplete Integration	barnettj	02/17/18 12:55
Perfluoroheptanoic acid (PFHpA)	2.19	Baseline	barnettj	02/17/18 12:56

Lab Sample ID: 320-35682-4 RE Client Sample ID: TP-PFC-026-TPE-D RE

Date Analyzed: 02/16/18 16:43 Lab File ID: 2018.02.16LLA_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.40	Incomplete Integration	barnettj	02/17/18 12:57
Perfluoroheptanoic acid (PFHpA)	2.20	Baseline	barnettj	02/17/18 12:58

Lab Sample ID: CCV 320-208866/7 Client Sample ID:

Date Analyzed: 02/16/18 16:51 Lab File ID: 2018.02.16LLA_014.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.99	Isomers	barnettj	02/17/18 12:59

537 (modified)

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LCMPFC_ALL_SU_00036	07/13/18	01/13/18	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
.LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
.LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
.LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
.LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
.LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
.LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
.LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
.LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
.LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
.LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
.LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
.LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
.LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
.LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
LCPFC-IS_00027	07/24/18	01/24/18	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
.LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
LCPFC-IS_00028	07/24/18	01/24/18	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
.LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
LCPFC_CCVL_00002	06/23/18	01/17/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00029	500 uL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFCSP_00129	100 uL	Perfluorobutanoic acid (PFBA)	0.05 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0442 ng/mL
							Perfluorodecanoic acid (PFDA)	0.05 ng/mL
							Perfluorododecanoic acid (PFDoA)	0.05 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	0.0482 ng/mL
							Perfluoroheptanoic acid (PFHpA)	0.05 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0476 ng/mL
							Perfluorohexanoic acid (PFHxA)	0.05 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.0455 ng/mL
							Perfluorononanoic acid (PFNA)	0.05 ng/mL
							Perfluorooctanoic acid (PFOA)	0.05 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0464 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	0.05 ng/mL
							Perfluoropentanoic acid (PFPeA)	0.05 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	0.05 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	0.05 ng/mL
							Perfluoroundecanoic acid (PFUnA)	0.05 ng/mL
.LCMPFC_ALL_SU_00029	06/28/18	12/28/17	Methanol, Lot Baker 141039	10000 uL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.958 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	1 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	1 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.93 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	1 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFCSP_00129	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00127	1 mL	Perfluorobutanoic acid (PFBA)	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid (PFDA)	0.1 ug/mL
							Perfluorododecanoic acid (PFDoA)	0.1 ug/mL
							Perfluorodecanesulfonic acid (PFDS)	0.0964 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0952 ug/mL
							Perfluorohexanoic acid (PFHxA)	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorononanoic acid (PFNA)	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide (FOSA)	0.1 ug/mL
							Perfluoropentanoic acid (PFPeA)	0.1 ug/mL
							Perfluorotetradecanoic acid (PFTeA)	0.1 ug/mL
							Perfluorotridecanoic Acid (PFTriA)	0.1 ug/mL
							Perfluoroundecanoic acid (PFUnA)	0.1 ug/mL
..LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
...LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
...LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
...LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
...LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
...LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
...LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
...LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
...LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
...LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
...LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
...LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL1_00003	06/23/18	01/02/18	MeOH/H2O, Lot 90285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00129	50 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.02335 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0237 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.02395 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.025 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.025 ng/mL
							Perfluorobutanoic acid (PFBA)	0.025 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0221 ng/mL
							Perfluorodecanoic acid (PFDA)	0.025 ng/mL
							Perfluorododecanoic acid (PFDoA)	0.025 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	0.0241 ng/mL
							Perfluoroheptanoic acid (PFHpA)	0.025 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0238 ng/mL
							Perfluorohexanoic acid (PFHxA)	0.025 ng/mL
							Perfluorohexadecanoic acid	0.025 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.02275 ng/mL
							Perfluorononanoic acid (PFNA)	0.025 ng/mL
							Perfluorooctanoic acid (PFOA)	0.025 ng/mL
							Perfluorooctadecanoic acid	0.025 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0232 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	0.025 ng/mL
							Perfluoropentanoic acid (PFPeA)	0.025 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	0.025 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	0.025 ng/mL
							Perfluoroundecanoic acid (PFUnA)	0.025 ng/mL
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00129	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00127	1 mL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.0958 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							Perfluorobutanoic acid (PFBA)	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid (PFDA)	0.1 ug/mL
							Perfluorododecanoic acid (PFDoA)	0.1 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorodecanesulfonic acid (PFDS)	0.0964 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0952 ug/mL
							Perfluorohexanoic acid (PFHxA)	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL
							Perfluorononanoic acid (PFNA)	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide (FOSA)	0.1 ug/mL
							Perfluoropentanoic acid (PFPeA)	0.1 ug/mL
							Perfluorotetradecanoic acid (PFTeA)	0.1 ug/mL
							Perfluorotridecanoic Acid (PFTriA)	0.1 ug/mL
							Perfluoroundecanoic acid (PFUnA)	0.1 ug/mL
..LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
...LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
...LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
...LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
...LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
...LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
...LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
...LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
...LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
...LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
...LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
...LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
...LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL2_00003	06/23/18	01/02/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00129	100 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0467 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0474 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.0479 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.05 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.05 ng/mL
							Perfluorobutanoic acid (PFBA)	0.05 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0442 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorodecanoic acid (PFDA)	0.05 ng/mL
							Perfluorododecanoic acid (PFDoA)	0.05 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	0.0482 ng/mL
							Perfluoroheptanoic acid (PFHpA)	0.05 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0476 ng/mL
							Perfluorohexanoic acid (PFHxA)	0.05 ng/mL
							Perfluorohexadecanoic acid	0.05 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.0455 ng/mL
							Perfluorononanoic acid (PFNA)	0.05 ng/mL
							Perfluorooctanoic acid (PFOA)	0.05 ng/mL
							Perfluorooctadecanoic acid	0.05 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0464 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	0.05 ng/mL
							Perfluoropentanoic acid (PFPeA)	0.05 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	0.05 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	0.05 ng/mL
							Perfluoroundecanoic acid (PFUnA)	0.05 ng/mL
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00129	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00127	1 mL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.0958 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							Perfluorobutanoic acid (PFBA)	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid (PFDA)	0.1 ug/mL
							Perfluorododecanoic acid (PFDoA)	0.1 ug/mL
							Perfluorodecanesulfonic acid (PFDS)	0.0964 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0952 ug/mL
							Perfluorohexanoic acid (PFHxA)	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorononanoic acid (PFNA)	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide (FOSA)	0.1 ug/mL
							Perfluoropentanoic acid (PFPeA)	0.1 ug/mL
							Perfluorotetradecanoic acid (PFTeA)	0.1 ug/mL
							Perfluorotridecanoic Acid (PFTriA)	0.1 ug/mL
							Perfluoroundecanoic acid (PFUnA)	0.1 ug/mL
..LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
...LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
...LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
...LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
...LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
...LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
...LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
...LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
...LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
...LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
...LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
...LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL3_00003	06/23/18	01/02/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00129	500 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.2335 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.237 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.2395 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.25 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.25 ng/mL
							Perfluorobutanoic acid (PFBA)	0.25 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.221 ng/mL
							Perfluorodecanoic acid (PFDA)	0.25 ng/mL
							Perfluorododecanoic acid (PFDoA)	0.25 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	0.241 ng/mL
							Perfluoroheptanoic acid (PFHpA)	0.25 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.238 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanoic acid (PFHxA)	0.25 ng/mL
							Perfluorohexadecanoic acid	0.25 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.2275 ng/mL
							Perfluorononanoic acid (PFNA)	0.25 ng/mL
							Perfluorooctanoic acid (PFOA)	0.25 ng/mL
							Perfluorooctadecanoic acid	0.25 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.232 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	0.25 ng/mL
							Perfluoropentanoic acid (PFPeA)	0.25 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	0.25 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	0.25 ng/mL
							Perfluoroundecanoic acid (PFUnA)	0.25 ng/mL
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00129	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00127	1 mL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.0958 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							Perfluorobutanoic acid (PFBA)	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid (PFDA)	0.1 ug/mL
							Perfluorododecanoic acid (PFDoA)	0.1 ug/mL
							Perfluorodecanesulfonic acid (PFDS)	0.0964 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.0952 ug/mL
							Perfluorohexanoic acid (PFHxA)	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL
							Perfluorononanoic acid (PFNA)	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide (FOSA)	0.1 ug/mL
							Perfluoropentanoic acid (PFPeA)	0.1 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorotetradecanoic acid (PFTeA)	0.1 ug/mL
							Perfluorotridecanoic Acid (PFTriA)	0.1 ug/mL
							Perfluoroundecanoic acid (PFUnA)	0.1 ug/mL
..LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
...LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
...LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
...LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
...LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
...LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
...LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
...LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
...LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
...LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
...LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
...LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
...LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
...LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL4_00003	06/23/18	01/02/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00127	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							Perfluorobutanoic acid (PFBA)	1 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.884 ng/mL
							Perfluorodecanoic acid (PFDA)	1 ng/mL
							Perfluorododecanoic acid (PFDoA)	1 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	0.964 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ng/mL
							Perfluorohexanoic acid (PFHxA)	1 ng/mL
							Perfluorohexadecanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.91 ng/mL
							Perfluorononanoic acid (PFNA)	1 ng/mL
							Perfluorooctanoic acid (PFOA)	1 ng/mL
							Perfluorooctadecanoic acid	1 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.928 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctane Sulfonamide (FOSA)	1 ng/mL
							Perfluoropentanoic acid (PFPeA)	1 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	1 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	1 ng/mL
							Perfluoroundecanoic acid (PFUnA)	1 ng/mL
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
..LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
..LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
..LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
..LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
..LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
..LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
..LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
..LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
..LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
..LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
..LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL5_00003	06/23/18	01/02/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00127	500 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	2.335 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	2.37 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	2.395 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	2.5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	2.5 ng/mL
							Perfluorobutanoic acid (PFBA)	2.5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	2.21 ng/mL
							Perfluorodecanoic acid (PFDA)	2.5 ng/mL
							Perfluorododecanoic acid (PFDoA)	2.5 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	2.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.5 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	2.38 ng/mL
							Perfluorohexanoic acid (PFHxA)	2.5 ng/mL
							Perfluorohexadecanoic acid	2.5 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	2.275 ng/mL
							Perfluorononanoic acid (PFNA)	2.5 ng/mL
							Perfluorooctanoic acid (PFOA)	2.5 ng/mL
							Perfluorooctadecanoic acid	2.5 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	2.32 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	2.5 ng/mL
							Perfluoropentanoic acid (PFPeA)	2.5 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorotetradecanoic acid (PFTeA)	2.5 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	2.5 ng/mL
							Perfluoroundecanoic acid (PFUnA)	2.5 ng/mL
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
..LC4:2FTS_00003	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00003	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
..LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
..LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
..LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
..LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
..LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
..LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
..LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
..LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
..LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
..LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL6_00004	06/23/18	01/02/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00127	1 mL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	4.67 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	4.74 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	4.79 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
							Perfluorobutanoic acid (PFBA)	5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	4.42 ng/mL
							Perfluorodecanoic acid (PFDA)	5 ng/mL
							Perfluorododecanoic acid (PFDoA)	5 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	4.82 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	4.76 ng/mL
							Perfluorohexanoic acid (PFHxA)	5 ng/mL
							Perfluorohexadecanoic acid	5 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	4.55 ng/mL
							Perfluorononanoic acid (PFNA)	5 ng/mL
							Perfluorooctanoic acid (PFOA)	5 ng/mL
							Perfluorooctadecanoic acid	5 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.64 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	5 ng/mL
							Perfluoropentanoic acid (PFPeA)	5 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorotridecanoic Acid (PFTriA)	5 ng/mL
							Perfluoroundecanoic acid (PFUnA)	5 ng/mL
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
..LC4:2FTS_00003	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00003	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00003	08/22/21		WELLINGTON, Lot 82FTS0816		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
..LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
..LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
..LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
..LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
..LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
..LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
..LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
..LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
..LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
..LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFC_LL7_00003	06/23/18	01/02/18	MeOH/H2O, Lot 090285	200 mL	LCMPFC_ALL_SU_00032	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFC-IS_00023	10 mL	13C2-PFOA	2.5 ng/mL
					LCPFCSP_00127	2 mL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	9.34 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	9.48 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	9.58 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	10 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	10 ng/mL
							Perfluorobutanoic acid (PFBA)	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	8.84 ng/mL
							Perfluorodecanoic acid (PFDA)	10 ng/mL
							Perfluorododecanoic acid (PFDoA)	10 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	9.64 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	9.52 ng/mL
							Perfluorohexanoic acid (PFHxA)	10 ng/mL
							Perfluorohexadecanoic acid	10 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	9.1 ng/mL
							Perfluorononanoic acid (PFNA)	10 ng/mL
							Perfluorooctanoic acid (PFOA)	10 ng/mL
							Perfluorooctadecanoic acid	10 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	9.28 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	10 ng/mL
							Perfluoropentanoic acid (PFPeA)	10 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	10 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	10 ng/mL
							Perfluoroundecanoic acid (PFUnA)	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFC_ALL_SU_00032	06/28/18	12/28/17	Methanol, Lot Baker 141039	200 mL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.0475 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.0479 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	0.05 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	0.05 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00017	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	0.05 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC-IS_00023	06/28/18	12/28/17	Methanol, Lot 090285	200 mL	LCM2PFOA_00008	200 uL	13C2-PFOA	0.05 ug/mL
..LCM2PFOA_00008	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00127	06/23/18	12/23/17	Methanol, Lot 090285	10000 uL	LC4:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC8:2FTS_00003	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSAA_00004	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSAA_00005	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCPFBA_00007	200 uL	Perfluorobutanoic acid (PFBA)	1 ug/mL
					LCPFBS_00008	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00008	200 uL	Perfluorodecanoic acid (PFDA)	1 ug/mL
					LCPFDoA_00008	200 uL	Perfluorododecanoic acid (PFDoA)	1 ug/mL
					LCPFDSA_00002	200 uL	Perfluorodecanesulfonic acid (PFDS)	0.964 ug/mL
					LCPFHpA_00008	200 uL	Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpSA_00003	200 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.952 ug/mL
					LCPFHxA_00007	200 uL	Perfluorohexanoic acid (PFHxA)	1 ug/mL
					LCPFHxDA_00009	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00004	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00009	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00009	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00009	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00004	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00010	200 uL	Perfluorooctane Sulfonamide (FOSA)	1 ug/mL
					LCPFPeA_00007	200 uL	Perfluoropentanoic acid (PFPeA)	1 ug/mL
					LCPFTeDA_00006	200 uL	Perfluorotetradecanoic acid (PFTeA)	1 ug/mL
					LCPFTrDA_00006	200 uL	Perfluorotridecanoic Acid (PFTriA)	1 ug/mL
					LCPFUdA_00007	200 uL	Perfluoroundecanoic acid (PFUnA)	1 ug/mL
..LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCN-MeFOSAA_00005	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
..LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00008	05/29/22	Wellington Laboratories, Lot PFDA0517			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
..LCPFDoA_00008	05/29/22	Wellington Laboratories, Lot PFDoA0517			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
..LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
..LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
..LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
..LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
..LCPFHxDA_00009	07/13/22	Wellington Laboratories, Lot PFHxDA0717			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
..LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
..LCPFOA_00009	09/27/22	Wellington Laboratories, Lot PFOA0917			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00009	07/13/22	Wellington Laboratories, Lot PFODA0717			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
..LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
..LCPFTeDA_00006	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
..LCPFTrDA_00006	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL
..LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFCIC_FULL_00009	06/28/18	01/02/18	MeOH/H2O, Lot 09285	200 mL	LCMPFC_ALL_SU_00029	0.5 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							M2-6:2FTS	2.375 ng/mL
							M2-8:2FTS	2.395 ng/mL
							13C2-PFHxDA	2.5 ng/mL
							13C2-PFTeDA	2.5 ng/mL
							13C4-PFHpA	2.5 ng/mL
							13C5 PFPeA	2.5 ng/mL
							13C8 FOSA	2.5 ng/mL
							13C4 PFBA	2.5 ng/mL
							13C3-PFBS	2.325 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFDoA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							18O2 PFHxS	2.365 ng/mL
							13C5 PFNA	2.5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C4 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
							13C2 PFUnA	2.5 ng/mL
					LCPFAC-24PAR_00001	250 uL	Perfluorobutanesulfonic acid (PFBS)	2.2125 ng/mL
							Perfluorobutanoic acid (PFBA)	2.5 ng/mL
							Perfluorodecanesulfonic acid (PFDS)	2.4125 ng/mL
							Perfluorodecanoic acid (PFDA)	2.5 ng/mL
							Perfluorododecanoic acid (PFDoA)	2.5 ng/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	2.375 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.5 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	2.28 ng/mL
							Perfluorohexanoic acid (PFHxA)	2.5 ng/mL
							Perfluorononanoic acid (PFNA)	2.5 ng/mL
							Perfluorooctane Sulfonamide (FOSA)	2.5 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	2.31375 ng/mL
							Perfluorooctanoic acid (PFOA)	2.5 ng/mL
							Perfluoropentanoic acid (PFPeA)	2.5 ng/mL
							Perfluorotetradecanoic acid (PFTeA)	2.5 ng/mL
							Perfluorotridecanoic Acid (PFTriA)	2.5 ng/mL
							Perfluoroundecanoic acid (PFUnA)	2.5 ng/mL
.LCMPFC_ALL_SU_00029	06/28/18	12/28/17	Methanol, Lot Baker 141039	10000 uL	LCd3-NMeFOSAA_00006	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00006	200 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00006	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00008	200 uL	M2-8:2FTS	0.958 ug/mL
					LCM2PFHxDA_00013	200 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00012	200 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00012	200 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00013	200 uL	13C5 PFPeA	1 ug/mL
					LCM8FOSA_00016	200 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00013	200 uL	13C4 PFBA	1 ug/mL
					LCMPFBS_00006	200 uL	13C3-PFBS	0.93 ug/mL
					LCMPFDA_00018	200 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00013	200 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00019	200 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00013	200 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00013	200 uL	13C5 PFNA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFOA_00017	200 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00025	200 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00014	200 uL	13C2 PFUnA	1 ug/mL
..LCd3-NMeFOSAA_00006	05/19/22	WELLINGTON, Lot d3NMeFOSAA0517			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00006	11/08/22	WELLINGTON, Lot d5NEtFOSAA1117			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00006	02/17/22	WELLINGTON, Lot M262FTS0217			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00008	07/05/22	WELLINGTON, Lot M282FTS0717			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCM2PFHxDA_00013	07/13/22	Wellington Laboratories, Lot M2PFHxDA0717			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00012	11/30/22	Wellington Laboratories, Lot M2PFTeDA1117			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00012	05/03/22	Wellington Laboratories, Lot M4PFHpA0517			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00013	07/20/22	Wellington Laboratories, Lot M5PFPeA0717			(Purchased Reagent)		13C5 PFPeA	50 ug/mL
..LCM8FOSA_00016	10/11/22	Wellington Laboratories, Lot M8FOSA1017I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00013	04/12/22	Wellington Laboratories, Lot MPFBA0417			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFBS_00006	05/24/22	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
..LCMPFDA_00018	07/13/22	Wellington Laboratories, Lot MPFDA0717			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00013	05/23/22	Wellington Laboratories, Lot MPFDoA0517			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00019	10/27/22	Wellington Laboratories, Lot MPFHxA1017			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00013	02/17/22	Wellington Laboratories, Lot MPFHxS0217			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00013	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00017	10/17/22	Wellington Laboratories, Lot MPFOA1017			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00025	10/17/22	Wellington Laboratories, Lot MPFOS1017			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00014	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFAC-24PAR_00001	09/15/22	Wellington Laboratories, Lot PFAC24PAR0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1.77 ug/mL
							Perfluorobutanoic acid (PFBA)	2 ug/mL
							Perfluorodecanesulfonic acid (PFDS)	1.93 ug/mL
							Perfluorodecanoic acid (PFDA)	2 ug/mL
							Perfluorododecanoic acid (PFDoA)	2 ug/mL
							Perfluoroheptanesulfonic Acid (PFHpS)	1.9 ug/mL
							Perfluoroheptanoic acid (PFHpA)	2 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	1.824 ug/mL
							Perfluorohexanoic acid (PFHxA)	2 ug/mL
							Perfluorononanoic acid (PFNA)	2 ug/mL
							Perfluorooctane Sulfonamide (FOSA)	2 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	1.851 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL
							Perfluoropentanoic acid (PFPeA)	2 ug/mL
							Perfluorotetradecanoic acid (PFTeA)	2 ug/mL
							Perfluorotridecanoic Acid (PFTriA)	2 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluoroundecanoic acid (PFUnA)	2 ug/mL
LCPFCSP_00118	03/29/18	10/02/17	Methanol, Lot 090285	250 mL	LC4:2FTS_00003	100 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.01868 ug/mL
					LC6:2FTS_00003	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.01896 ug/mL
					LC8:2FTS_00003	100 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.01916 ug/mL
					LCN-EtFOSA-M_00005	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.02 ug/mL
					LCN-EtFOSAA_00004	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.02 ug/mL
					LCN-MeFOSA-M_00004	100 uL	MeFOSA	0.02 ug/mL
					LCN-MeFOSAA_00004	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.02 ug/mL
					LCPFBA_00007	100 uL	Perfluorobutanoic acid (PFBA)	0.02 ug/mL
					LCPFBS_00008	100 uL	Perfluorobutane Sulfonate	0.01768 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.01768 ug/mL
					LCPFDA_00007	100 uL	Perfluorodecanoic acid (PFDA)	0.02 ug/mL
					LCPFDoA_00007	100 uL	Perfluorododecanoic acid (PFDoA)	0.02 ug/mL
					LCPFDSA_00002	100 uL	Perfluorodecanesulfonic acid (PFDS)	0.01928 ug/mL
					LCPFHpA_00008	100 uL	Perfluoroheptanoic acid (PFHpA)	0.02 ug/mL
					LCPFHpSA_00003	100 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.01904 ug/mL
					LCPFHxA_00007	100 uL	Perfluorohexanoic acid (PFHxA)	0.02 ug/mL
					LCPFHxDA_00008	100 uL	Perfluorohexadecanoic acid	0.02 ug/mL
					LCPFHxS-br_00004	100 uL	Perfluorohexane Sulfonate	0.0182 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.0182 ug/mL
					LCPFNA_00009	100 uL	Perfluorononanoic acid (PFNA)	0.02 ug/mL
					LCPFOA_00008	100 uL	Perfluorooctanoic acid (PFOA)	0.02 ug/mL
					LCPFODA_00008	100 uL	Perfluorooctadecanoic acid	0.02 ug/mL
					LCPFOS-br_00004	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.01856 ug/mL
					LCPFOSA_00010	100 uL	Perfluorooctane Sulfonamide (FOSA)	0.02 ug/mL
					LCPFPeA_00007	100 uL	Perfluoropentanoic acid (PFPeA)	0.02 ug/mL
					LCPFTeDA_00007	100 uL	Perfluorotetradecanoic acid (PFTeA)	0.02 ug/mL
					LCPFTrDA_00007	100 uL	Perfluorotridecanoic Acid (PFTriA)	0.02 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFUdA_00007	100 uL	Perfluoroundecanoic acid (PFUnA)	0.02 ug/mL
.LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
.LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
.LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
.LCN-EtFOSA-M_00005	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
.LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCN-MeFOSA-M_00004	05/24/21	WELLINGTON, Lot NMeFOSA0516M			(Purchased Reagent)		MeFOSA	50 ug/mL
.LCN-MeFOSAA_00004	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
.LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutane Sulfonate	44.2 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
.LCPFDA_00007	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
.LCPFDoA_00007	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
.LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
.LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
.LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
.LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
.LCPFHxDA_00008	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexane Sulfonate	45.5 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
.LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
.LCPFOA_00008	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA_00008	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
.LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
.LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
.LCPFTeDA_00007	09/30/21	Wellington Laboratories, Lot PFTeDA0916			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
.LCPFTrDA_00007	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL
LCPFCSP_00119	03/29/18	10/02/17	Methanol, Lot 090285	250 mL	LC4:2FTS_00003	100 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.01868 ug/mL
					LC6:2FTS_00003	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.01896 ug/mL
					LC8:2FTS_00003	100 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.01916 ug/mL
					LCN-EtFOSA-M_00005	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.02 ug/mL
					LCN-EtFOSAA_00004	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.02 ug/mL
					LCN-MeFOSA-M_00004	100 uL	MeFOSA	0.02 ug/mL
					LCN-MeFOSAA_00004	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.02 ug/mL
					LCPFBA_00007	100 uL	Perfluorobutanoic acid (PFBA)	0.02 ug/mL
					LCPFBS_00008	100 uL	Perfluorobutane Sulfonate	0.01768 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.01768 ug/mL
					LCPFDA_00007	100 uL	Perfluorodecanoic acid (PFDA)	0.02 ug/mL
					LCPFDoA_00007	100 uL	Perfluorododecanoic acid (PFDoA)	0.02 ug/mL
					LCPFDSA_00002	100 uL	Perfluorodecanesulfonic acid (PFDS)	0.01928 ug/mL
					LCPFHpA_00008	100 uL	Perfluoroheptanoic acid (PFHpA)	0.02 ug/mL
					LCPFHpSA_00003	100 uL	Perfluoroheptanesulfonic Acid (PFHpS)	0.01904 ug/mL
					LCPFHxA_00007	100 uL	Perfluorohexanoic acid (PFHxA)	0.02 ug/mL
					LCPFHxDA_00008	100 uL	Perfluorohexadecanoic acid	0.02 ug/mL
					LCPFHxS-br_00004	100 uL	Perfluorohexane Sulfonate	0.0182 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.0182 ug/mL
					LCPFNA_00009	100 uL	Perfluorononanoic acid (PFNA)	0.02 ug/mL
					LCPFOA_00008	100 uL	Perfluorooctanoic acid (PFOA)	0.02 ug/mL
					LCPFODA_00008	100 uL	Perfluorooctadecanoic acid	0.02 ug/mL
					LCPFOS-br_00004	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.01856 ug/mL
					LCPFOSA_00010	100 uL	Perfluorooctane Sulfonamide (FOSA)	0.02 ug/mL
					LCPFPeA_00007	100 uL	Perfluoropentanoic acid (PFPeA)	0.02 ug/mL
					LCPFTeDA_00007	100 uL	Perfluorotetradecanoic acid (PFTeA)	0.02 ug/mL
					LCPFTrDA_00007	100 uL	Perfluorotridecanoic Acid (PFTriA)	0.02 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFUdA_00007	100 uL	Perfluoroundecanoic acid (PFUnA)	0.02 ug/mL
.LC4:2FTS_00003	12/12/21	WELLINGTON, Lot 42FTS1216			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
.LC6:2FTS_00003	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
.LC8:2FTS_00003	08/22/21	WELLINGTON, Lot 82FTS0816			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
.LCN-EtFOSA-M_00005	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
.LCN-EtFOSAA_00004	09/30/21	WELLINGTON, Lot NEtFOSAA0916			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCN-MeFOSA-M_00004	05/24/21	WELLINGTON, Lot NMeFOSA0516M			(Purchased Reagent)		MeFOSA	50 ug/mL
.LCN-MeFOSAA_00004	10/12/21	WELLINGTON, Lot NMeFOSAA0916			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFBA_00007	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutanoic acid (PFBA)	50 ug/mL
.LCPFBS_00008	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutane Sulfonate	44.2 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
.LCPFDA_00007	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid (PFDA)	50 ug/mL
.LCPFDoA_00007	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid (PFDoA)	50 ug/mL
.LCPFDSA_00002	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecanesulfonic acid (PFDS)	48.2 ug/mL
.LCPFHpA_00008	12/02/21	Wellington Laboratories, Lot PFHpA1216			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
.LCPFHpSA_00003	09/01/22	Wellington Laboratories, Lot LPFHpS0817			(Purchased Reagent)		Perfluoroheptanesulfonic Acid (PFHpS)	47.6 ug/mL
.LCPFHxA_00007	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid (PFHxA)	50 ug/mL
.LCPFHxDA_00008	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00004	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexane Sulfonate	45.5 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
.LCPFNA_00009	07/20/22	Wellington Laboratories, Lot PFNA0717			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	50 ug/mL
.LCPFOA_00008	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA_00008	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00004	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
.LCPFOSA_00010	09/30/21	Wellington Laboratories, Lot FOSA0916I			(Purchased Reagent)		Perfluorooctane Sulfonamide (FOSA)	50 ug/mL
.LCPFPeA_00007	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid (PFPeA)	50 ug/mL
.LCPFTeDA_00007	09/30/21	Wellington Laboratories, Lot PFTeDA0916			(Purchased Reagent)		Perfluorotetradecanoic acid (PFTeA)	50 ug/mL
.LCPFTrDA_00007	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic Acid (PFTriA)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFUdA_00007	10/18/21	Wellington Laboratories, Lot PFUdA1016			(Purchased Reagent)		Perfluoroundecanoic acid (PFUnA)	50 ug/mL

Reagent

LC4:2FTS_00003

n: 7/12/17 SK

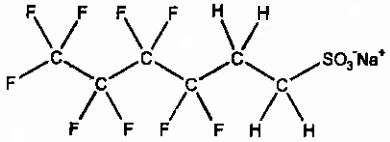
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 4:2FTS **LOT NUMBER:** 42FTS1216

COMPOUND: Sodium 1H,1H,2H,2H-perfluorohexane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_8H_4F_8SO_3Na$	**MOLECULAR WEIGHT:**	350.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	46.7 ± 2.3 µg/ml (4:2FTS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	12/12/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/21/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

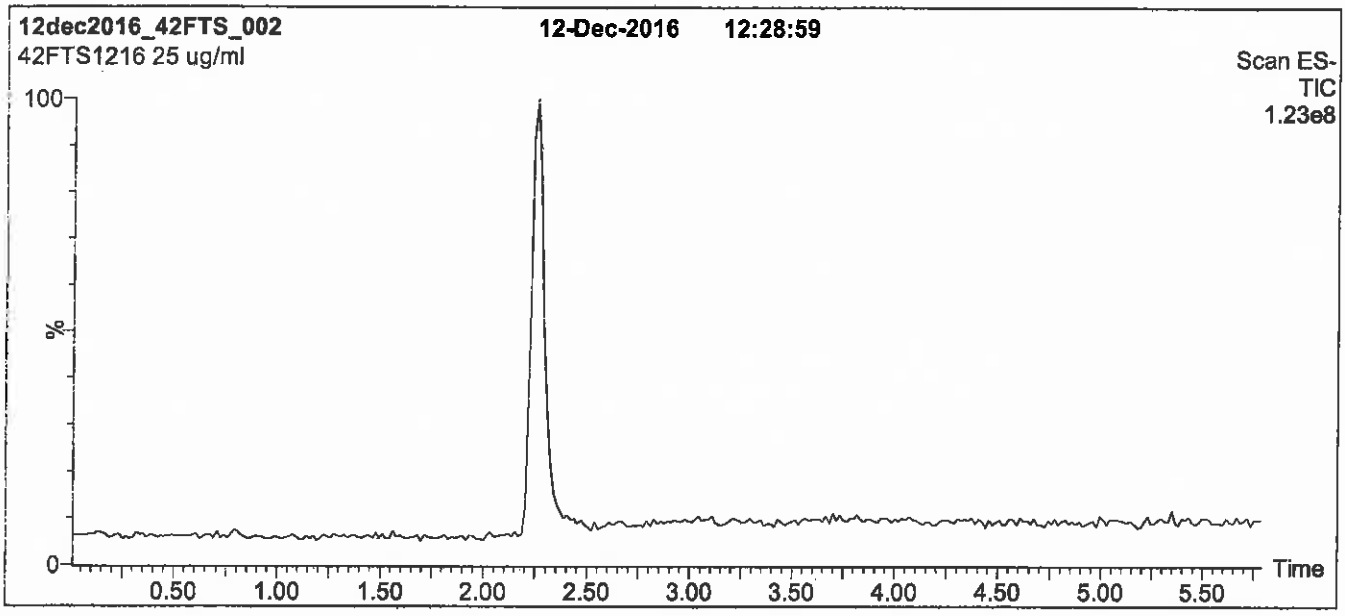
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

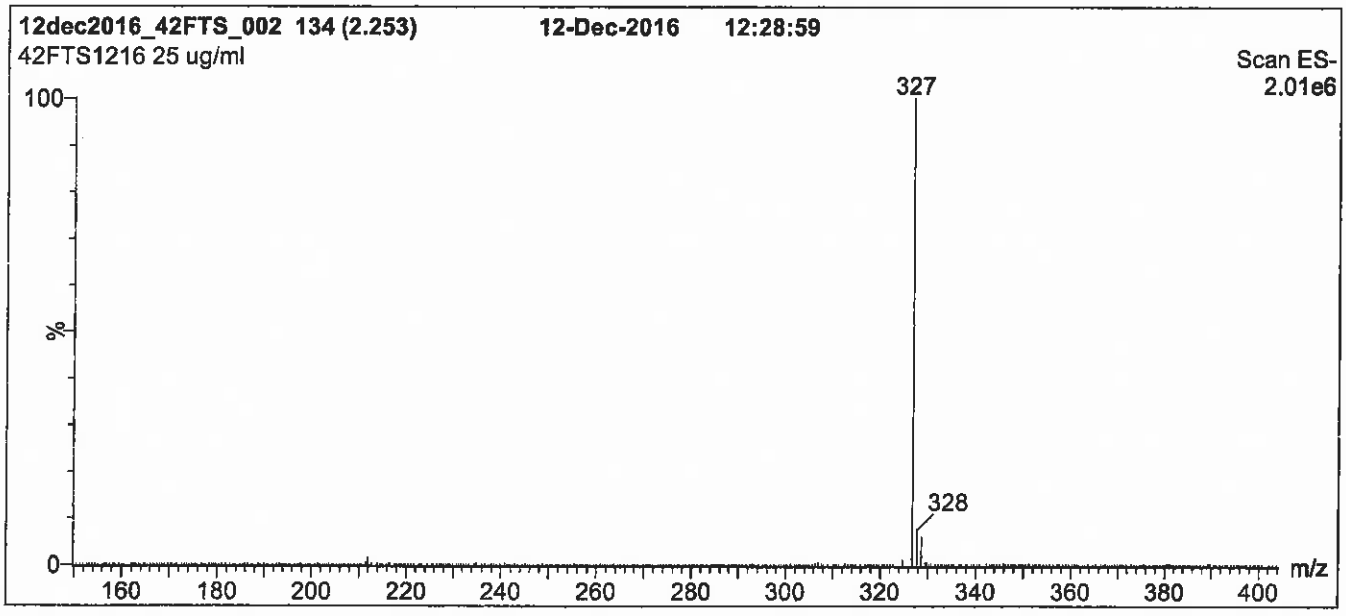
CALA

ANAB ACCREDITED

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **4:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

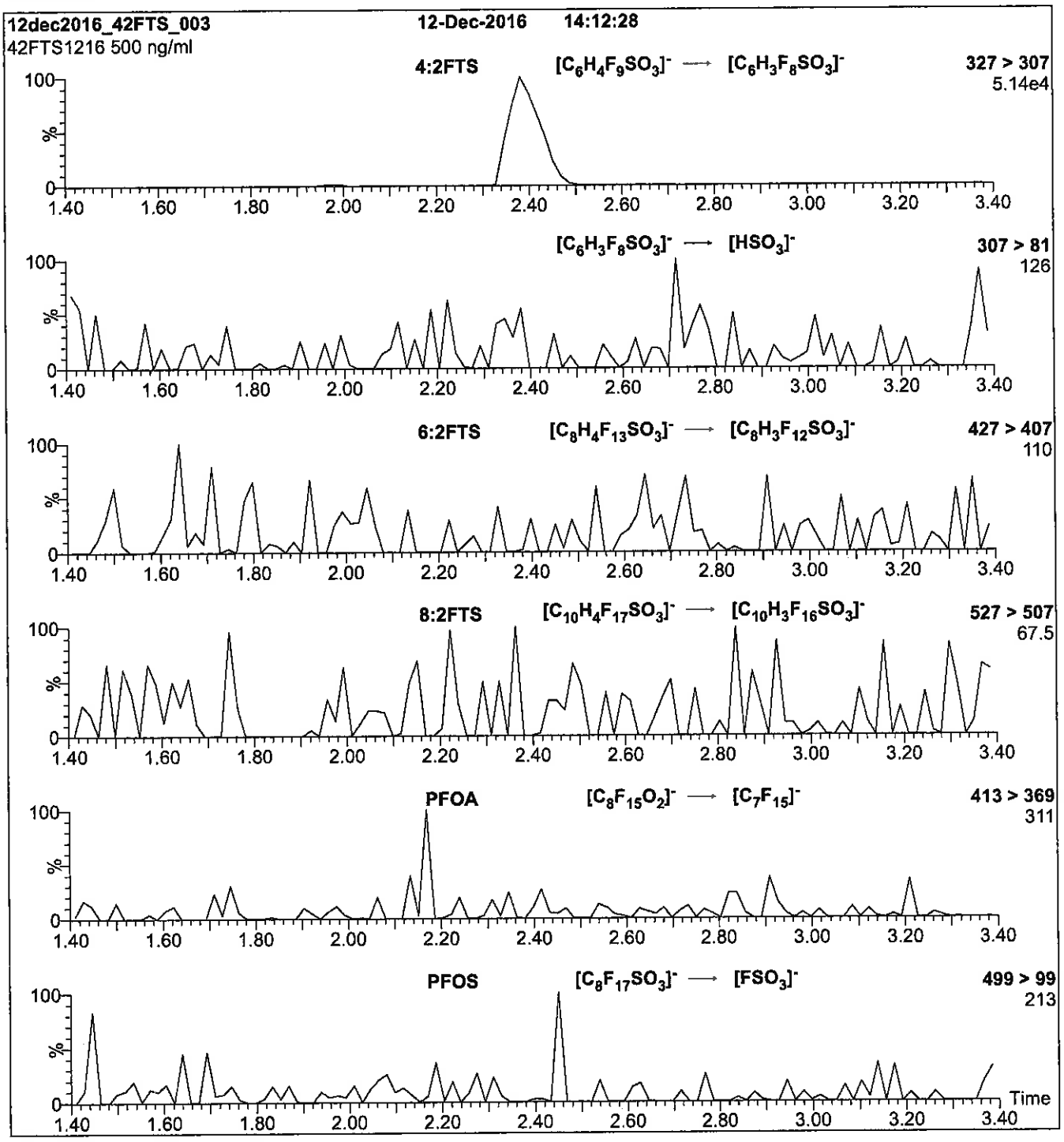
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **4:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml 4:2FTS)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 25

Reagent

LC6:2FTS_00003

P: 12/29/16 SRV

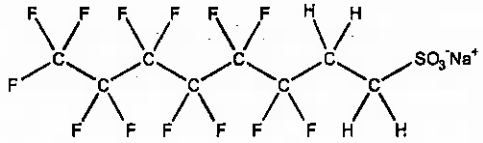
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0616

COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_8H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	450.15
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.4 ± 2.4 µg/ml (6:2FTS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	06/25/2016		
EXPIRY DATE: (mm/dd/yyyy)	06/25/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 06/29/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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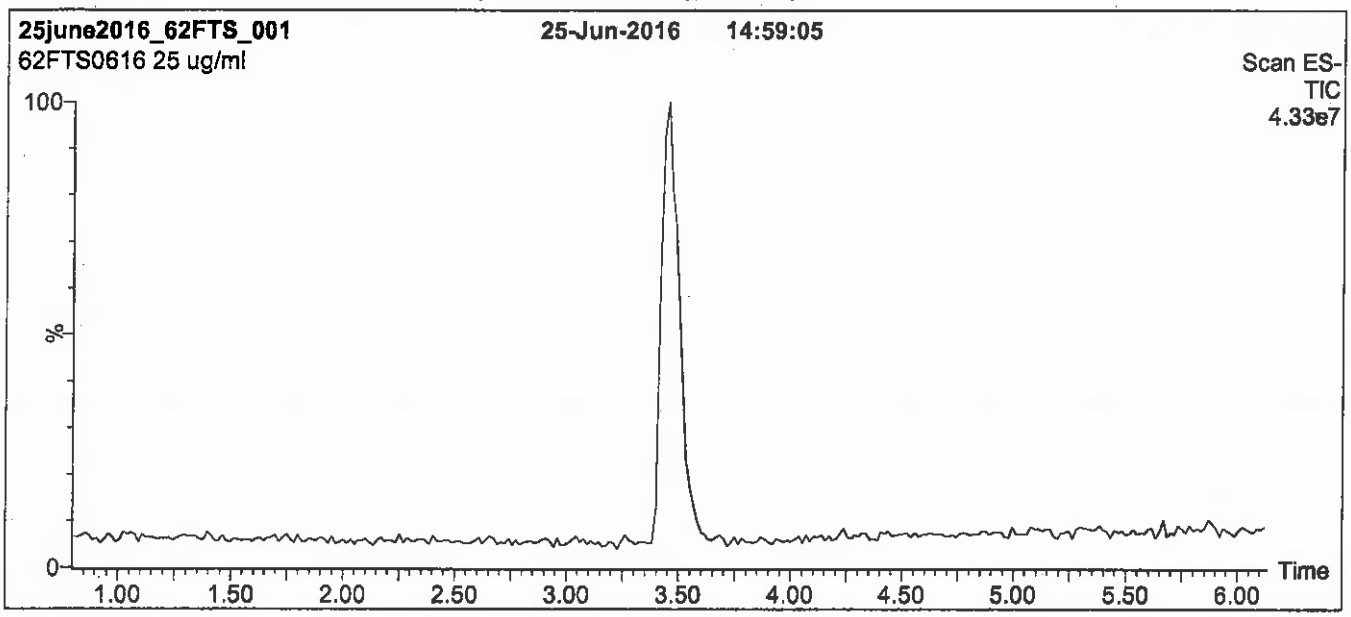
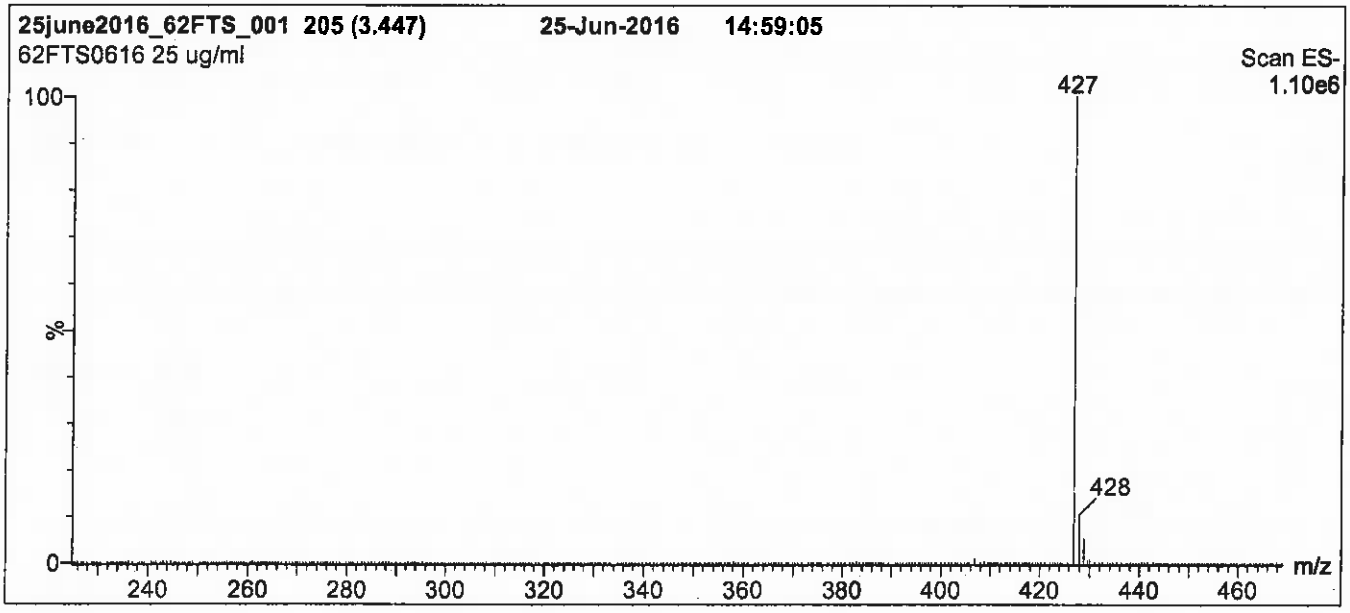
Figure 1: **6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

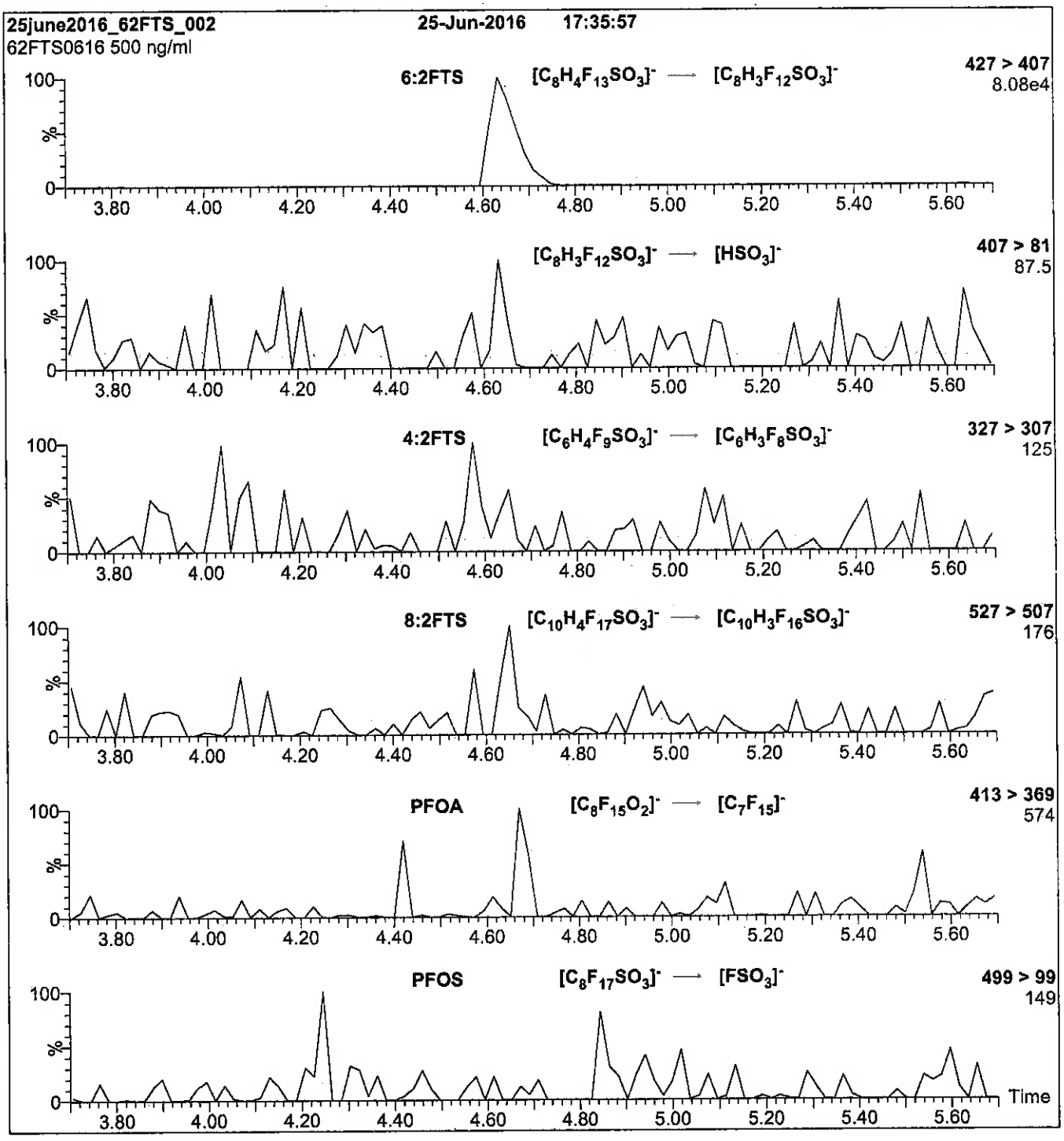
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 6:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 25

Reagent

LC8:2FTS_00003

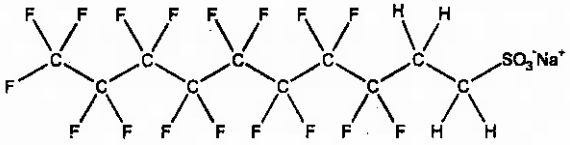
P: 12/29/16

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS0816
COMPOUND: Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{10}H_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	550.16
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.9 ± 2.4 µg/ml (8:2FTS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	08/22/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 08/25/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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CALA

ANAB ACCREDITED

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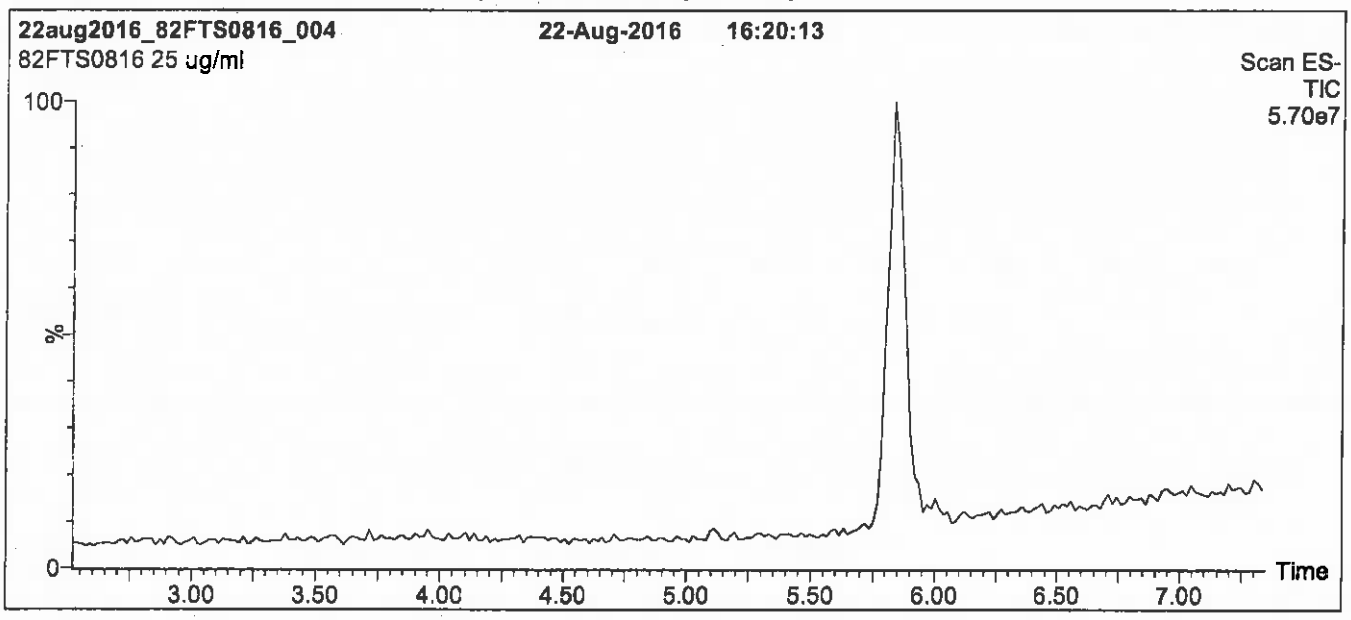
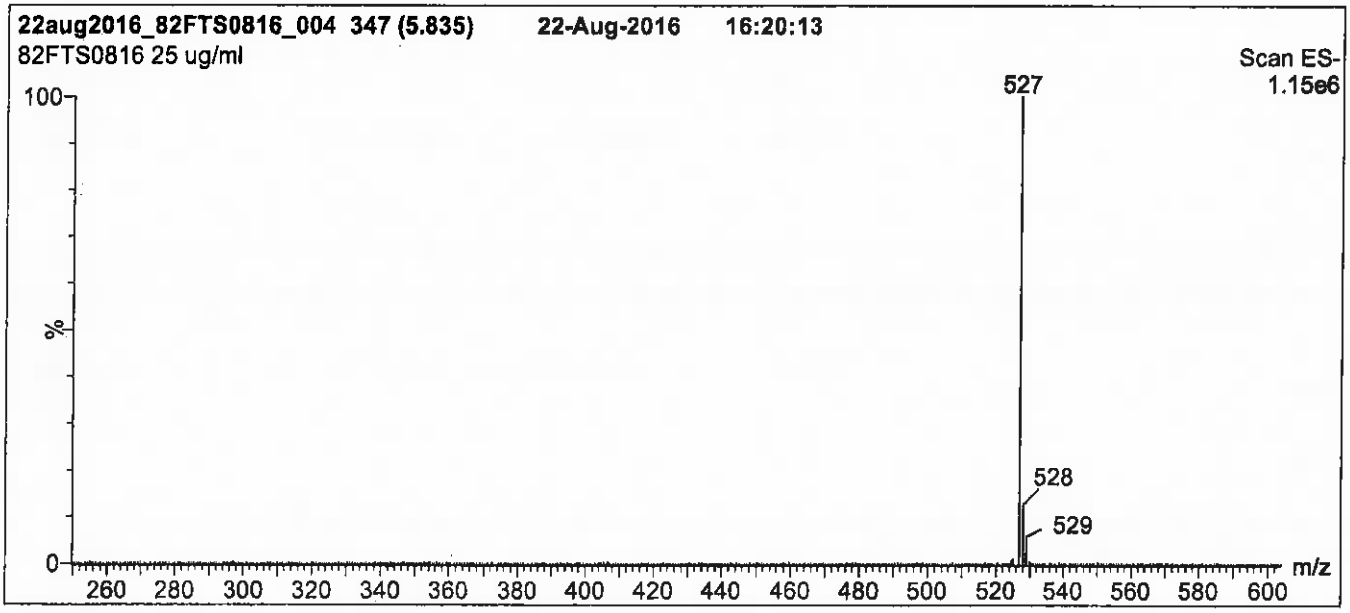
Figure 1: **8:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Agilent Zorbax Bonus-RP
1.8 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH/ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

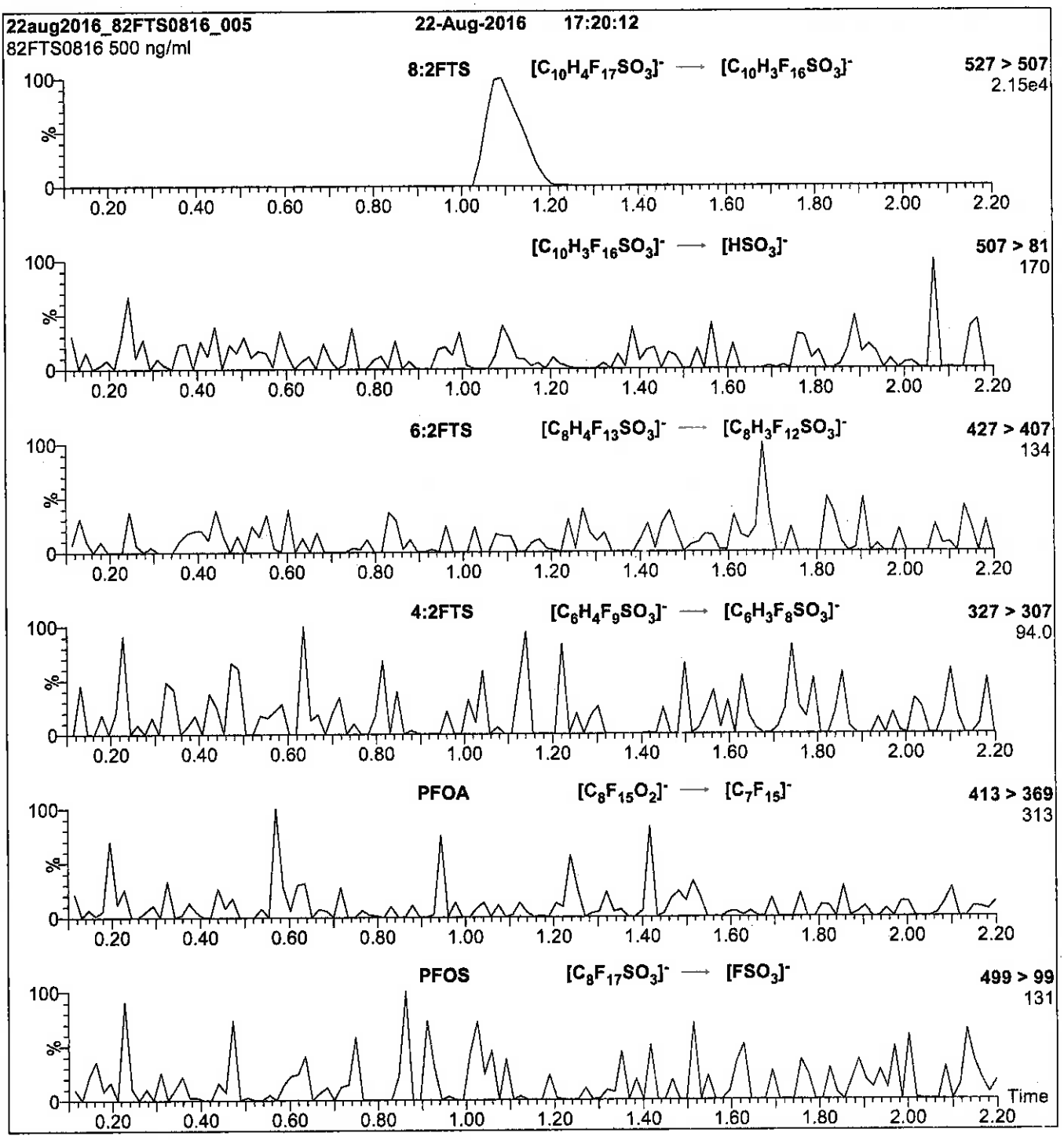
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250- 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 8:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 30

Reagent

LCd3-NMeFOSAA_00006

1106123
ID: LCd3-NMeFOSAA_00006
Exp: 05/19/22 Prpd: CCL
d3-N-MeFOSAA

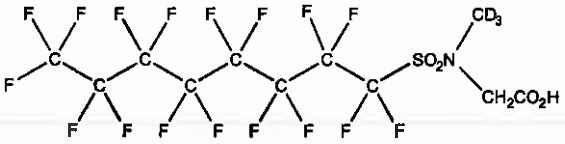
R: 12/4/17 CCL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0517
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_3H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	574.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	05/19/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/19/2022		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/31/2017
(mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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UNCERTAINTY:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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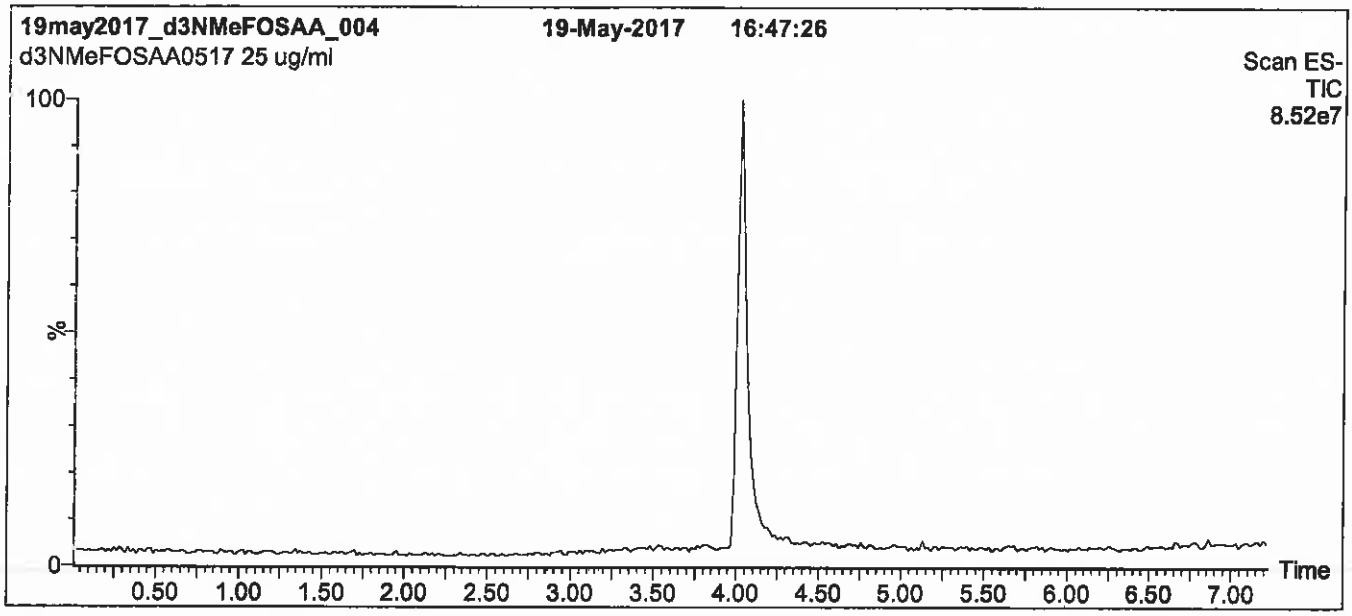
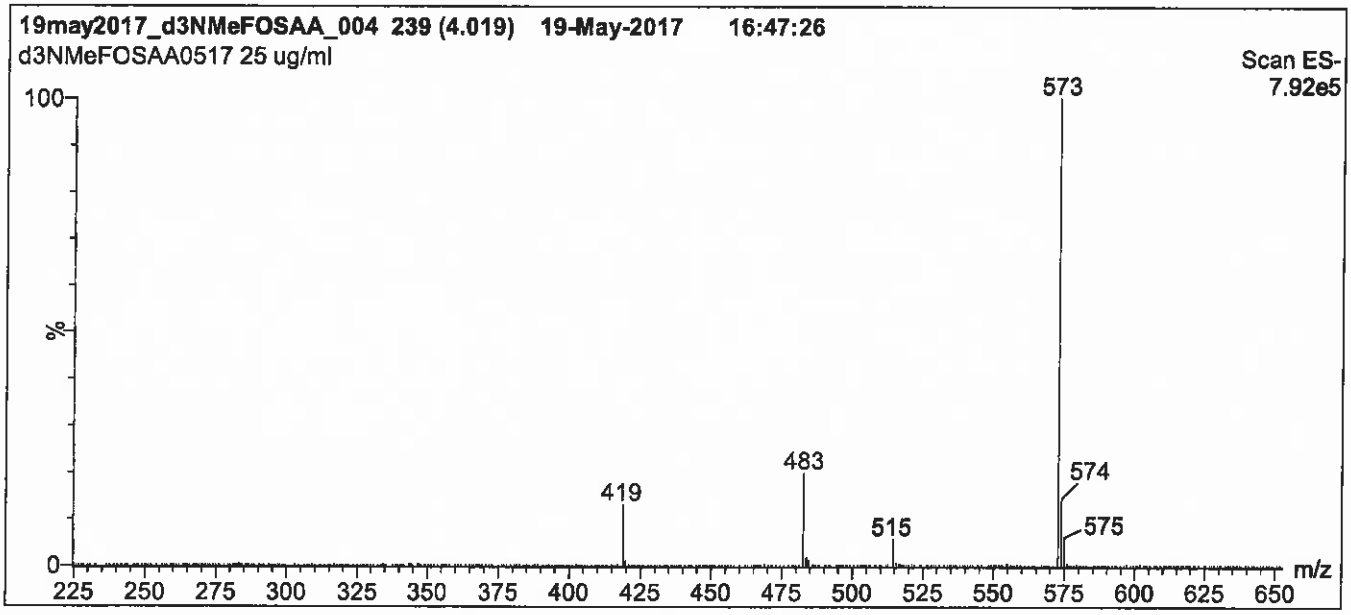
Figure 1: **d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

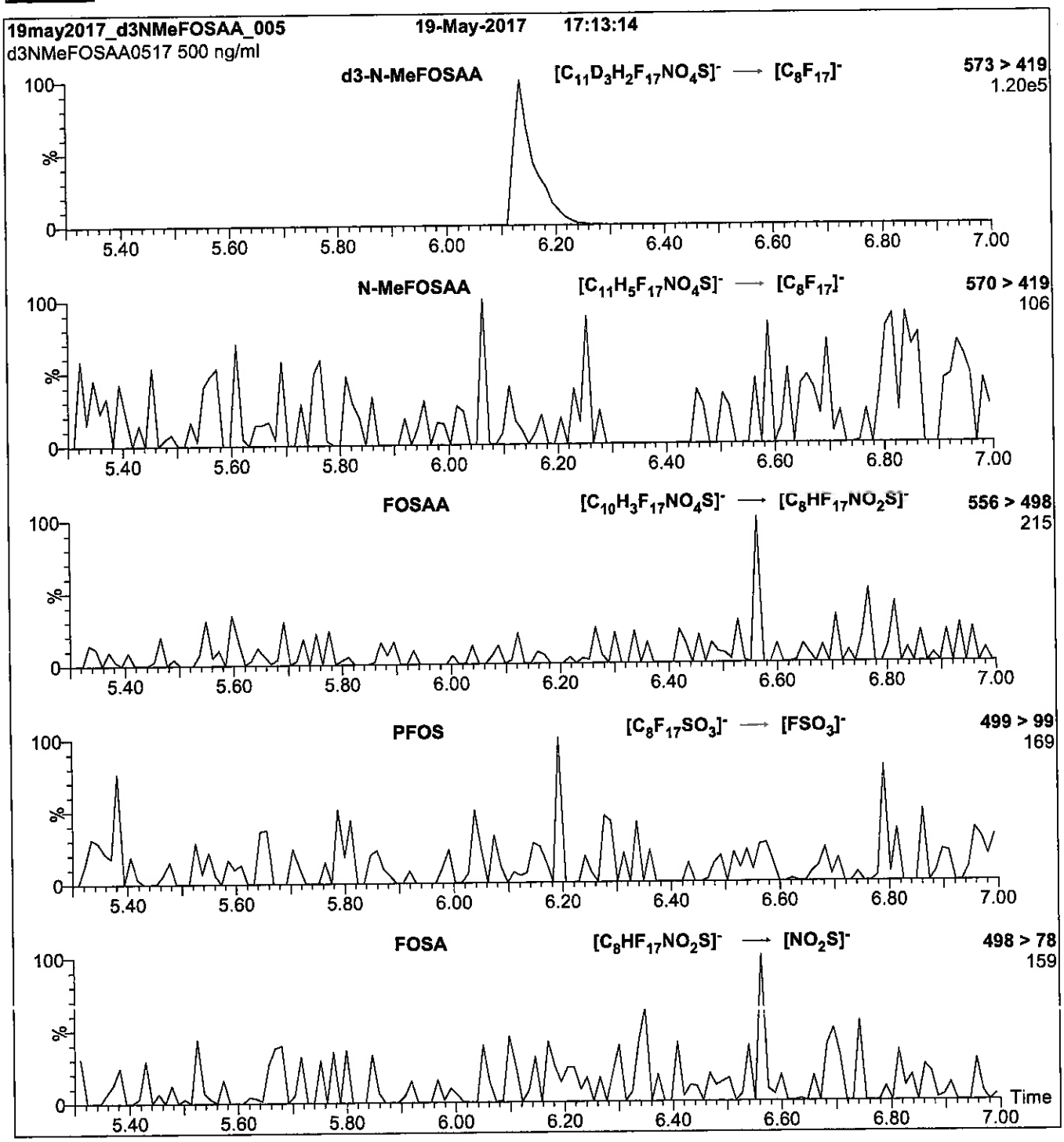
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml d3-N-MeFOSAA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 20

Reagent

LCd5-NEtFOSAA_00006

1106105
ID: LCd5-NEtFOSAA_00006
Exp: 11/08/22 Prpd: CCL
d5-N-EtFOSAA

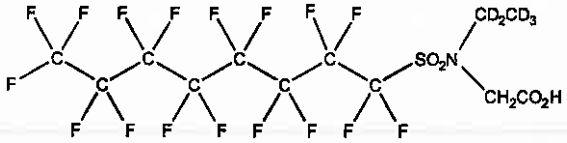
R: 12/4/17 ccc

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA1117
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_{12}D_5H_3F_{17}NO_4S$ **MOLECULAR WEIGHT:** 590.26
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy) 11/08/2017
EXPIRY DATE: (mm/dd/yyyy) 11/08/2022
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid molety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 11/16/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA

ANAB ACCREDITED

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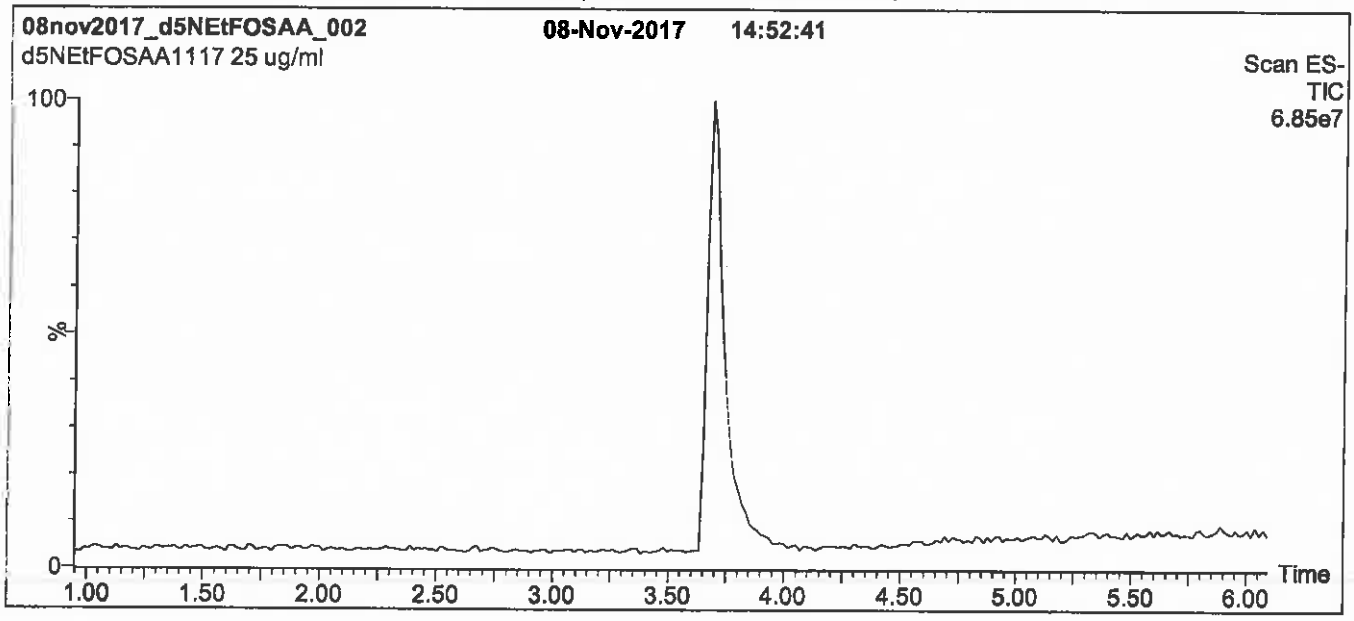
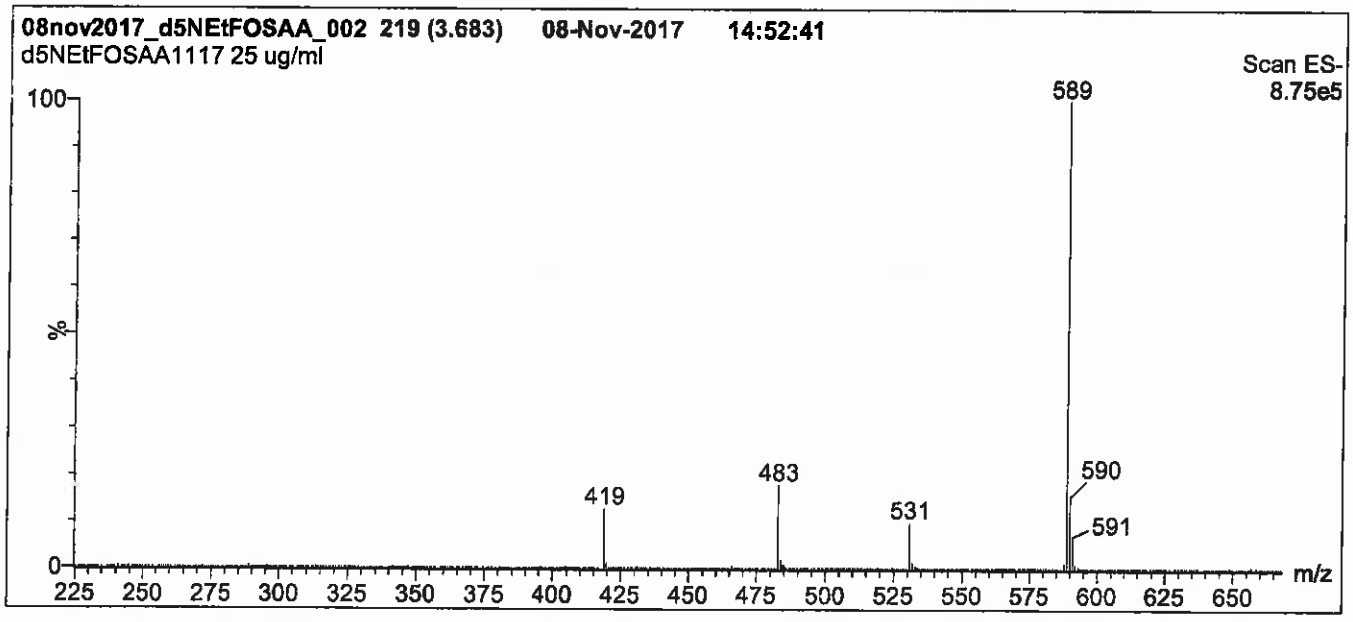
Figure 1: **d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

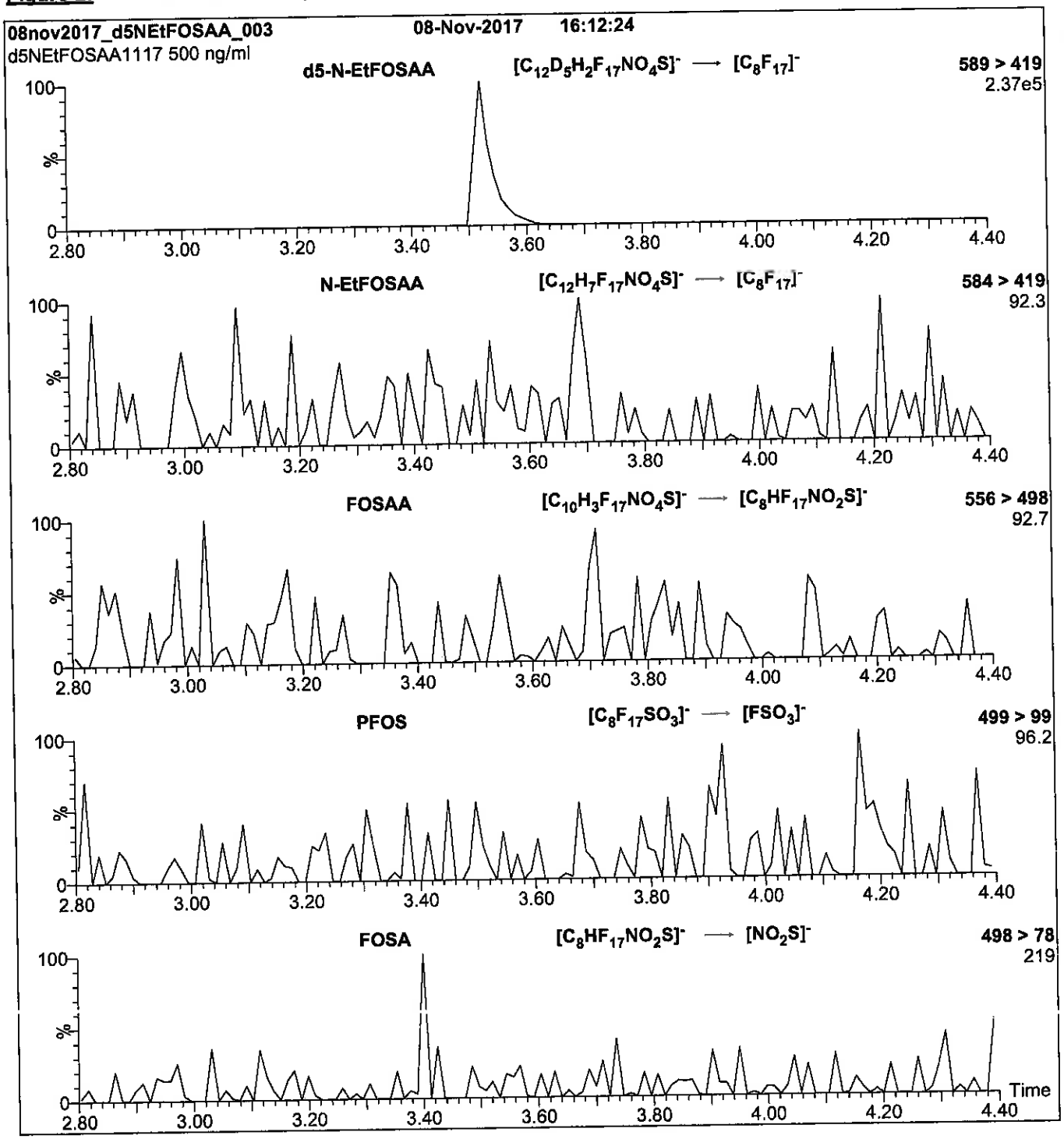
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml d5-N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 20

Reagent

LCM2-6:FTS_00006

1106100
ID: LCM2-6:FTS_00006
Exp: 02/17/22 Prpd: CCL
M2-6:2FTS

R: 12/4/17 CCL

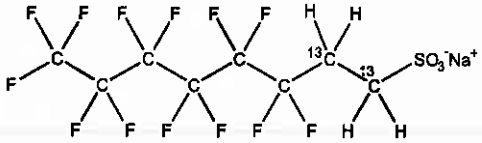
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0217

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.5 ± 2.4 µg/ml (M2-6:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
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ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/24/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA

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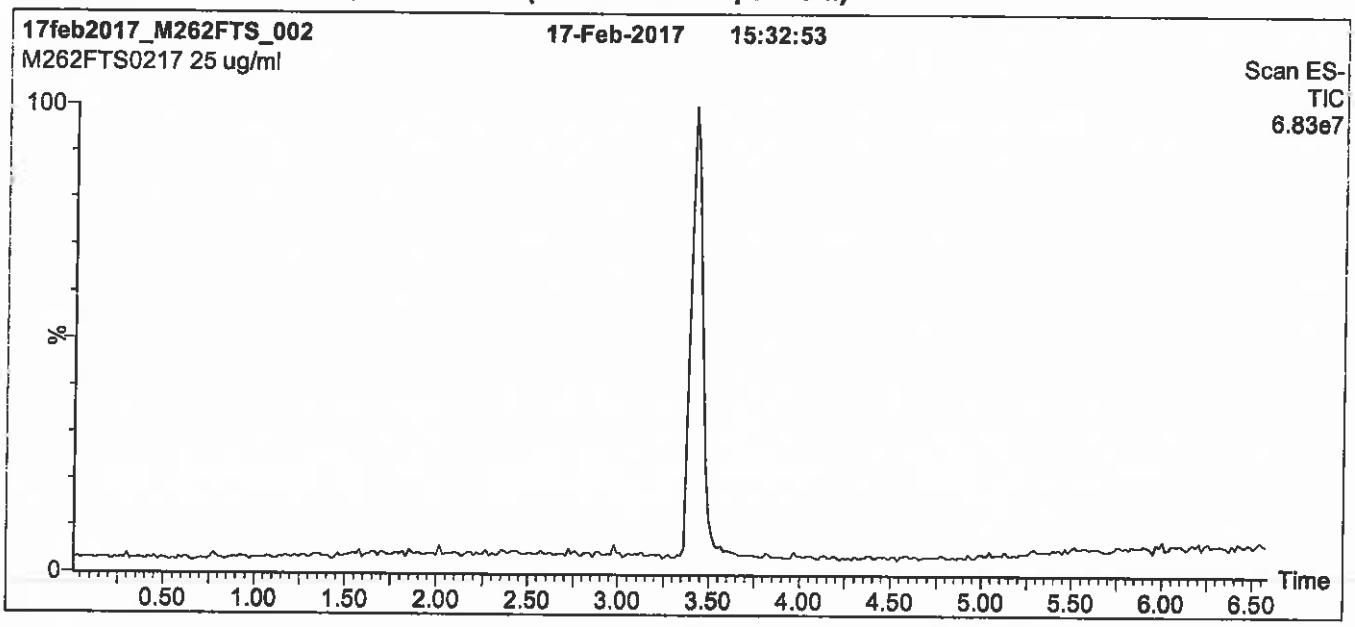
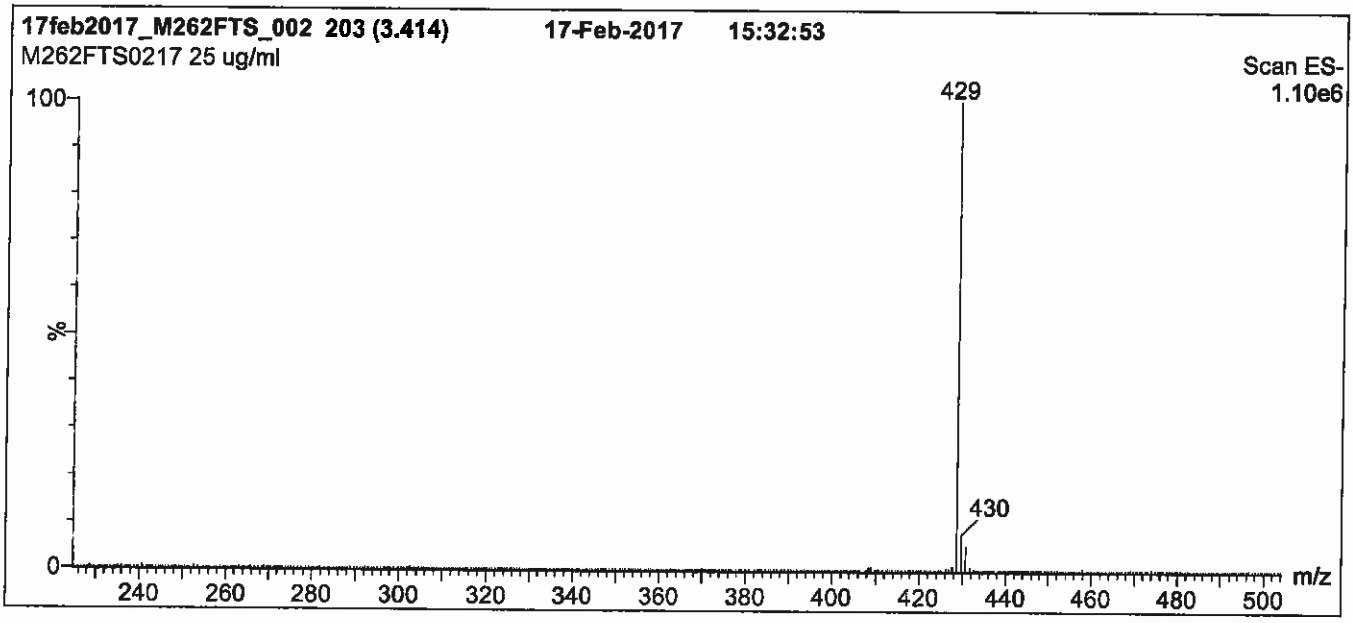




Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

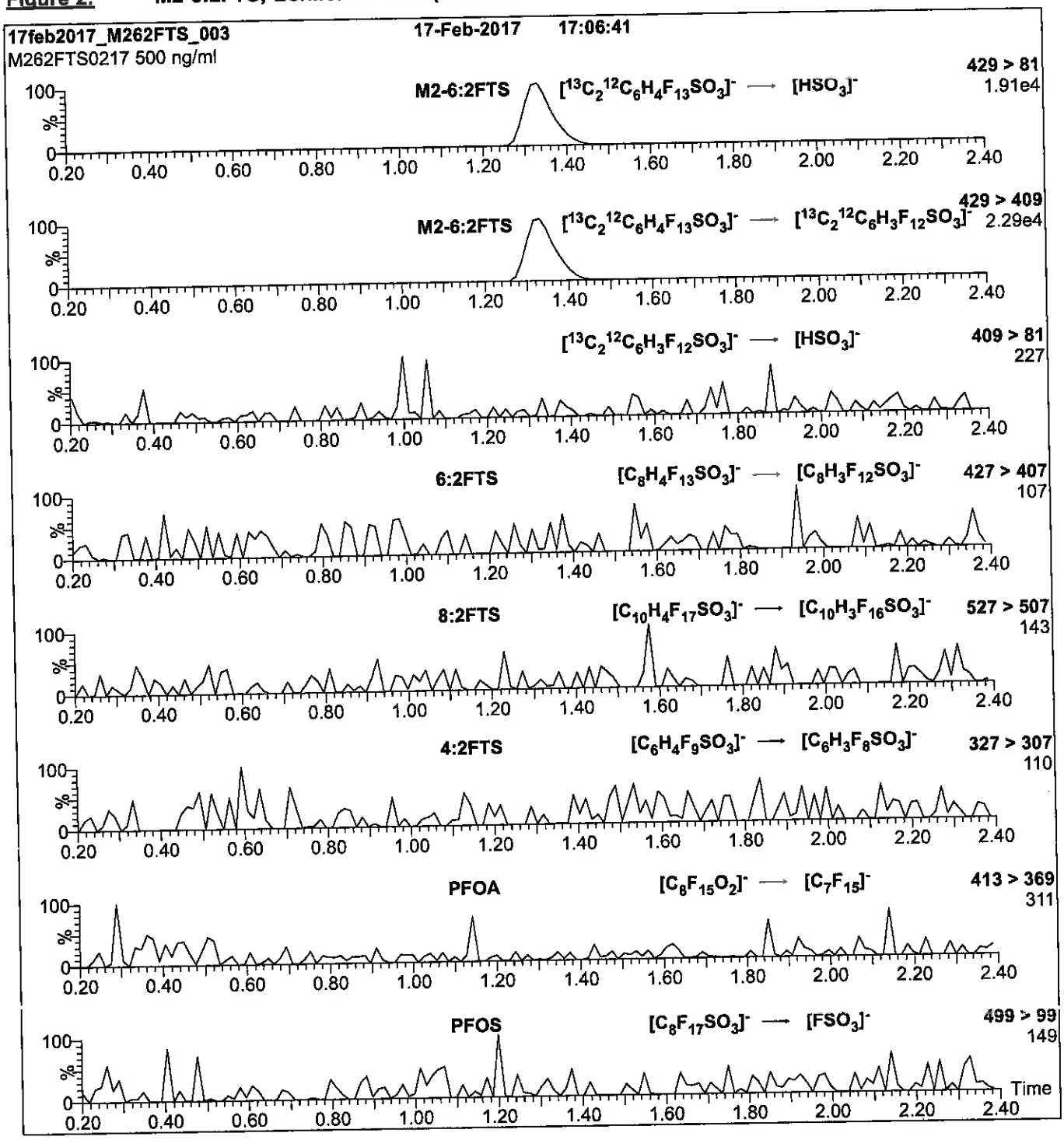
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2-6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-6:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 25

Reagent

LCM2-8:2FTS_00008

1106092
ID: LCM2-8:2FTS_00008
Exp: 07/05/22 Prpd: CCL
M2-8:2FTS

R: 12/4/17 CCL

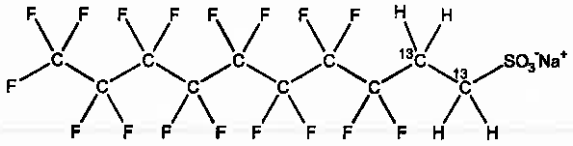
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0717

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	552.15
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.9 ± 2.4 µg/ml (M2-8:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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Certified By: _____ **Date:** 07/07/2017 (mm/dd/yyyy)
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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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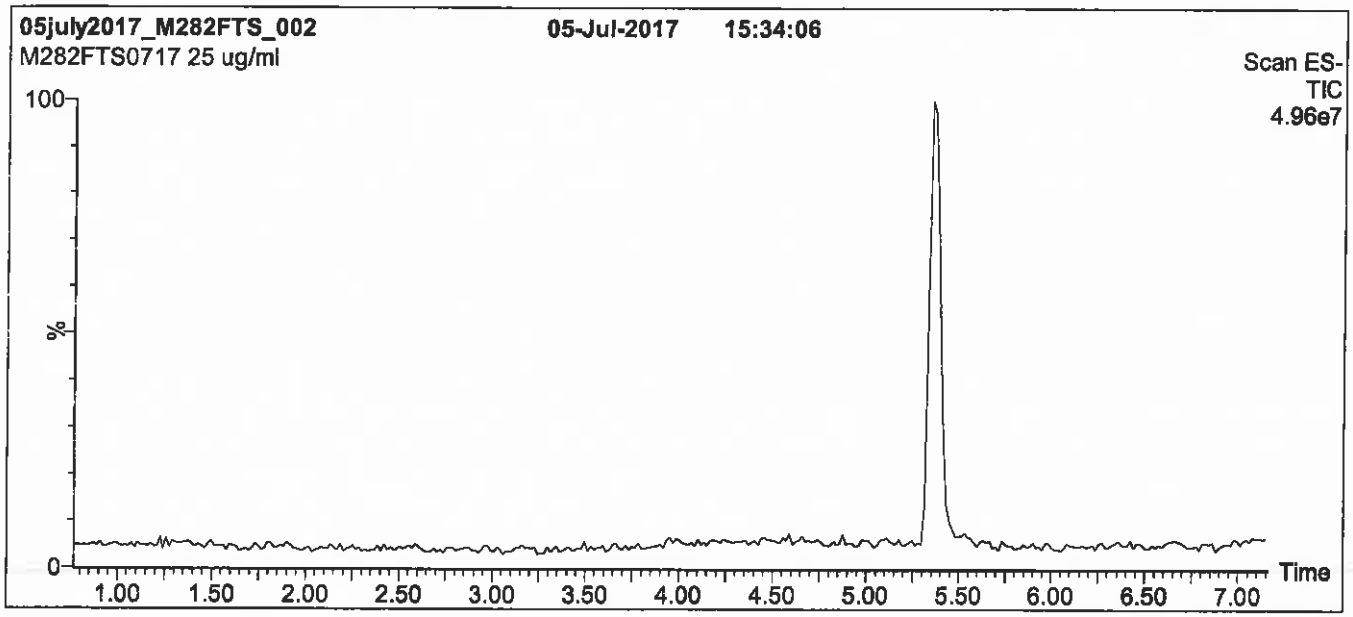
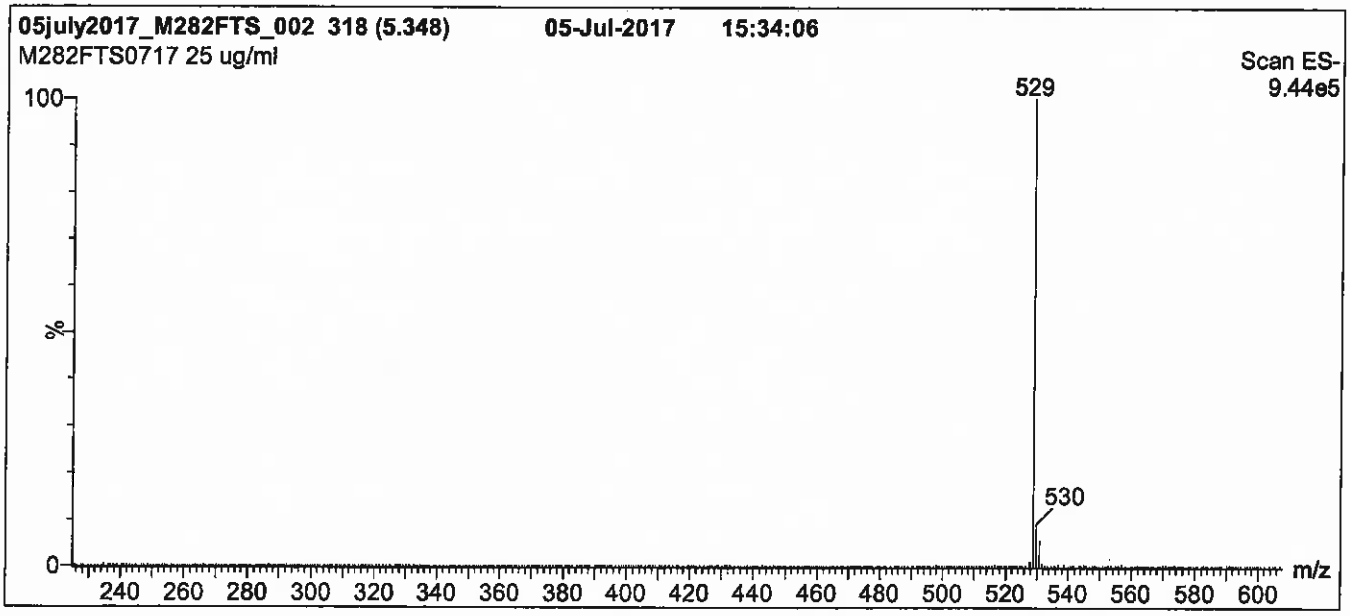
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **M2-8:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

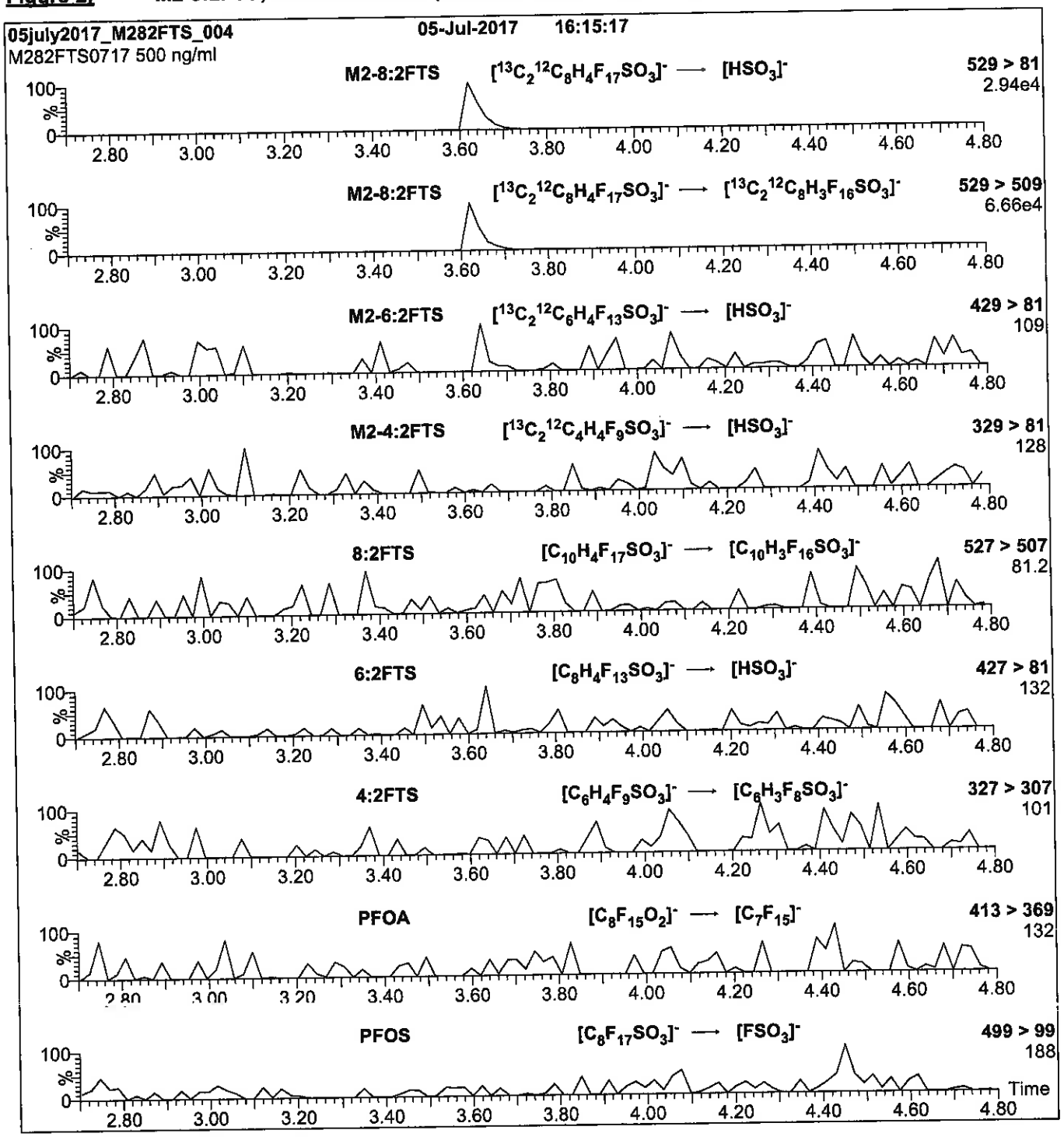
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-8:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 30

Reagent

LCM2PFHxDA_00013

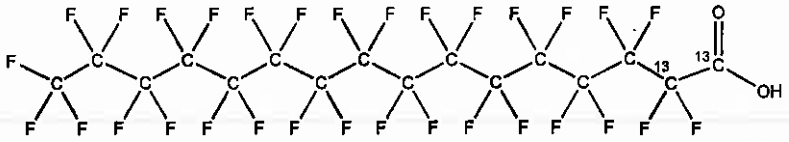
1106068
ID: LCM2PFHxDA_00013
Exp: 07/13/22 Prpd: CCL
13C2-PFHxDA at 50ug/mL

r: 12/4/17 ccz

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFHxDA	**LOT NUMBER:**	M2PFHxDA0717
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]hexadecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{14}HF_{31}O_2$	**MOLECULAR WEIGHT:**	816.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of native perfluoro-n-hexadecanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED

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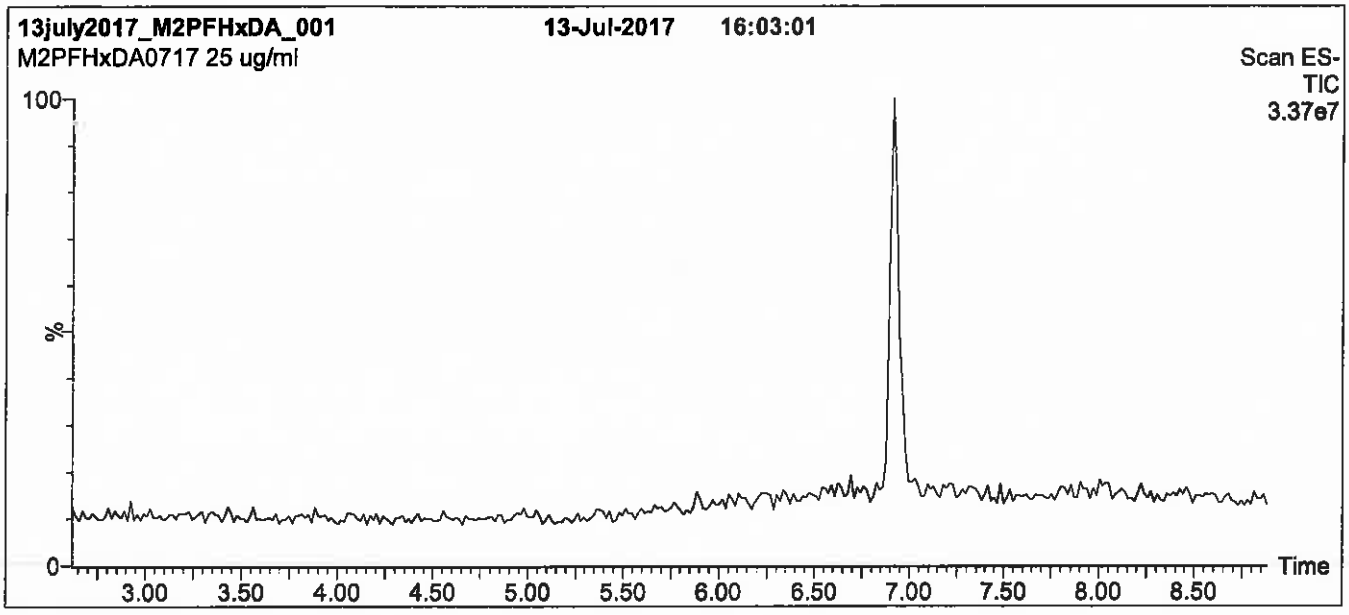
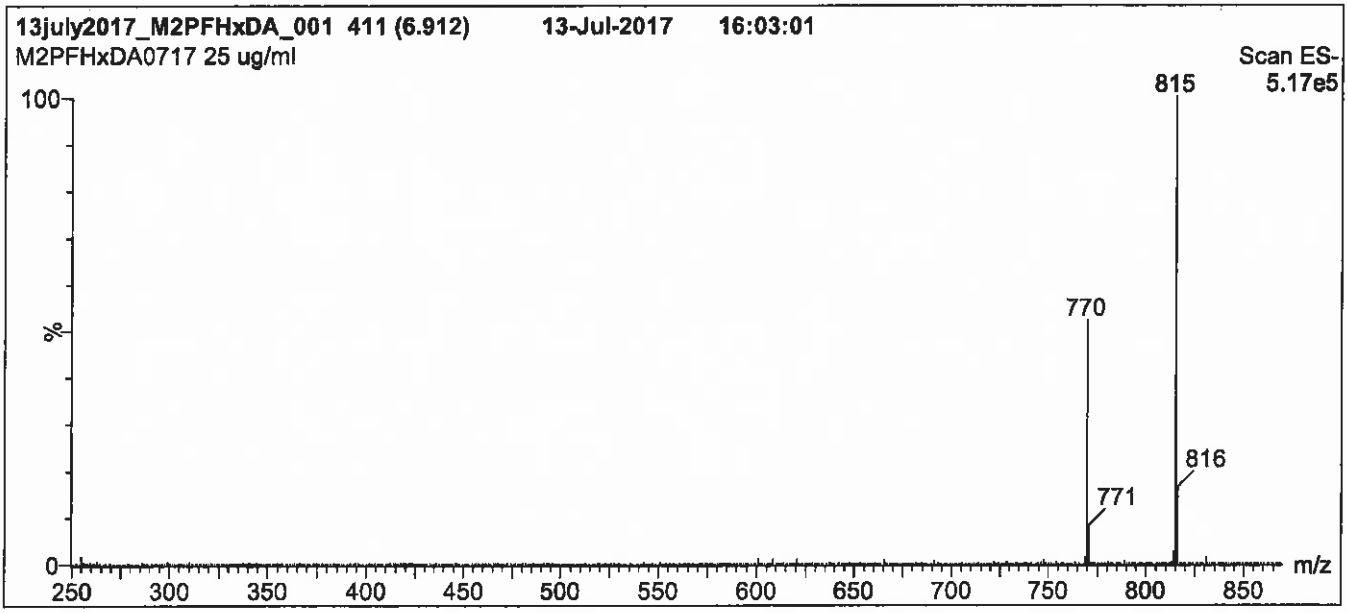
Figure 1: **M2PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

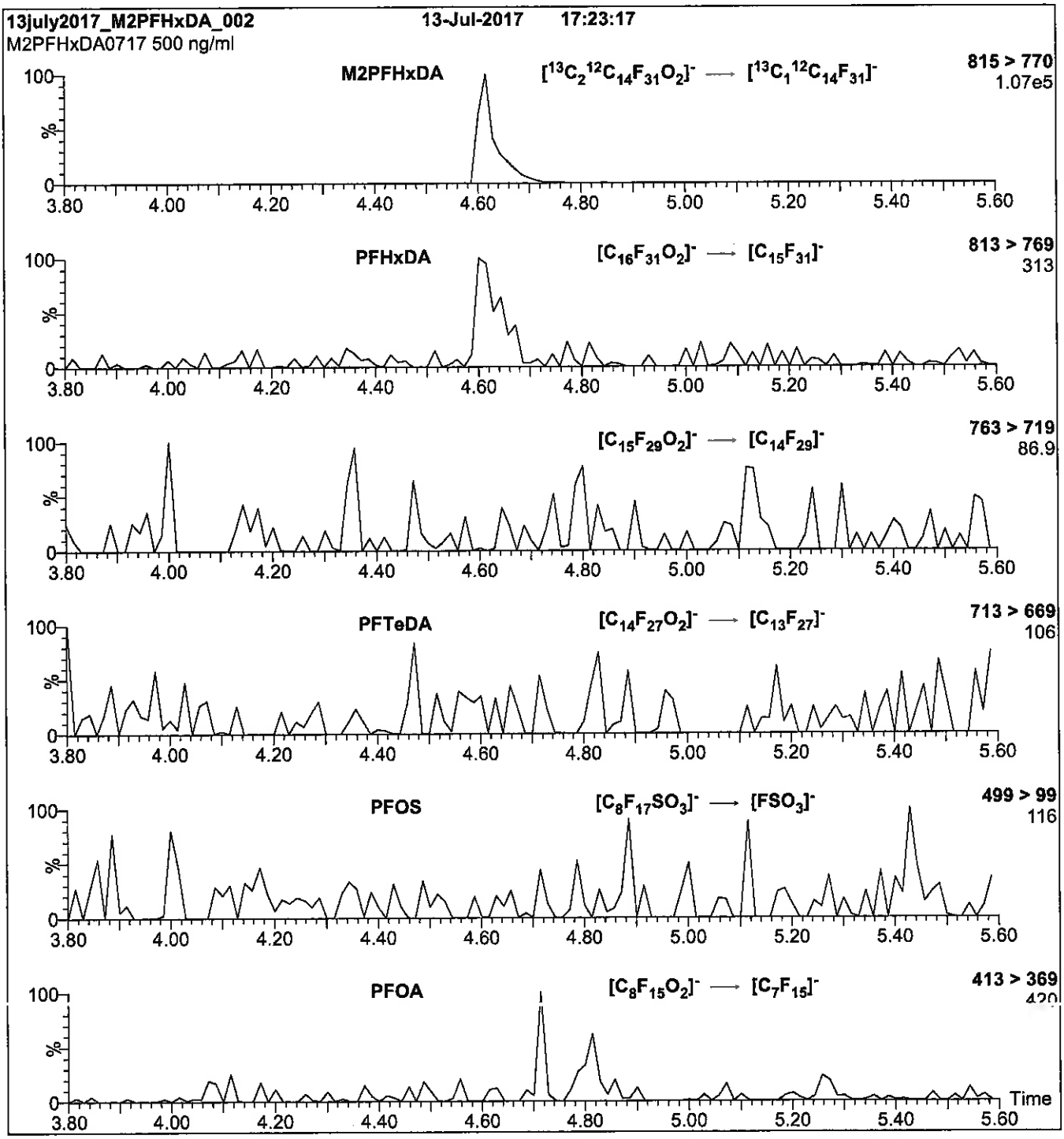
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 15

Reagent

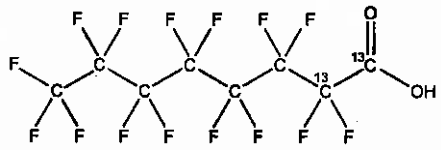
LCM2PFOA_00008

Y. 5/8/17 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0216
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	02/12/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/24/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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CALA

ANAB

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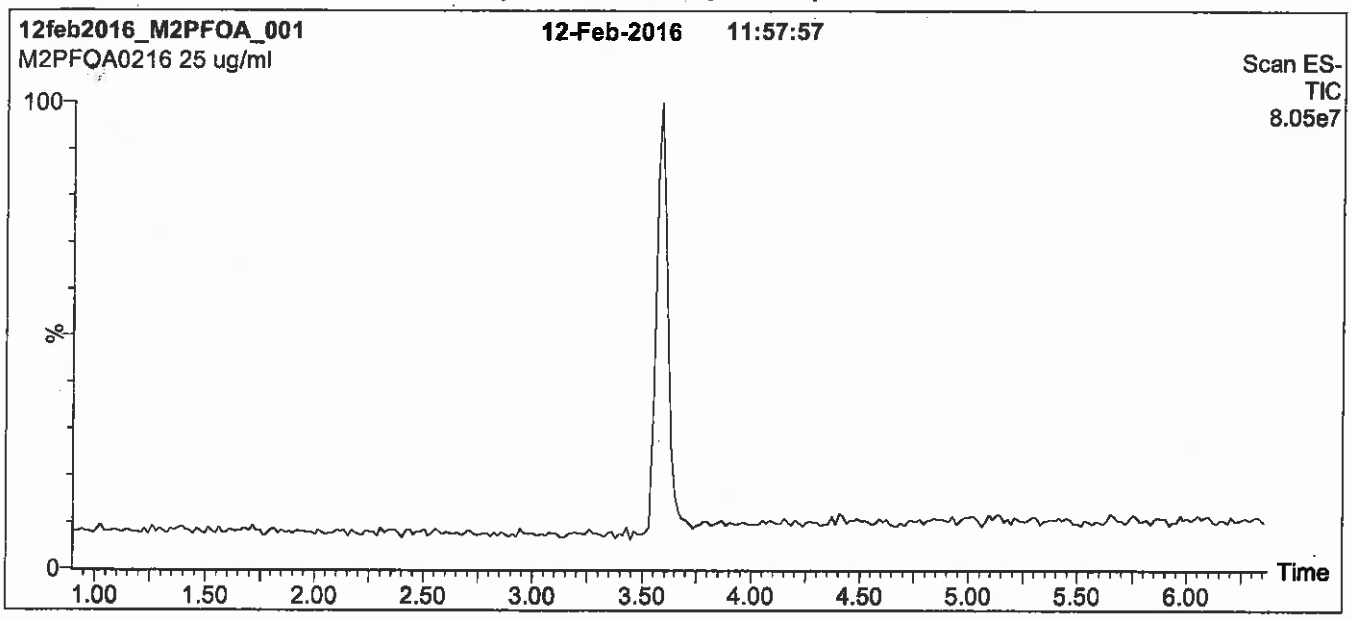
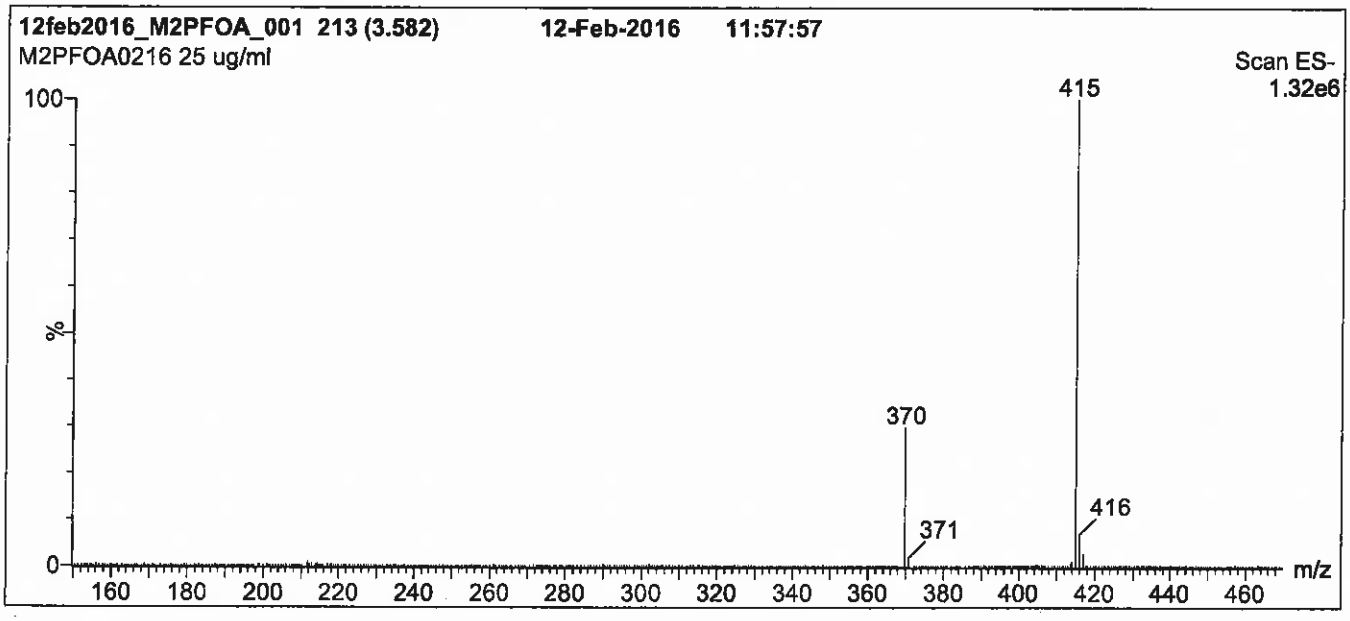
Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

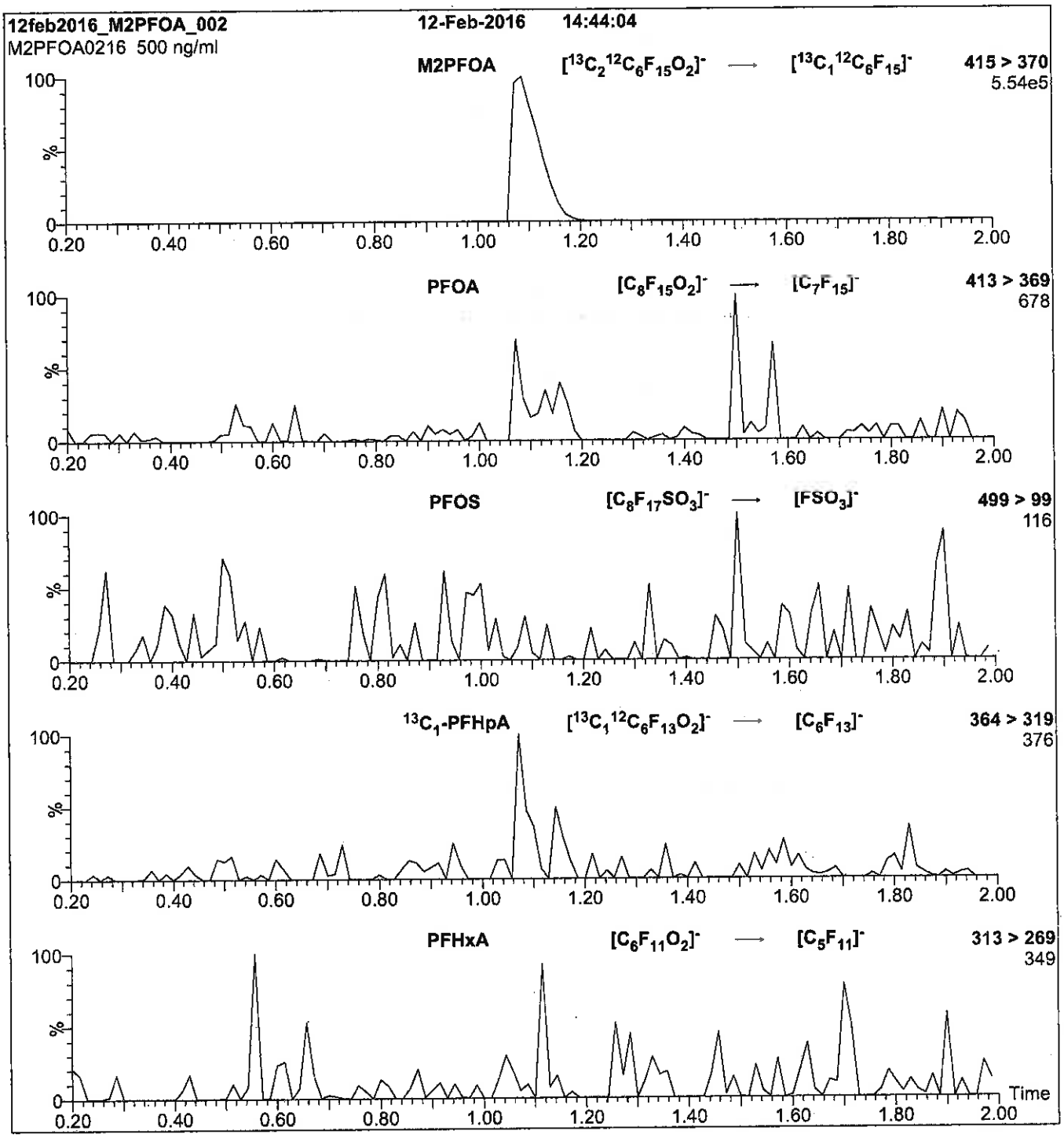
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

Reagent

LCM2PFTeDA_00012

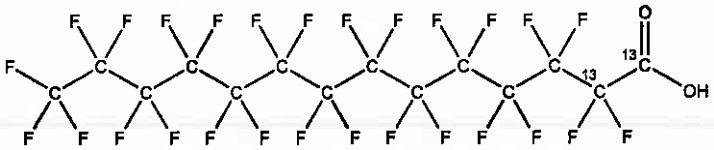
1106065
ID: LCM2PFTeDA_00012
Exp: 11/30/22 Prpd: CCL
13C2-PFTeDA at 50ug/mL

r: 12/4/17 ccl

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFTeDA	**LOT NUMBER:**	M2PFTeDA1117
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/30/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/30/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
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FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/01/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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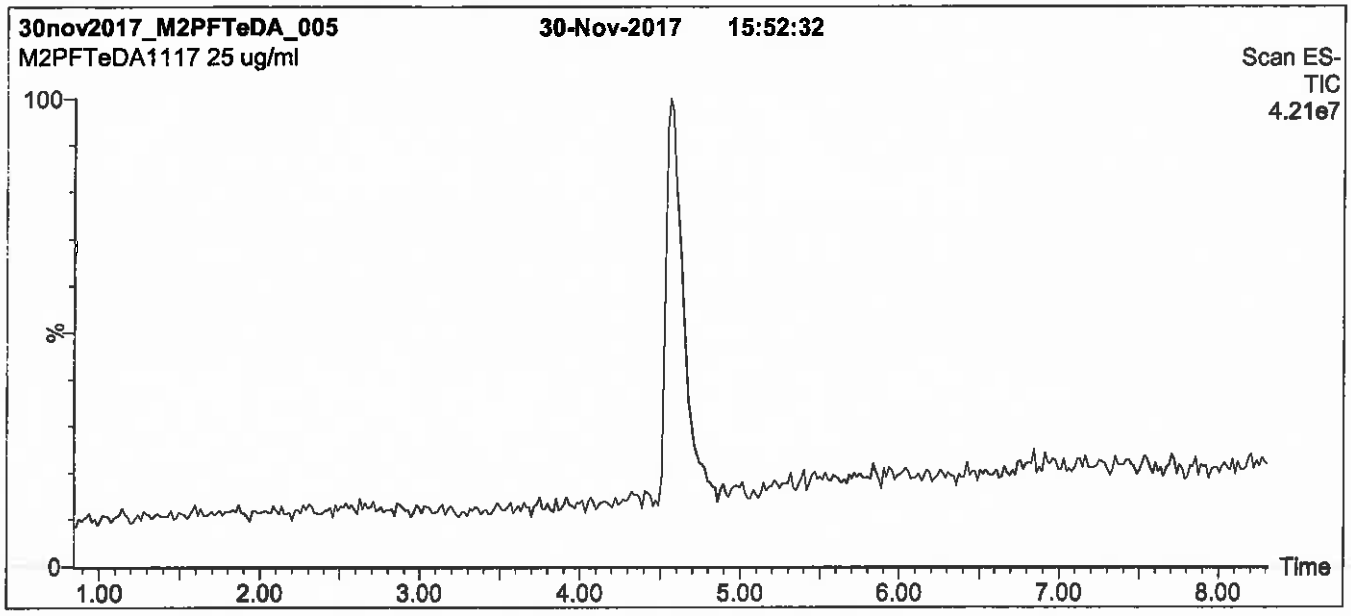
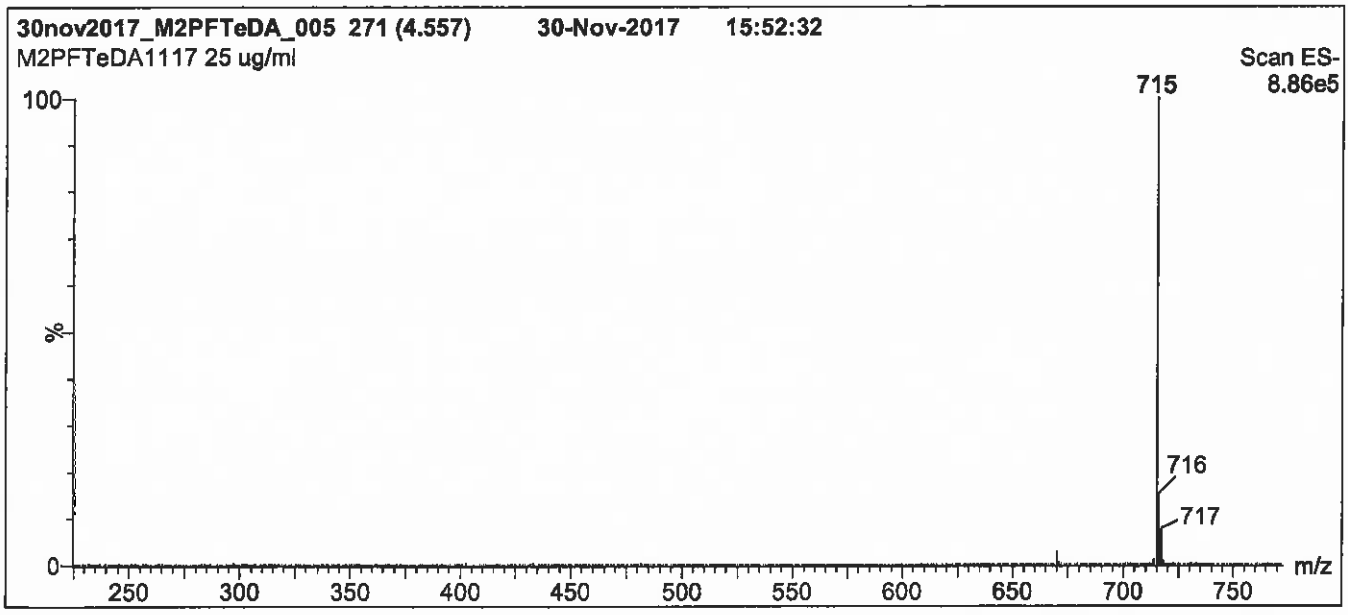
Figure 1: **M2PFTeDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

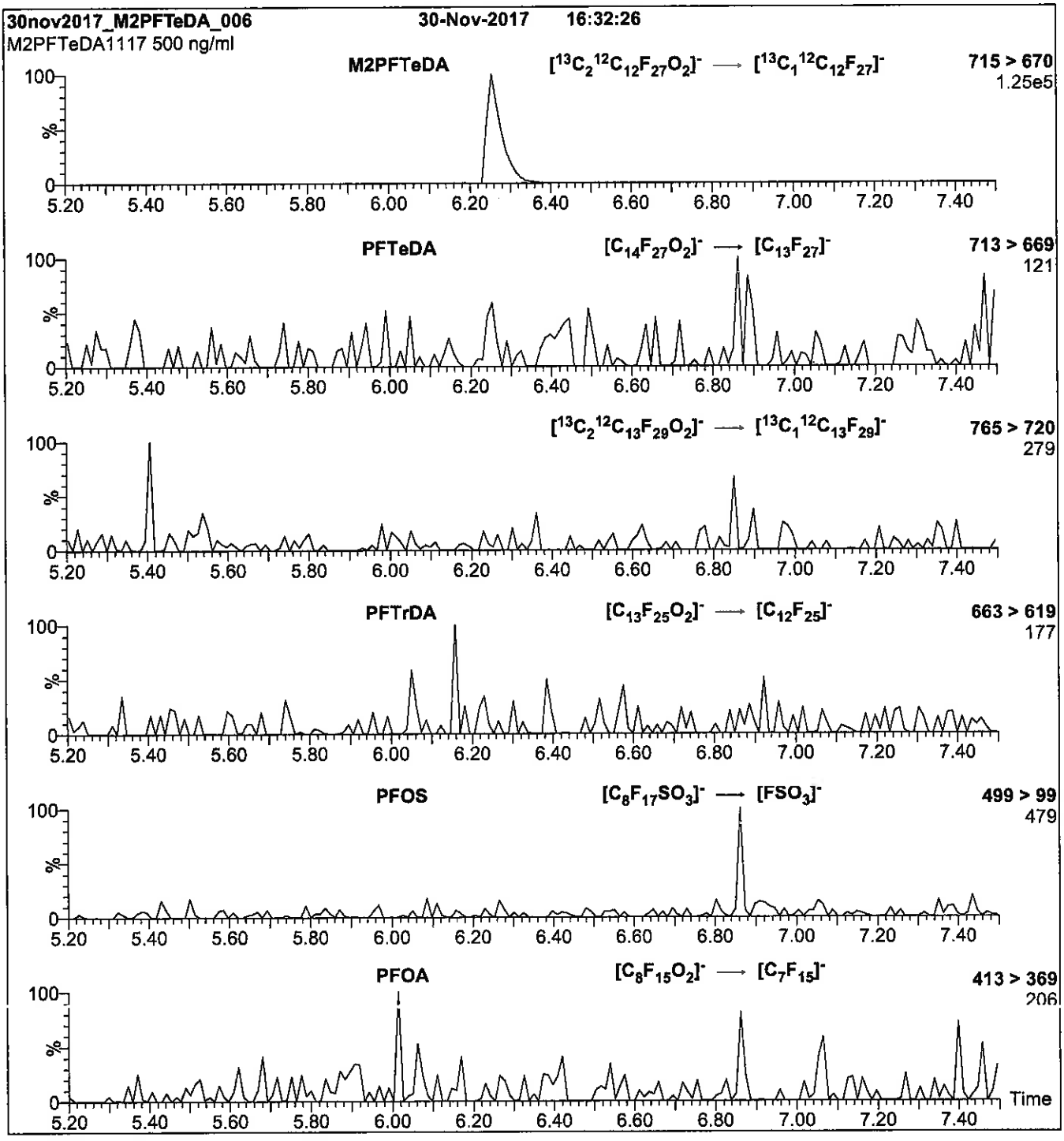
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 14

Reagent

LCM4PFHPA_00012

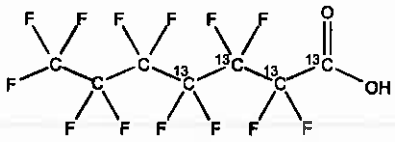
1106316
ID: LCM4PFHPA_00012
Exp: 05/03/22 Prpd: CCL
13C4-Perfluoroheptanoic a

v: 12/4/17 CCL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M4PFHpA	**LOT NUMBER:**	M4PFHpA0517
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{13}O_2$	**MOLECULAR WEIGHT:**	368.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	05/03/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/03/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/11/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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CALA

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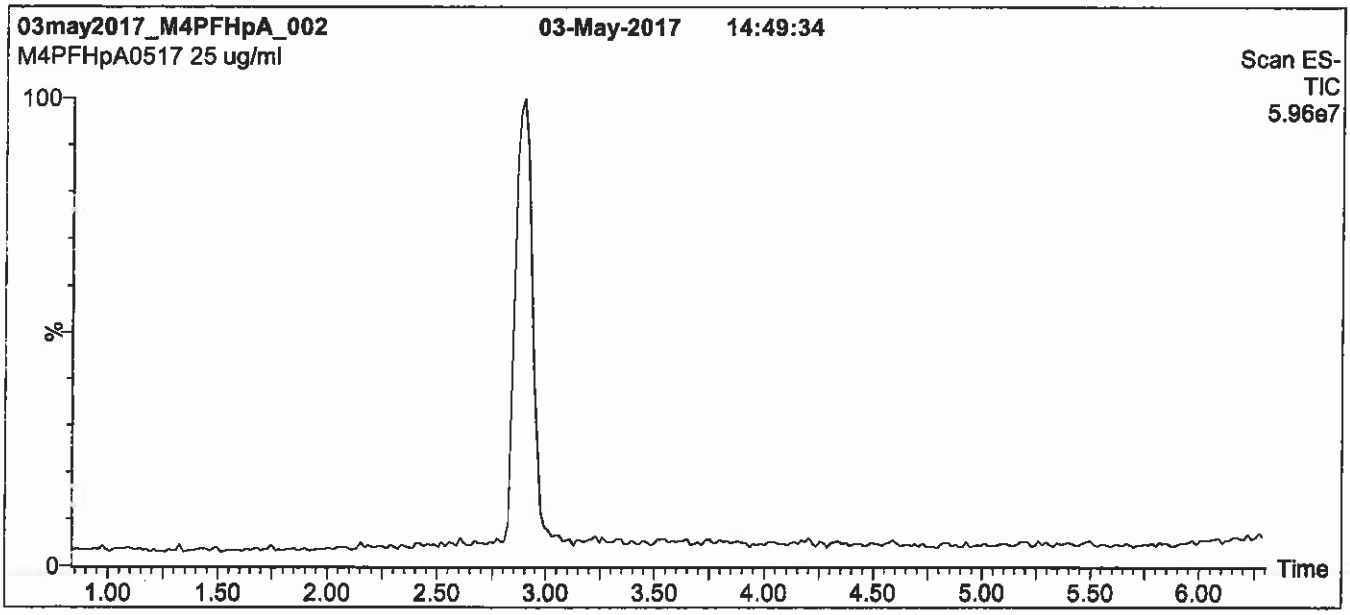
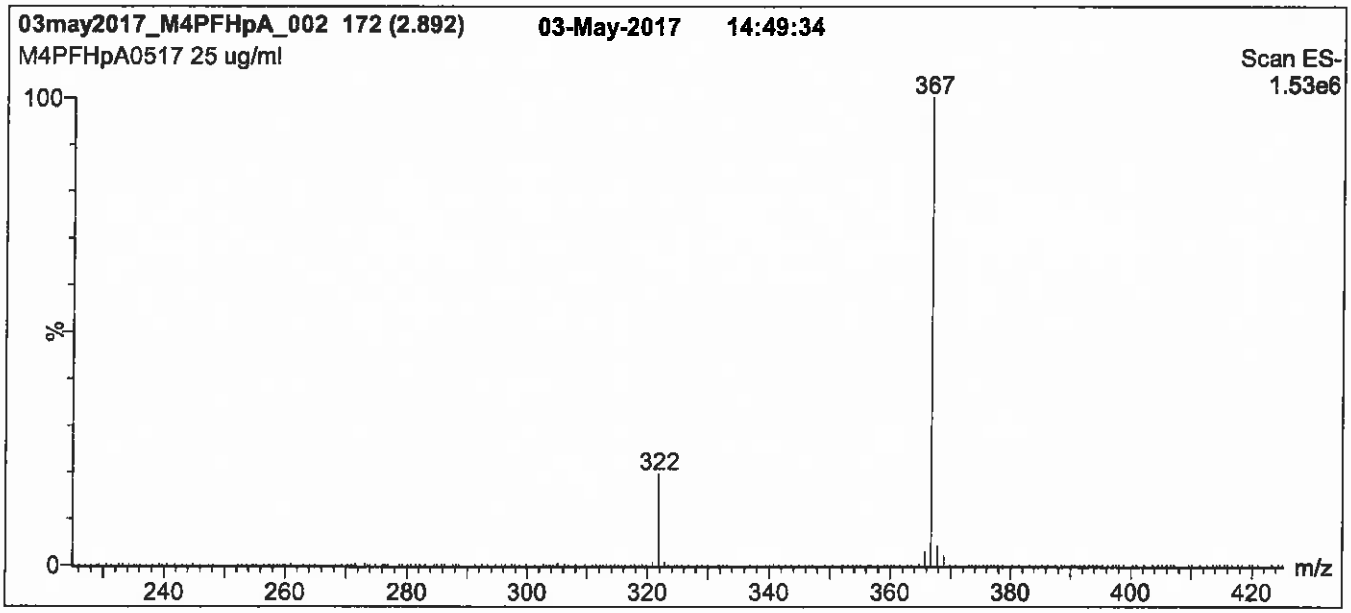




Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

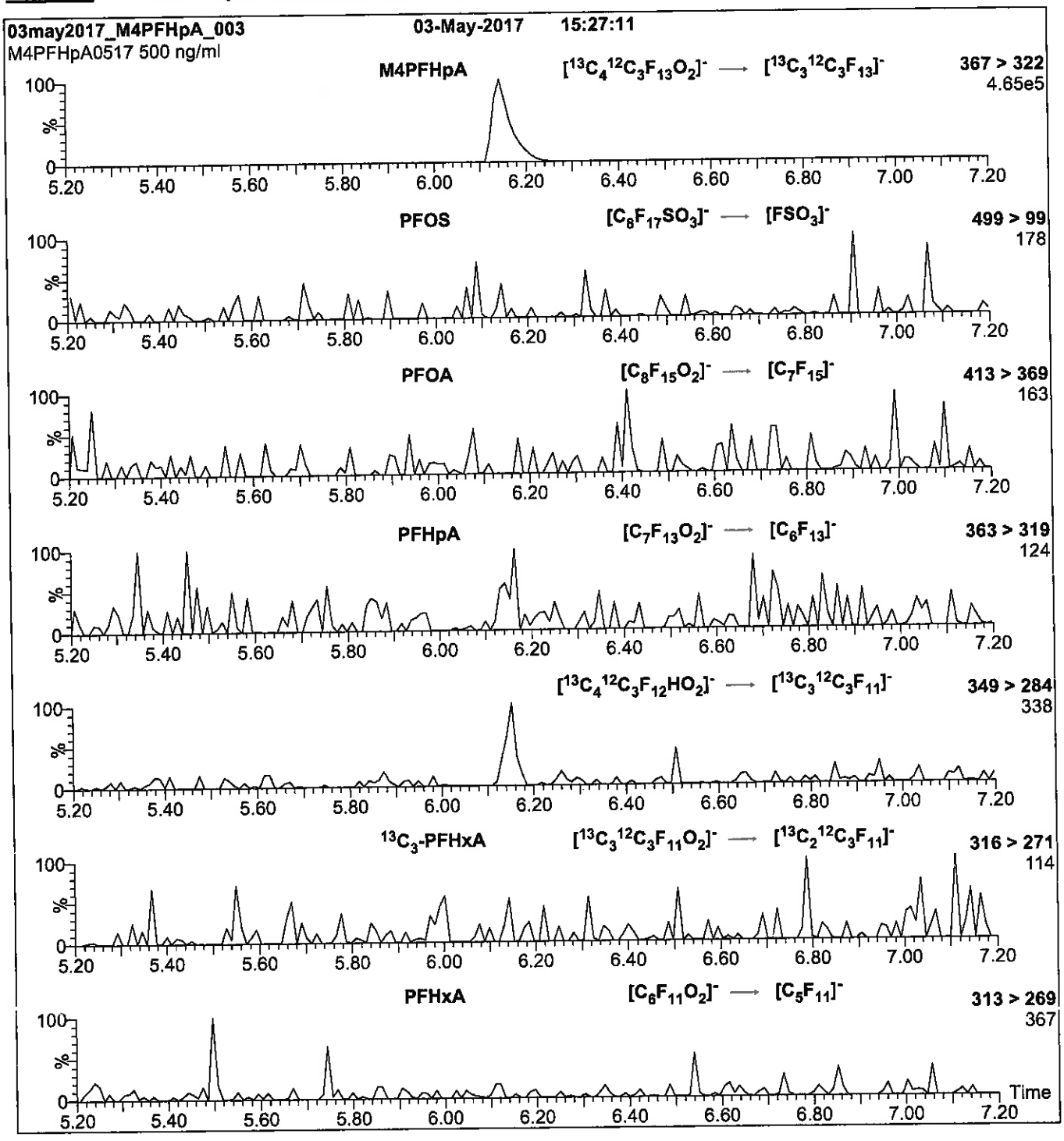
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M4PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M4PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 9

Reagent

LCM5PFPEA_00013

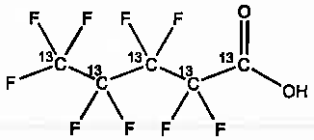
1106313
ID: LCM5PFPEA_00013
Exp: 07/20/22 Rpd: CCL
13C5-Perfluoropentanoic a

r: 12/4/17 ccc

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M5PFPeA	**LOT NUMBER:**	M5PFPeA0717
COMPOUND:	Perfluoro-n-[$^{13}C_5$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5HF_9O_2$	**MOLECULAR WEIGHT:**	269.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	07/20/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/20/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of perfluoro-n-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/26/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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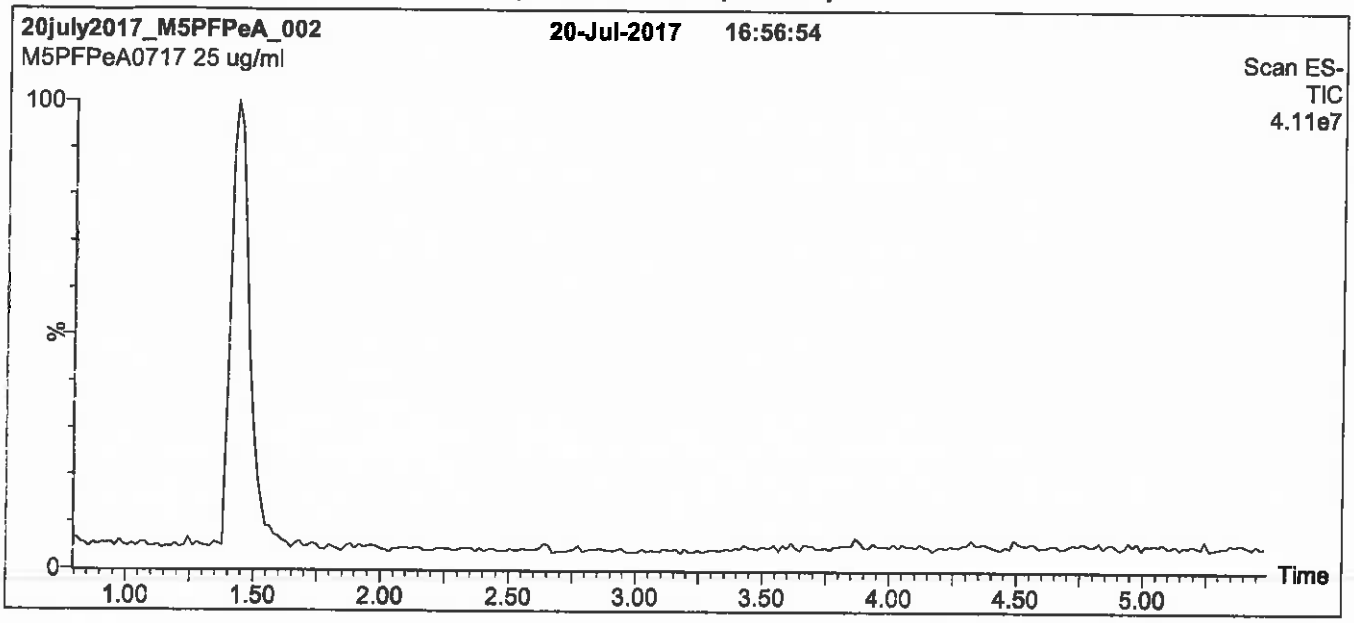
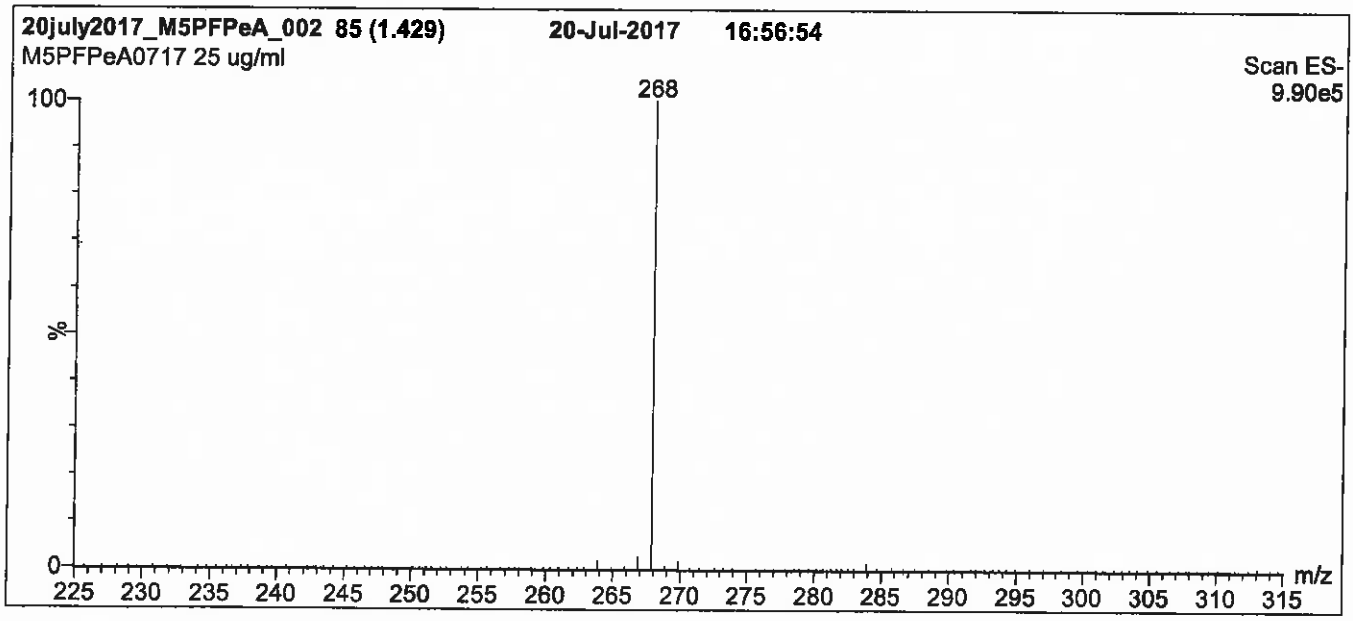
Figure 1: **M5PFPeA; LC/MS Data (TIC and Mass Spectrum)**





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LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Hold for 1 min. Ramp to 90% organic over 7 min and hold for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

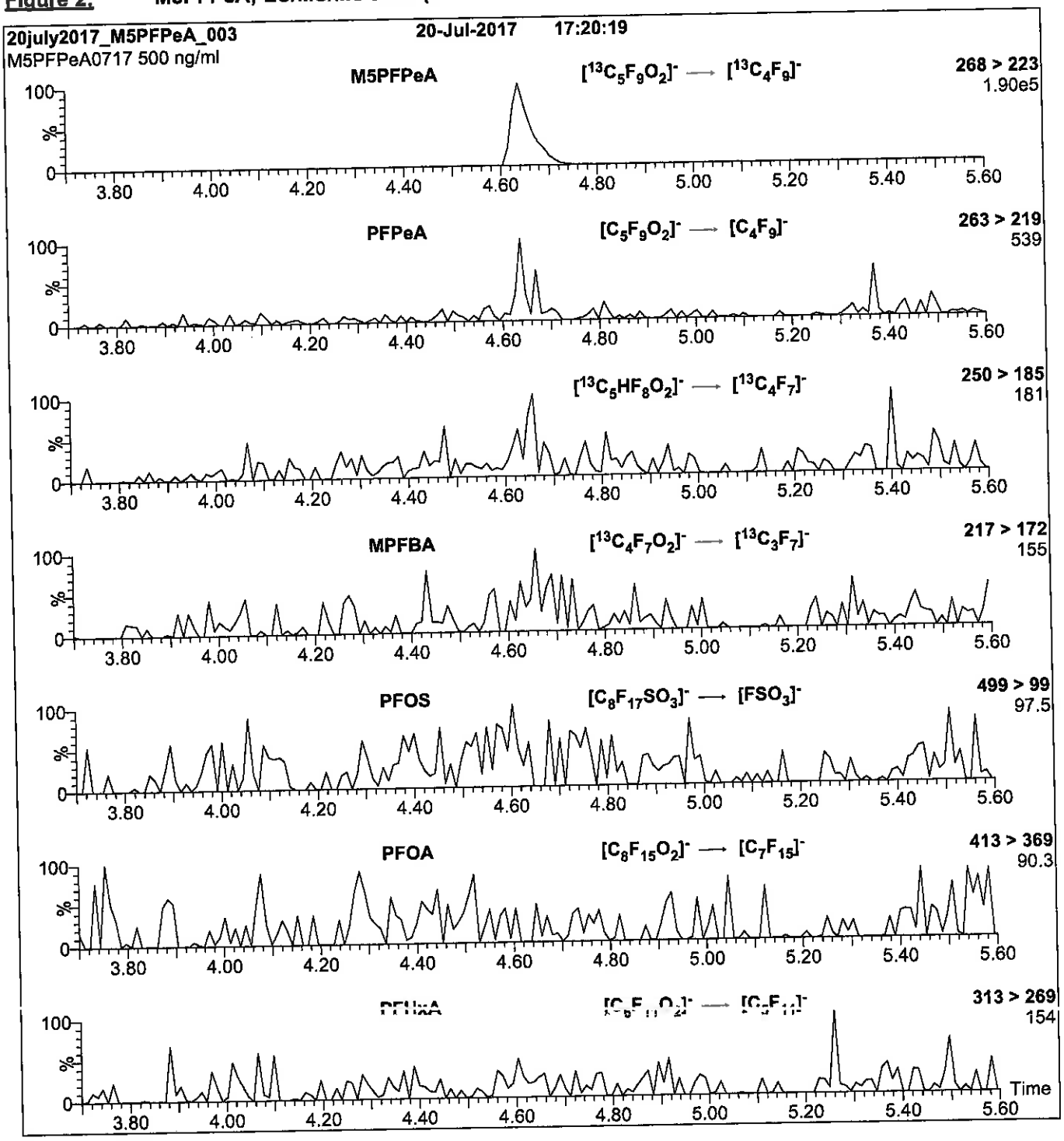
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M5PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M5PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 9

Reagent

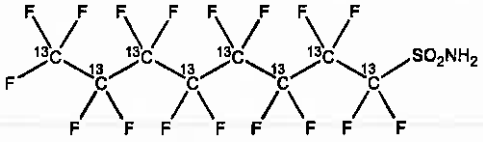
LCM8FOSA_00016

r: 12/4/17
CCL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8FOSA-I	**LOT NUMBER:**	M8FOSA1017I
COMPOUND:	Perfluoro-1-[$^{13}C_8$]octanesulfonamide		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	507.09
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.1% of perfluoro-1-[$^{13}C_4$]octanesulfonamide and ~ 0.01% of perfluoro-1-[$^{13}C_7$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/20/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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CALA

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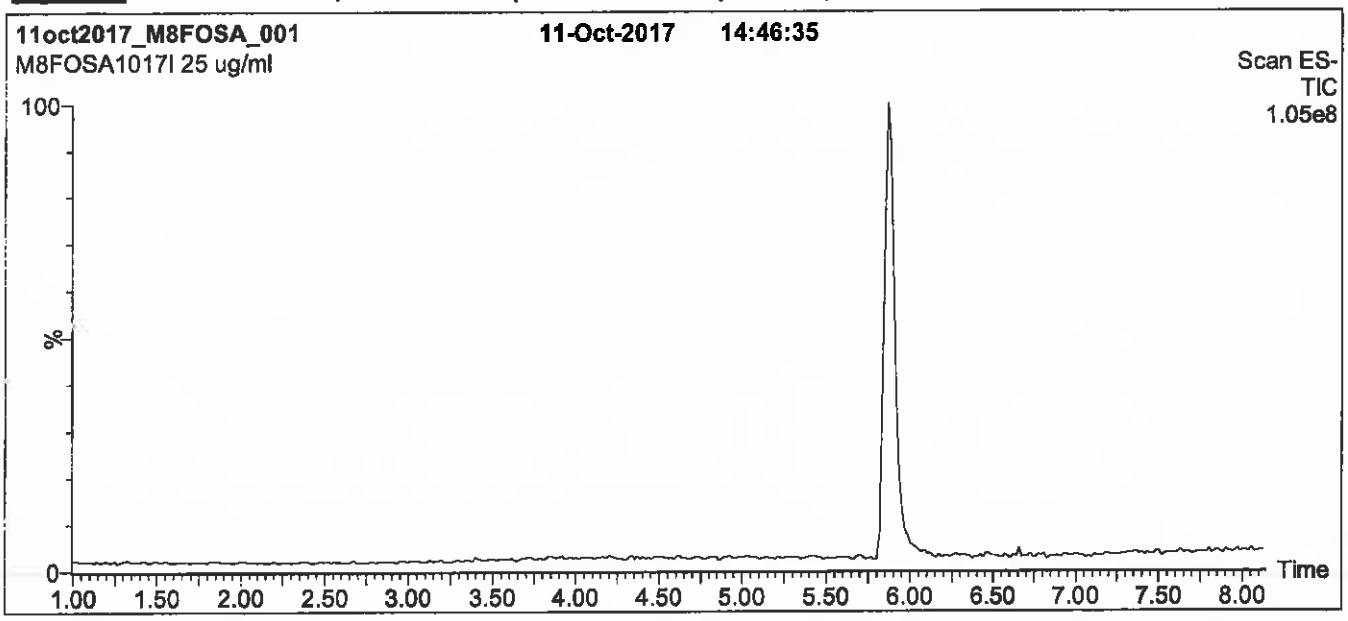
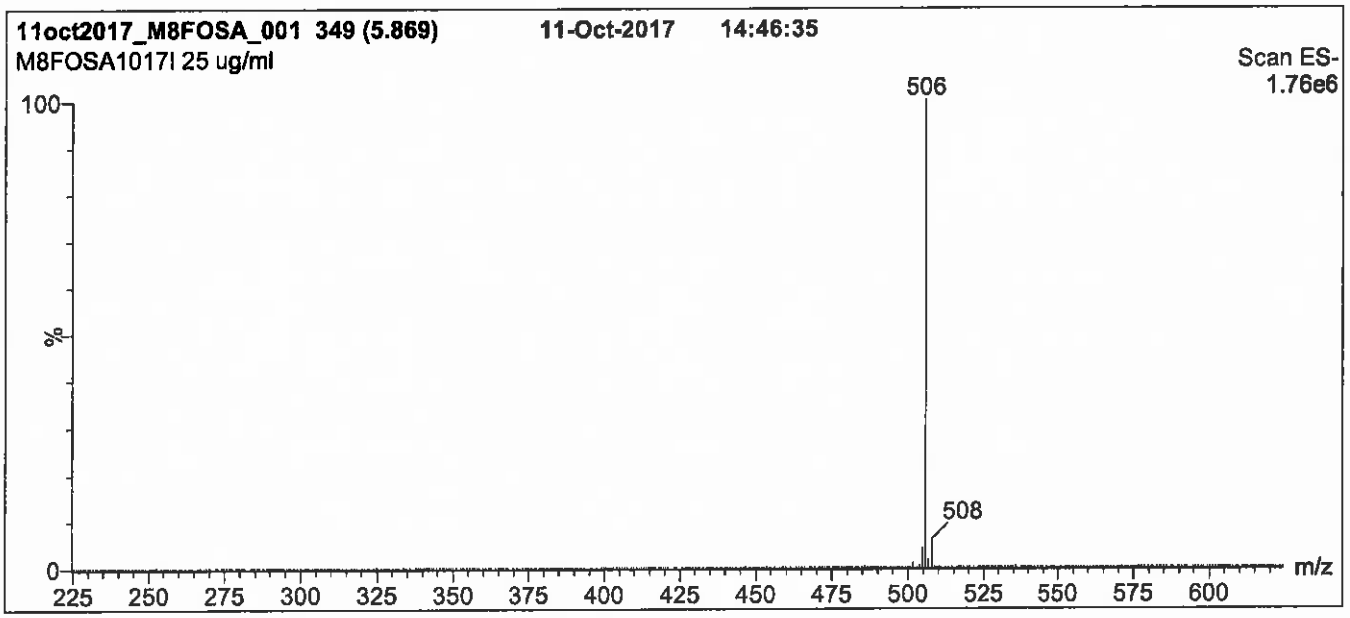
Figure 1: **M8FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

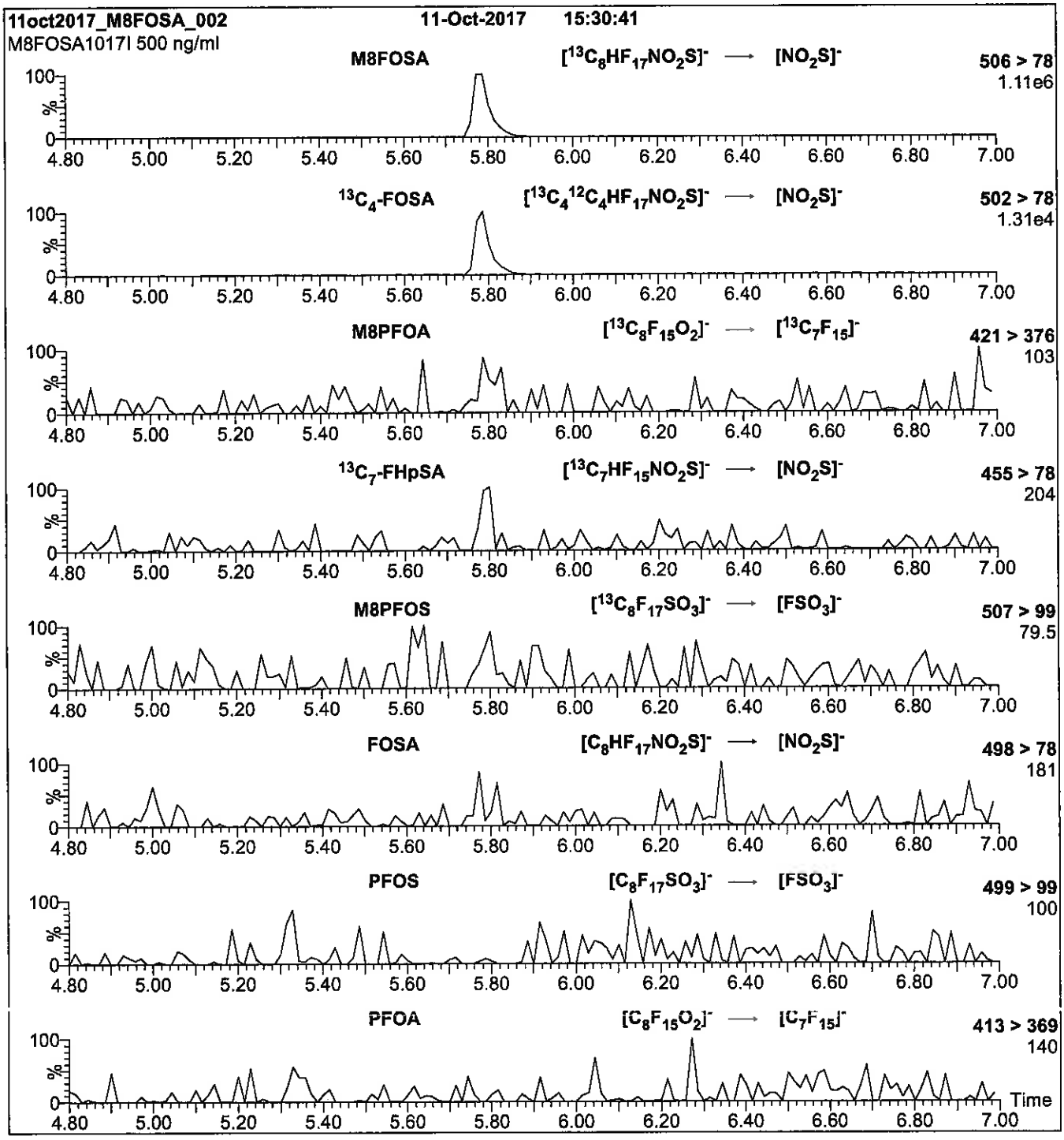
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M8FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

Reagent

LCMPFBA_00013

r: 12/4/17 ccc

WELLINGTON LABORATORIES

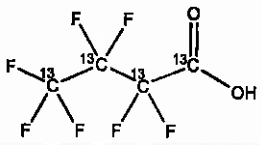
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFBA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid

LOT NUMBER: MPFBA0417

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4HF_7O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 218.01
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/12/2017
EXPIRY DATE: (mm/dd/yyyy) 04/12/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/20/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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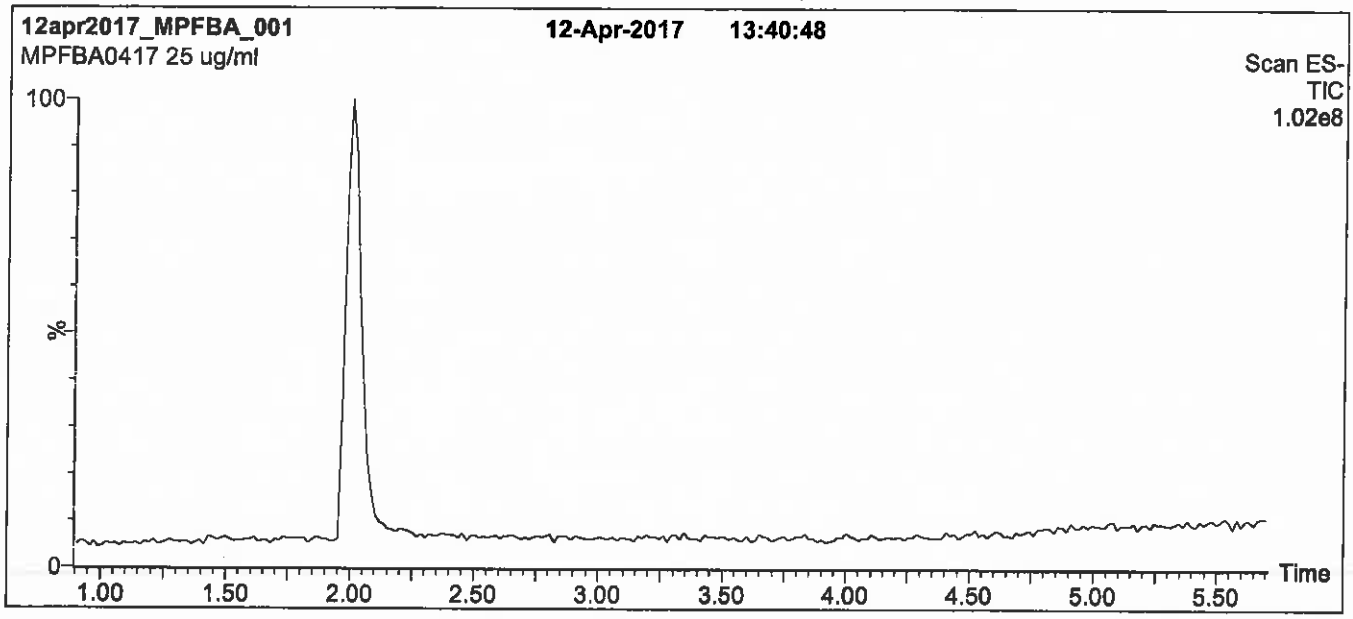
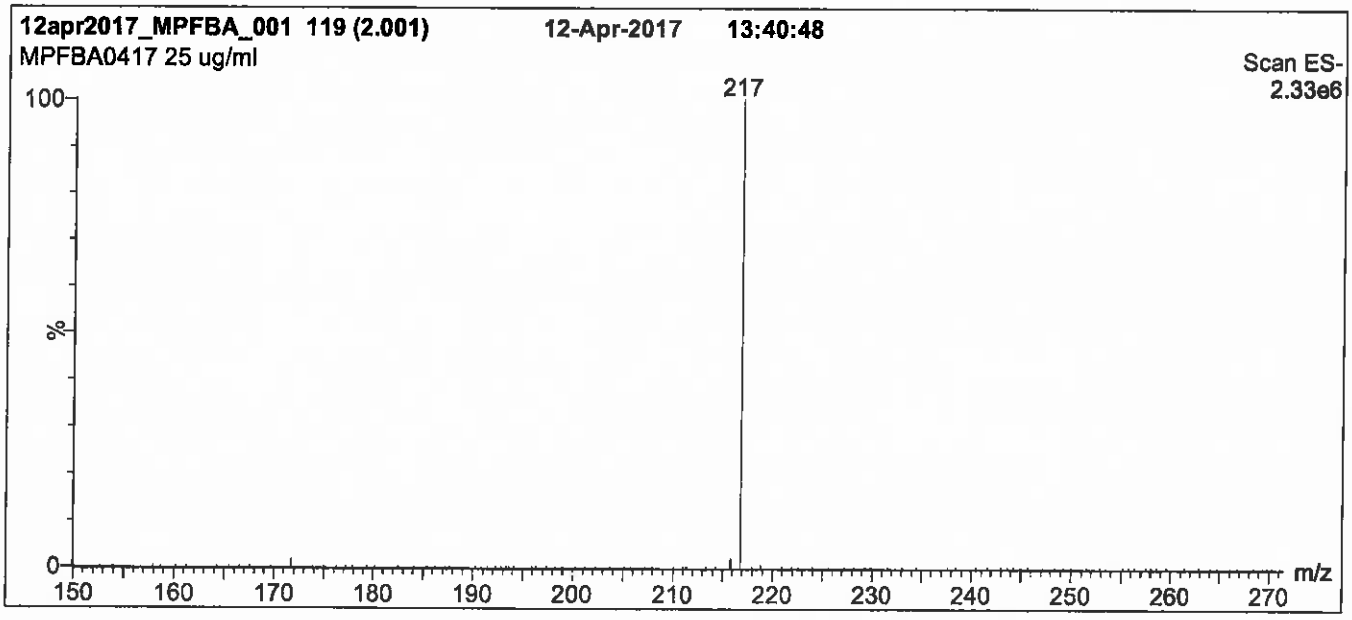
Figure 1: **MPFBA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

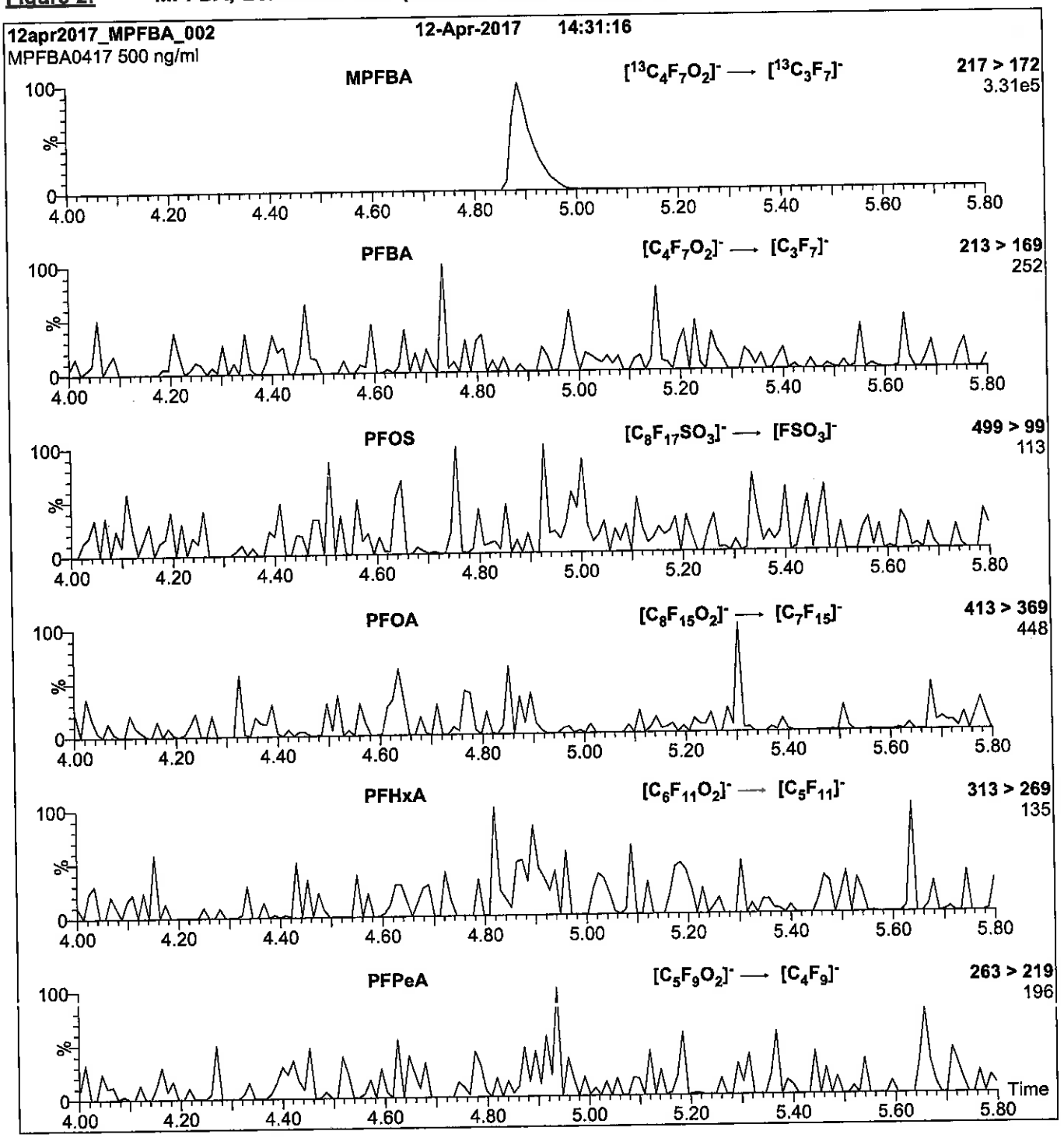
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 10

Reagent

LCMPFBS_00006

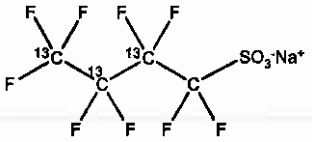
1106130
ID: LCMPFBS_00006
Exp: 05/24/22 Prpd: CCL
13C3-Perfluorobutanesulfo

r: 12/4/17 CCL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFBS	**LOT NUMBER:**	M3PFBS0815
COMPOUND:	Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CF_8SO_3Na$	**MOLECULAR WEIGHT:**	325.06
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.5 ± 2.3 µg/ml (M3PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	05/24/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/25/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED

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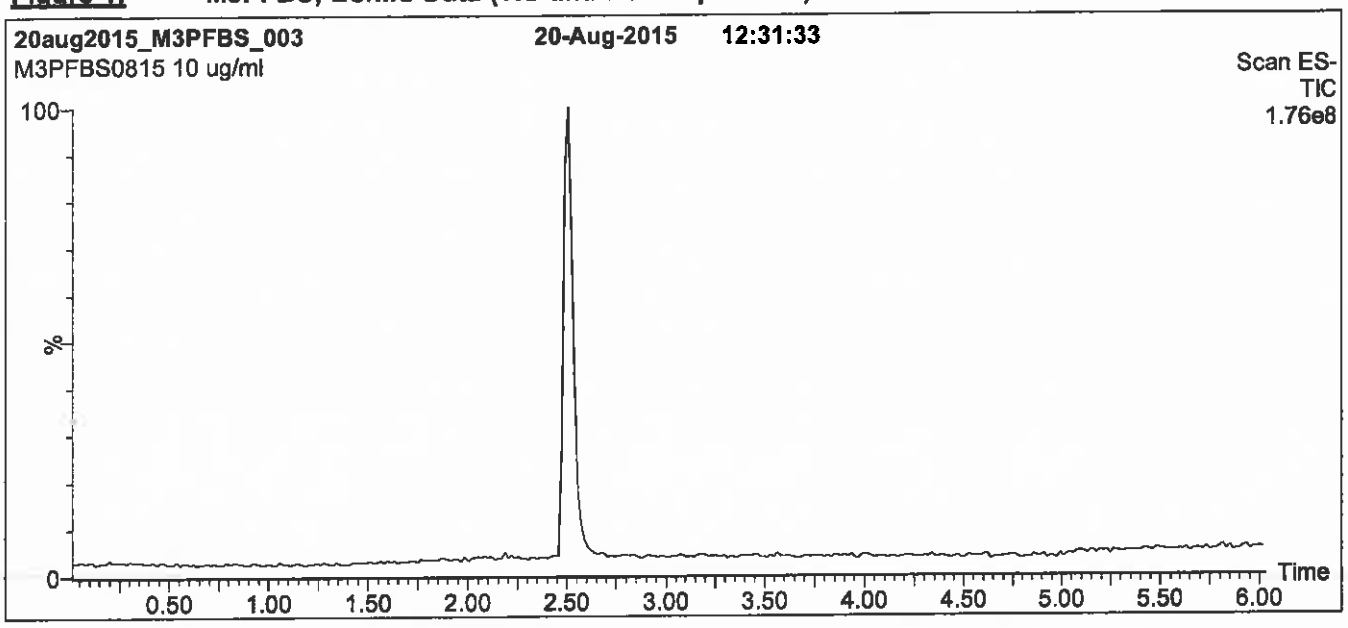
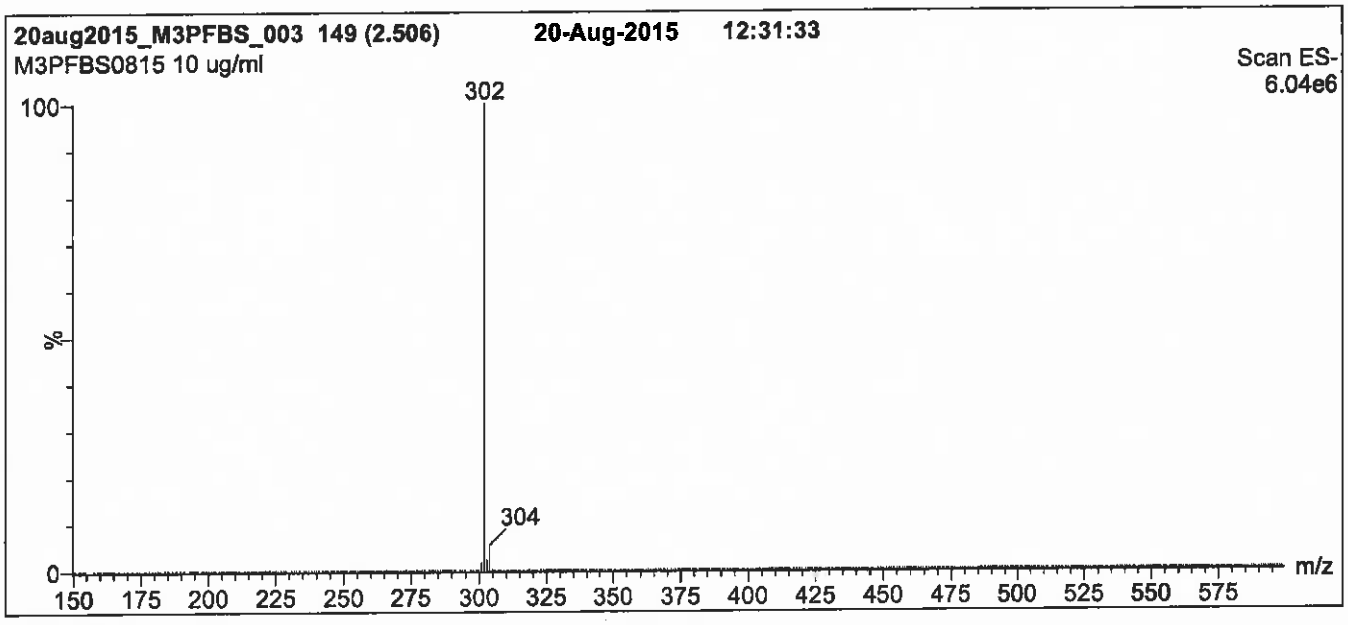
Figure 1: **M3PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

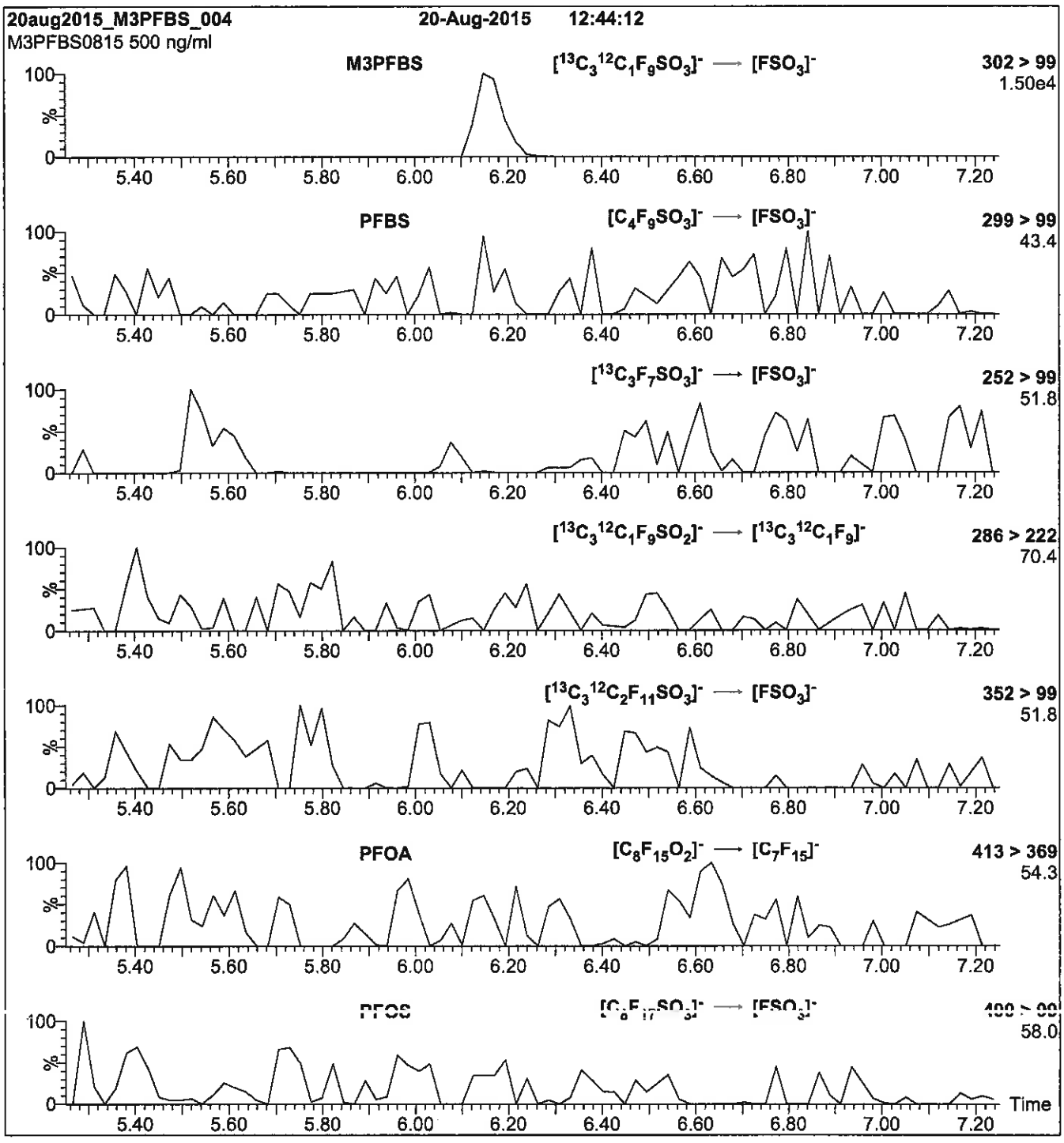
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M3PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFBS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 25

Reagent

LCMPFDA_00018

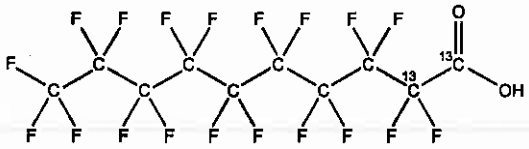
1106159
ID: LCMPFDA_00018
Exp: 07/13/22 Prpd: CCL
13C2-Perfluorodecanoic a

r: 12/4/17 cc

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0717
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of $^{13}C_4$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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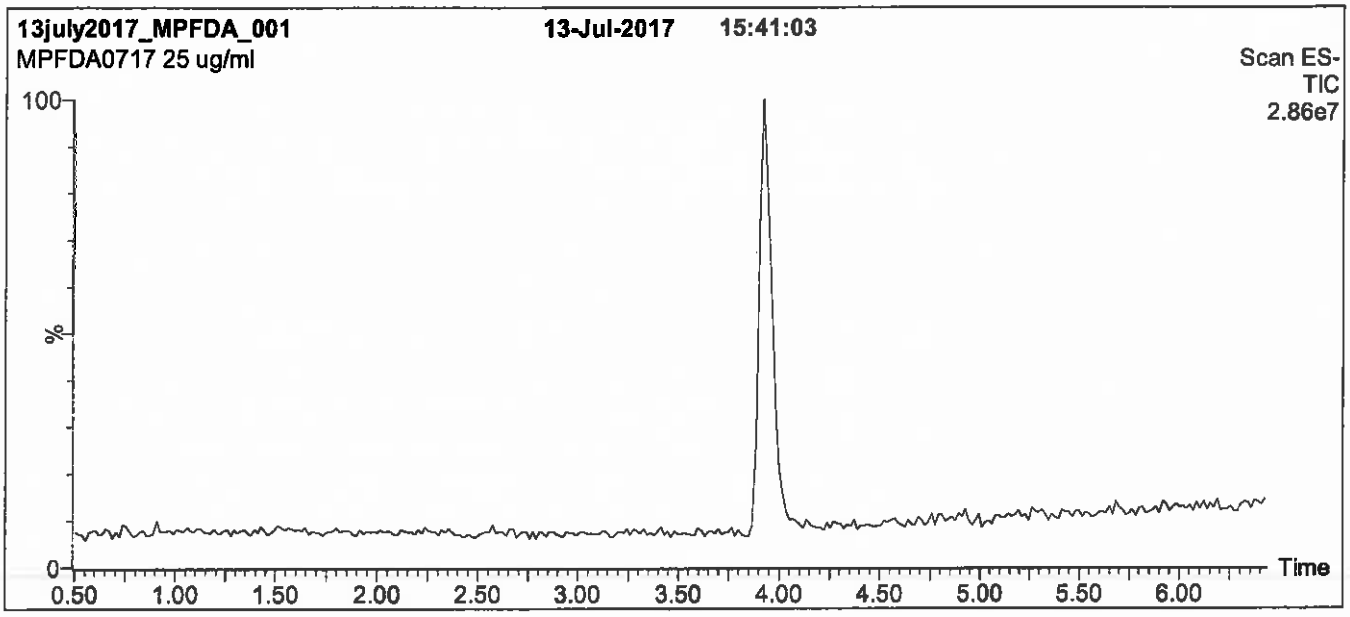
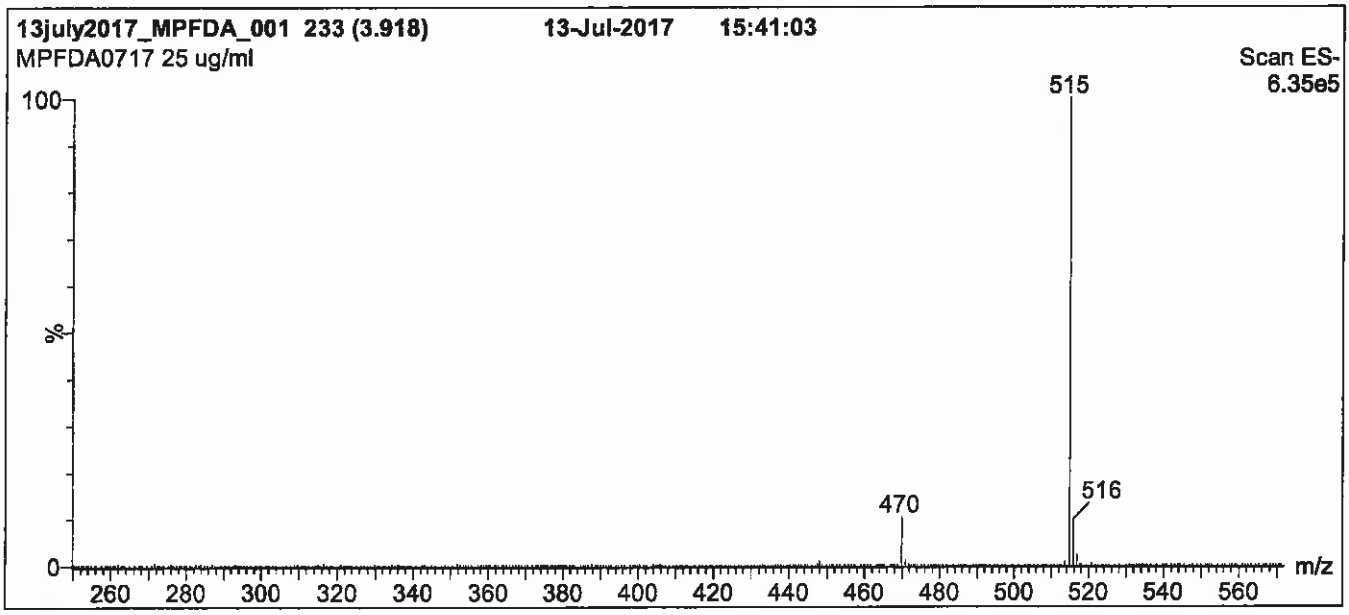
Figure 1: **MPFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

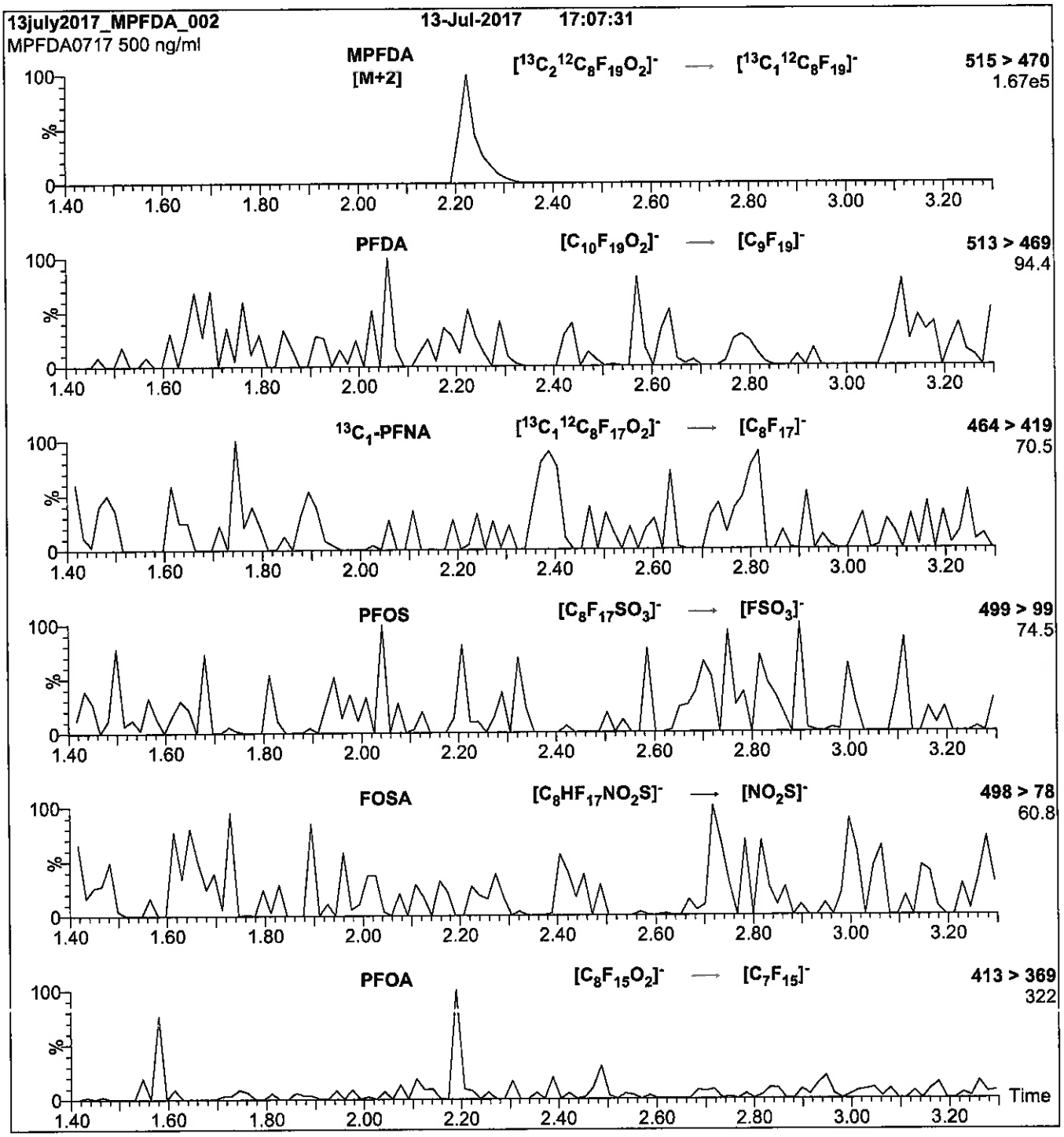
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml MPFDA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 13

Reagent

LCMPFDoA_00013

1106319
ID: LCMPFDoA_00013
Exp: 05/23/22 Prpd: CCL
13C2-Perfluorododecanoic

r: 12/4/17 cc

WELLINGTON LABORATORIES

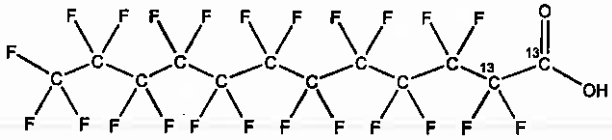
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

LOT NUMBER: MPFDoA0517

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_{10}HF_{23}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 616.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/23/2017
EXPIRY DATE: (mm/dd/yyyy) 05/23/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2\text{-}^{13}C_2$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/26/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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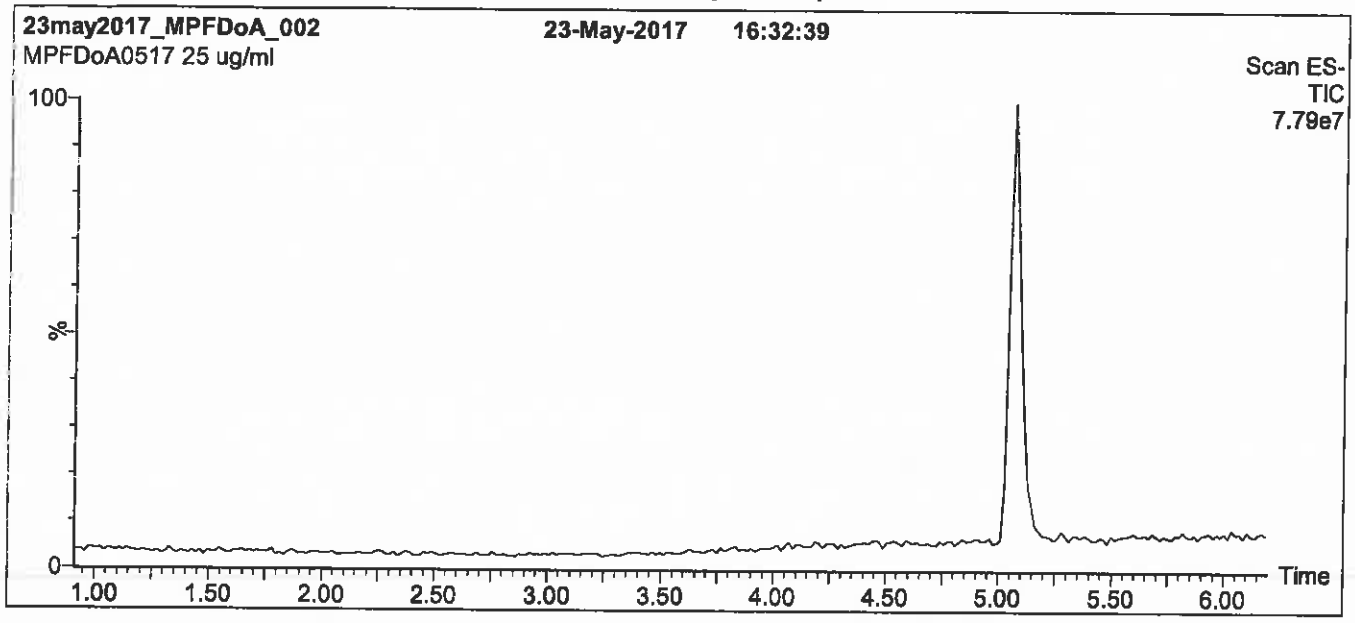
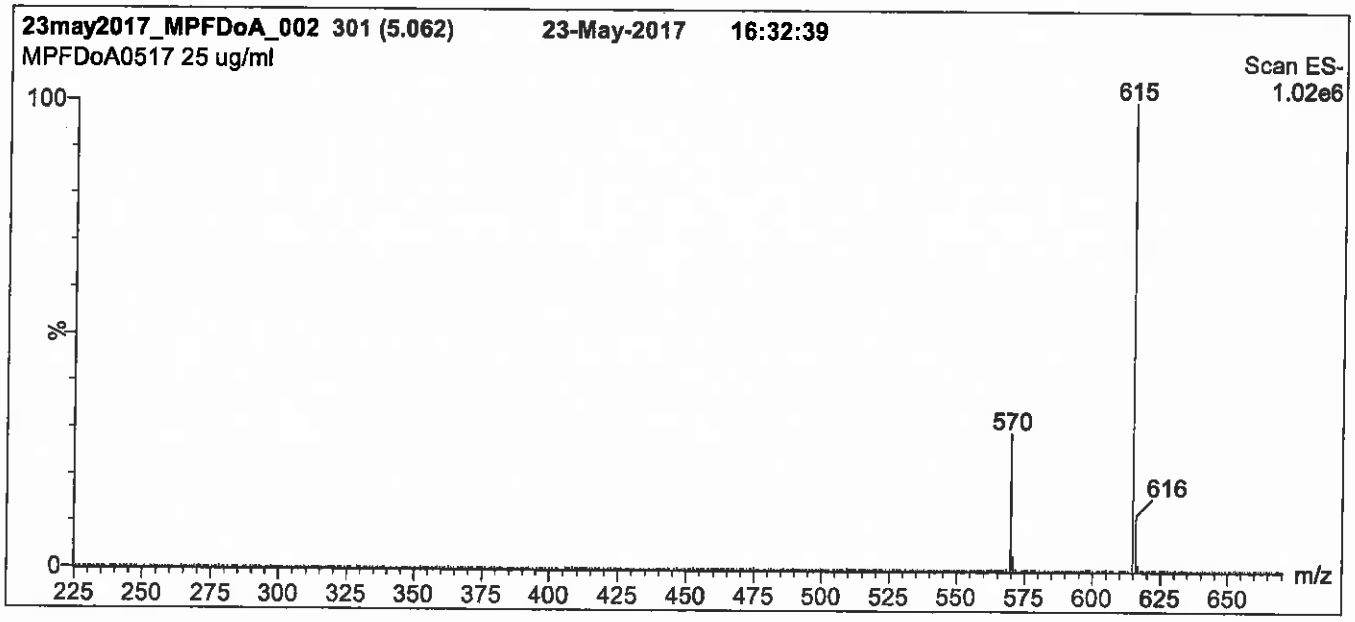
Figure 1: **MPFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

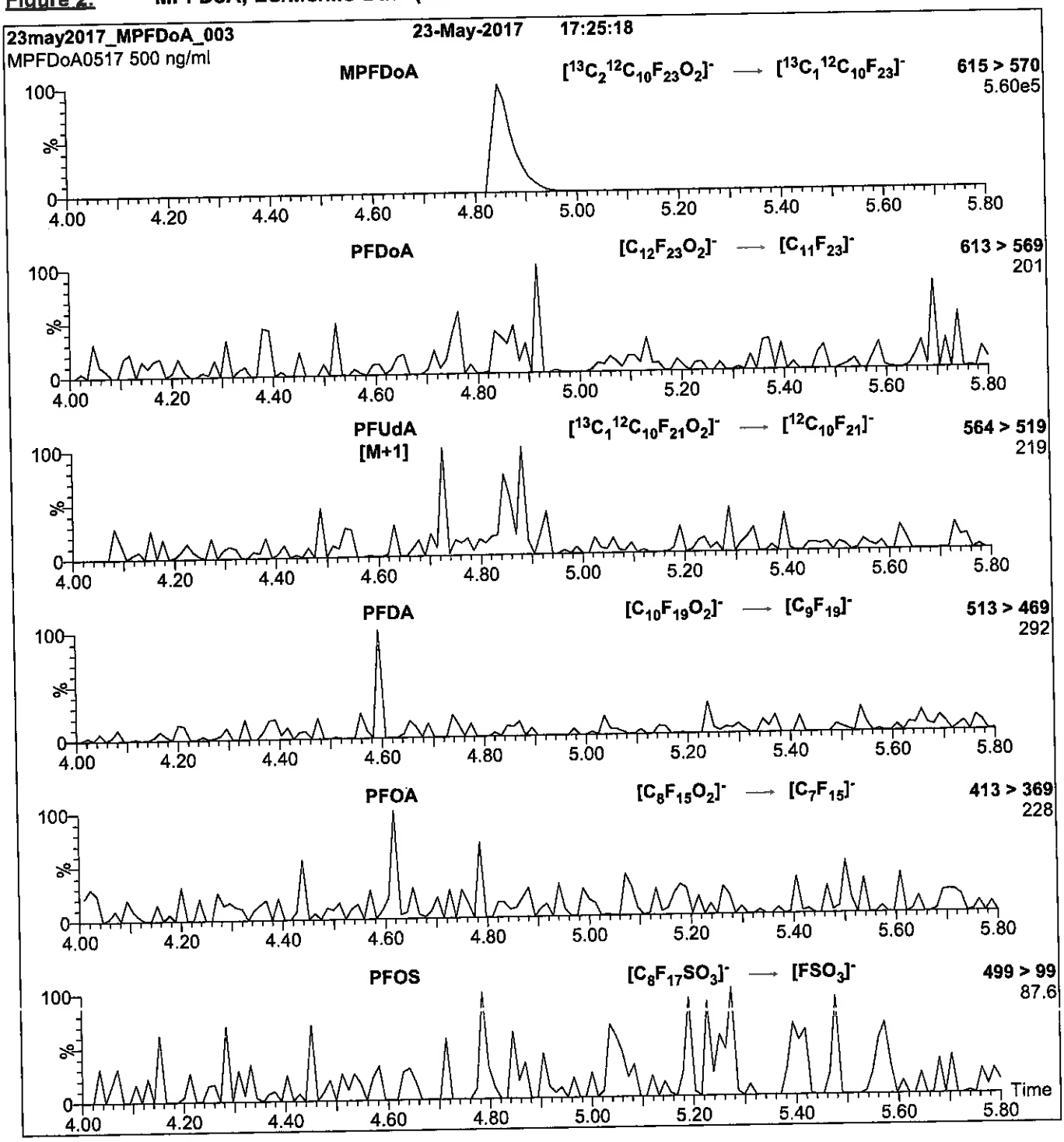
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml MPFDoA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

Reagent

LCMPFHxA_00019

r: 12/4/17 ccc

WELLINGTON LABORATORIES

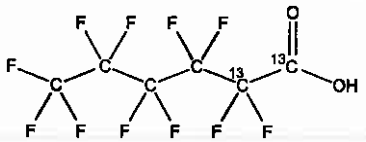
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid

LOT NUMBER: MPFHxA1017

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/27/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/27/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of perfluoro-n-hexanoic acid and < 0.3% of perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/30/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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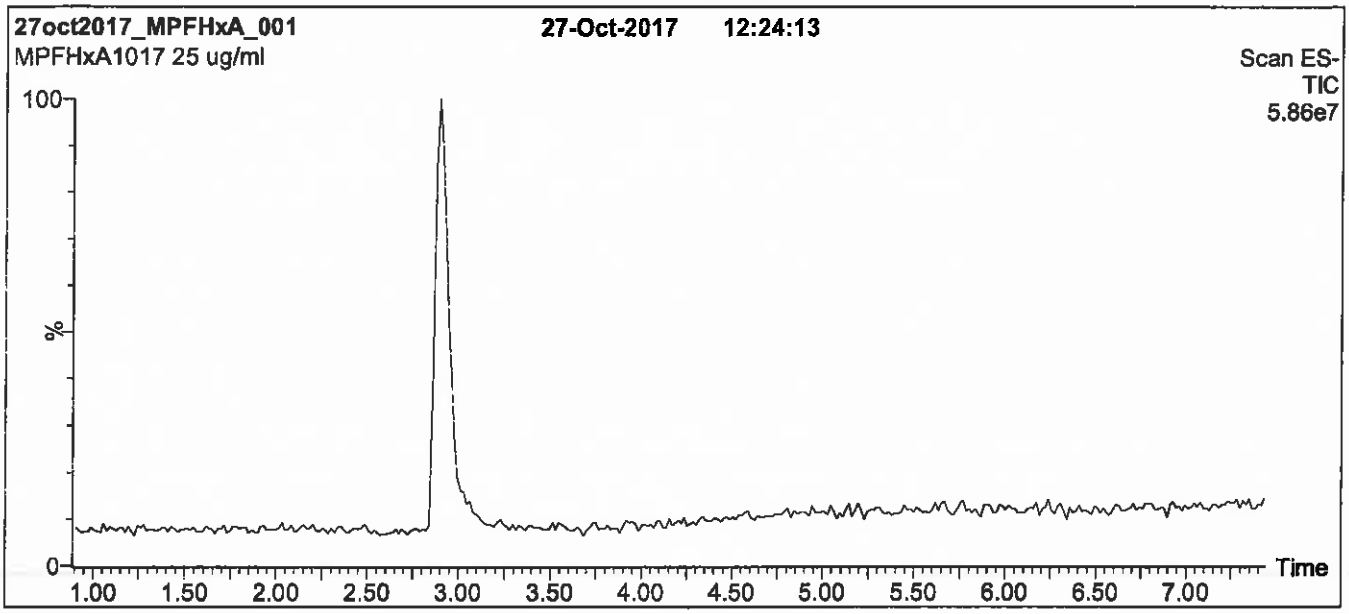
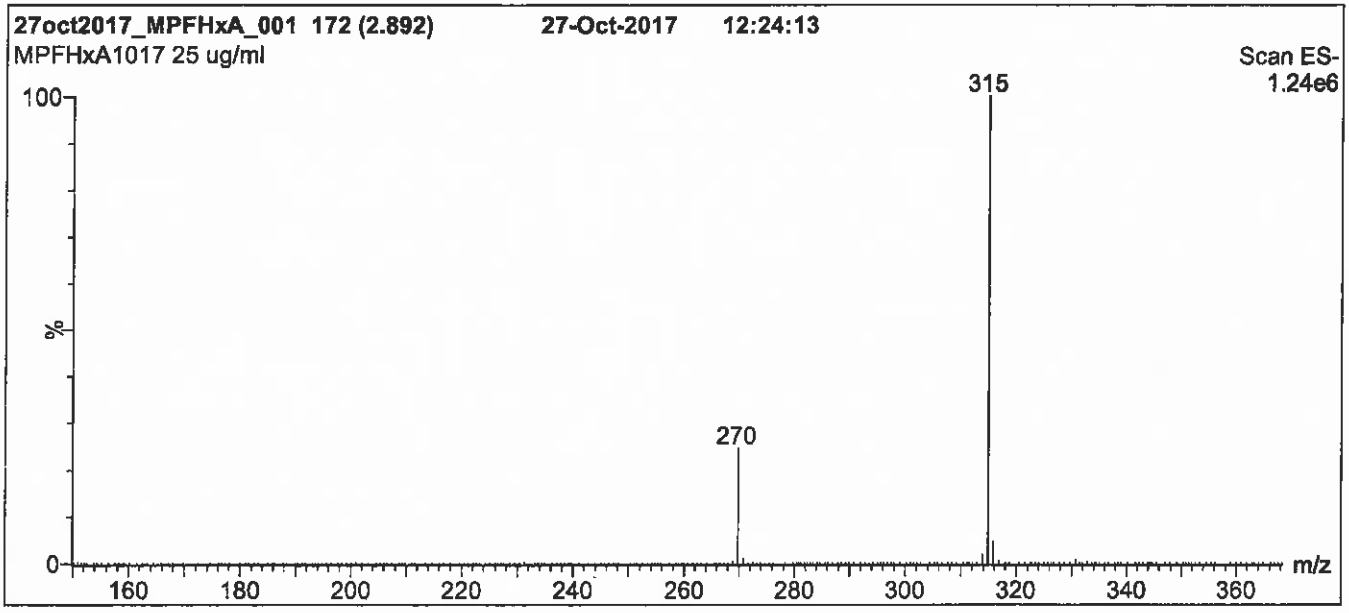
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions over 0.5 min.
Time: 10 min

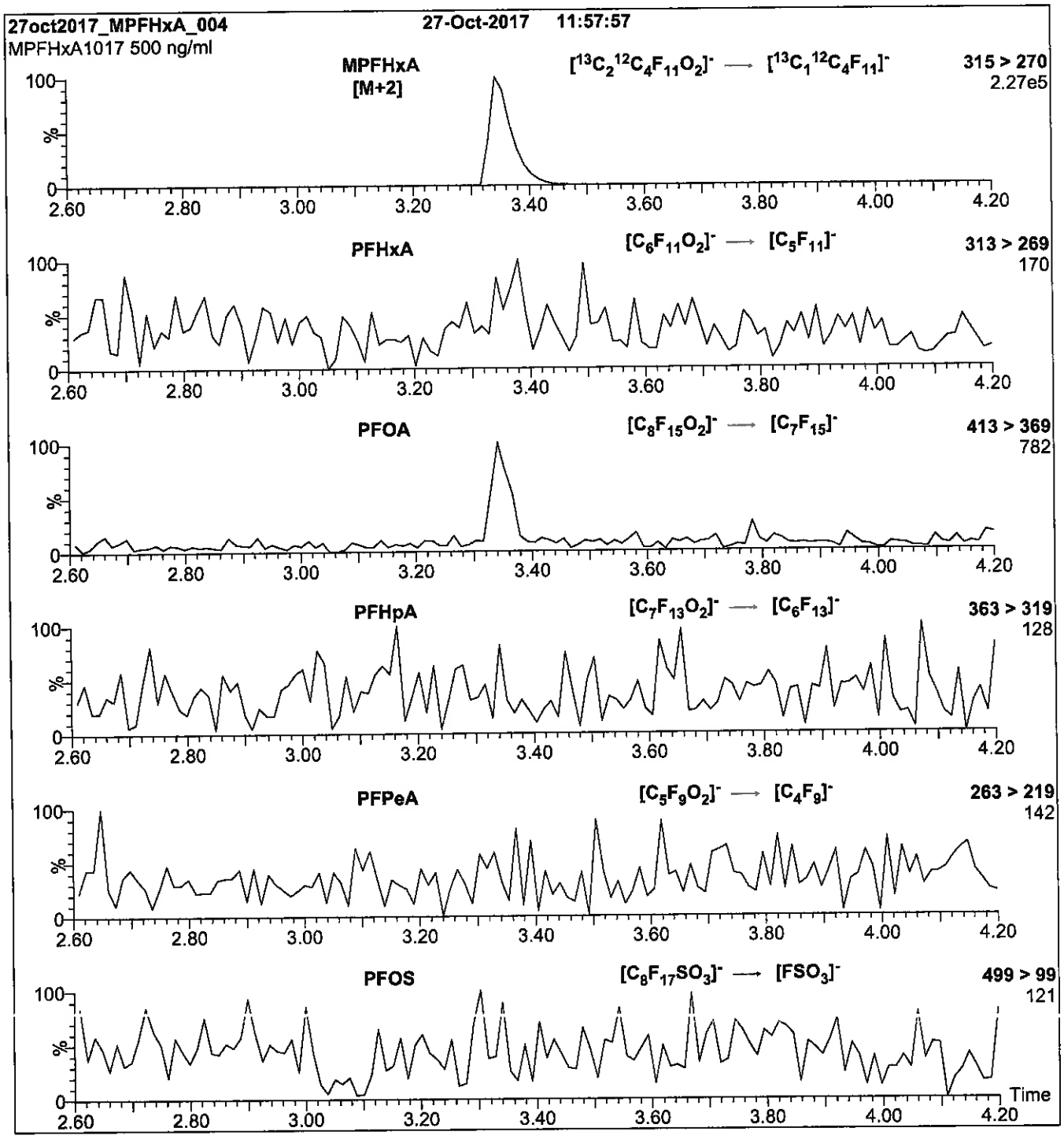
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

Reagent

LCMPFHxS_00013

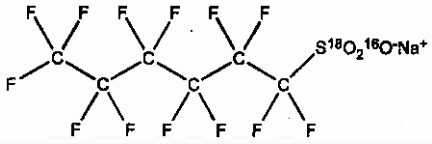
1106238
ID: LCMPFHxS_00013
Exp: 02/17/22 Prpd: CCL
18O2-Perfluorohexanesulfo

r: 12/4/17 CCL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS0217
COMPOUND:	Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$	**MOLECULAR WEIGHT:**	426.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (MPFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>94% ($^{18}O_2$)
LAST TESTED: (mm/dd/yyyy)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS ($C_6F_{13}S^{18}O_2{}^{16}O^-$) has been observed to be up to 10% lower than for PFHxS ($C_6F_{13}S^{16}O_3^-$) when both compounds are injected together. This difference may vary between instruments.
- Contains ~ 1.0% of sodium perfluoro-1-octane[$^{18}O_2$]sulfonate ($^{18}O_2$-PFOS).
- Due to the isotopic purity of the starting material ($^{18}O_2$ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 03/02/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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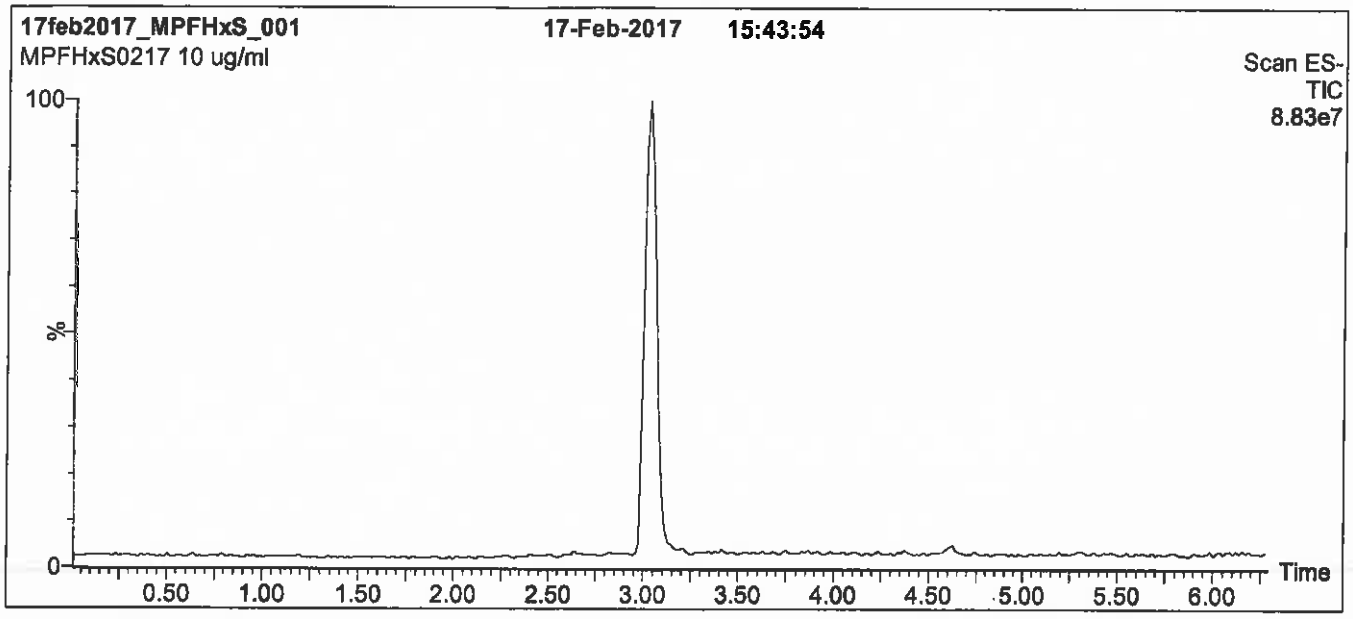
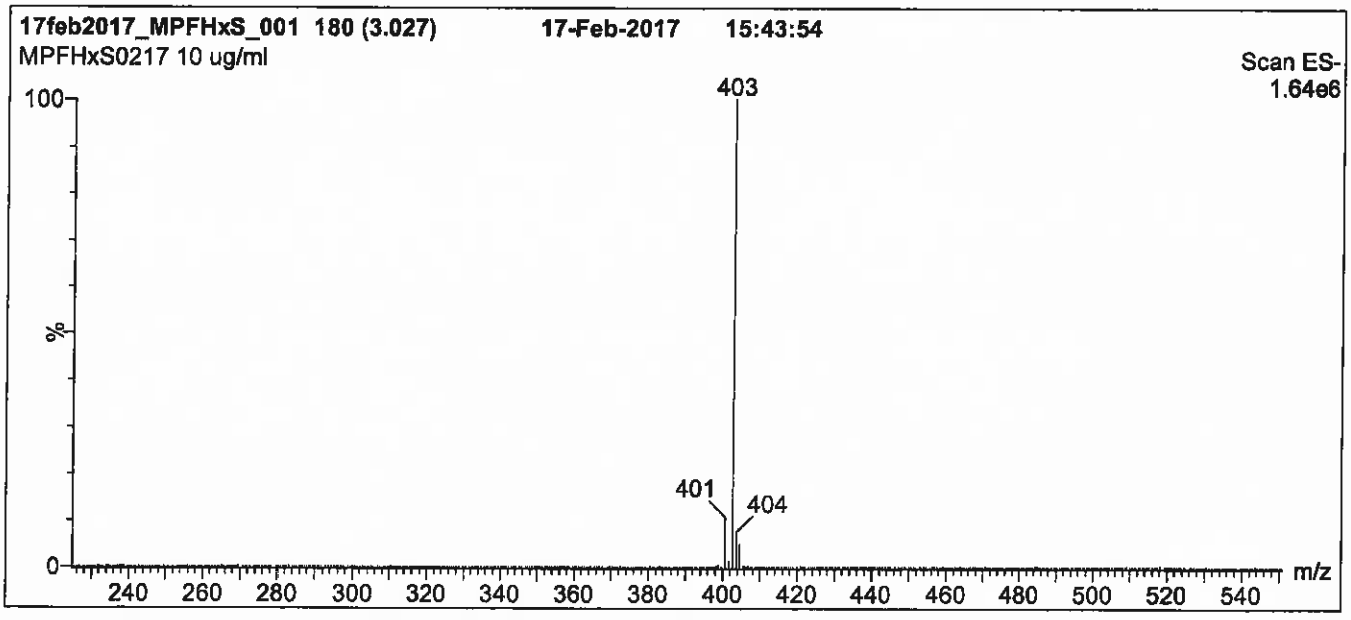
Figure 1: **MPFHxS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

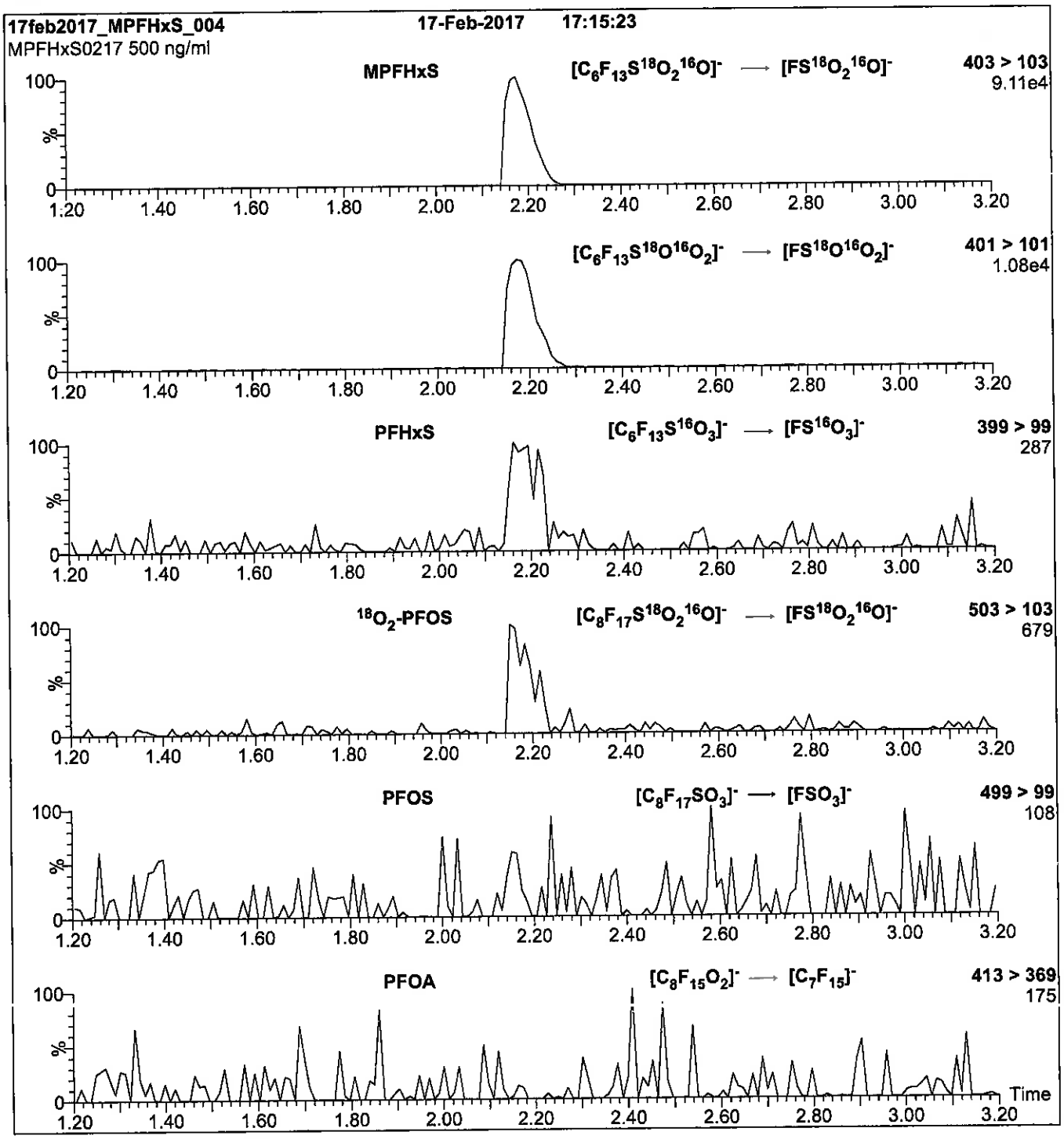
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml MPFHxS)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

Reagent

LCMPFNA_00013

1105307
ID: LCMPFNA_00013
Exp: 09/30/21 Prpd: CCL
13C5-Perfluorononanoic aci

r: 12/4/17 ccc

WELLINGTON LABORATORIES

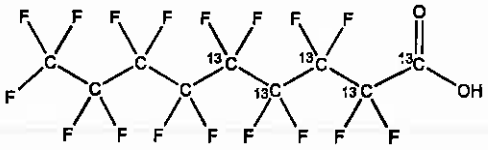
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid

LOT NUMBER: MPFNA0916

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_5{}^{12}C_4HF_{17}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 469.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/30/2016
EXPIRY DATE: (mm/dd/yyyy) 09/30/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/11/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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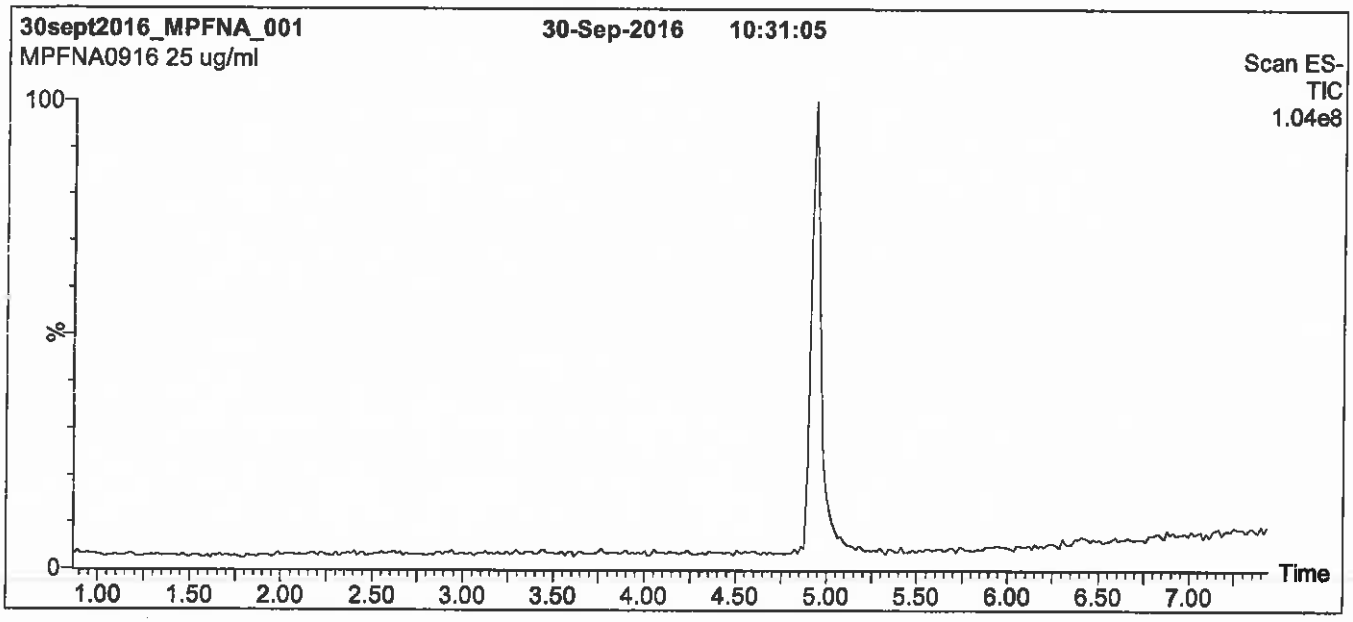
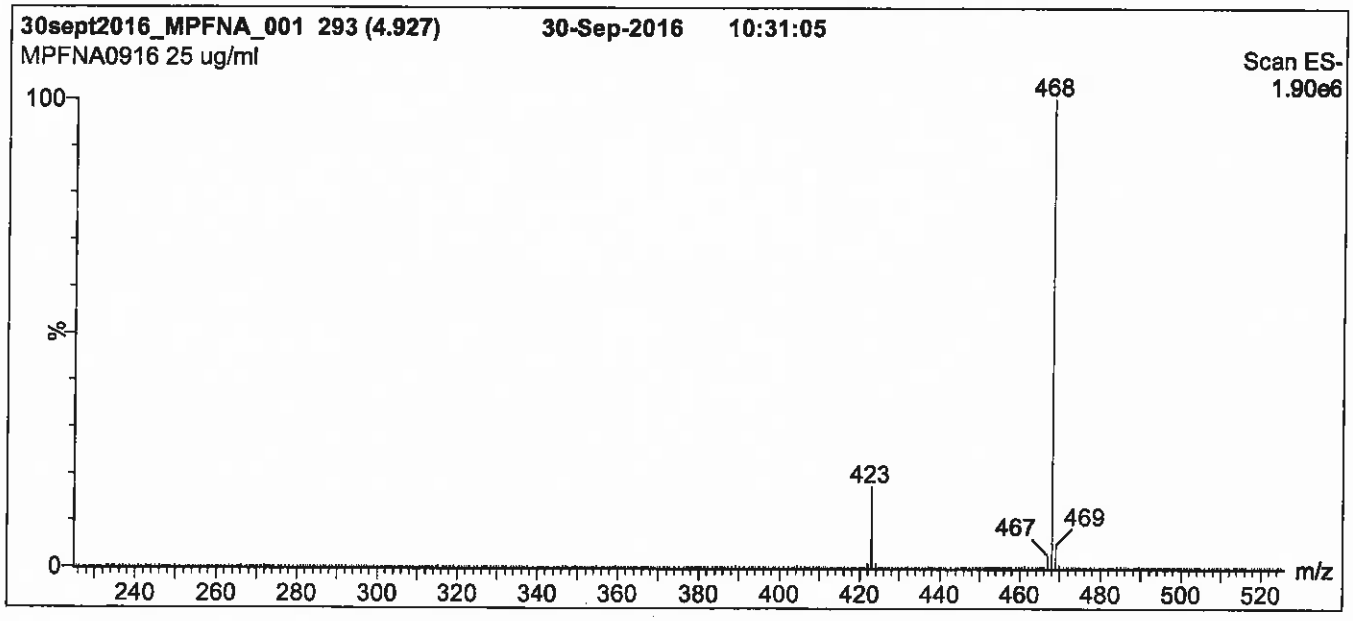
Figure 1: **MPFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

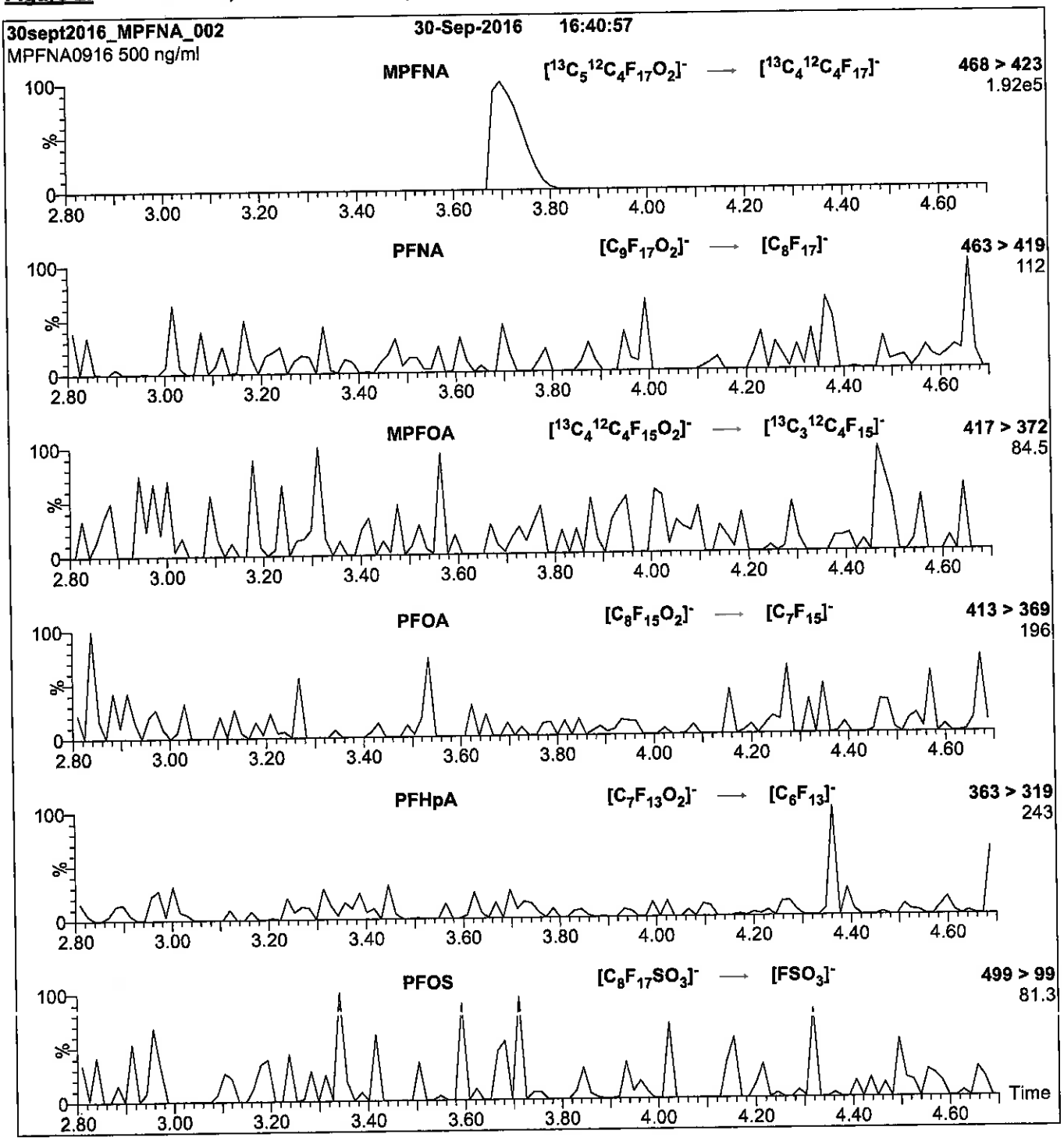
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml MPFNA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 11

Reagent

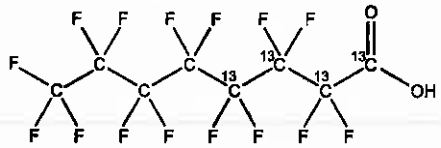
LCMPFOA_00017

R: 12/4/19 cc

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOA	**LOT NUMBER:**	MPFOA1017
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4HF_{16}O_2$	**MOLECULAR WEIGHT:**	418.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	10/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/17/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of native perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/19/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA

ANAB ACCREDITED

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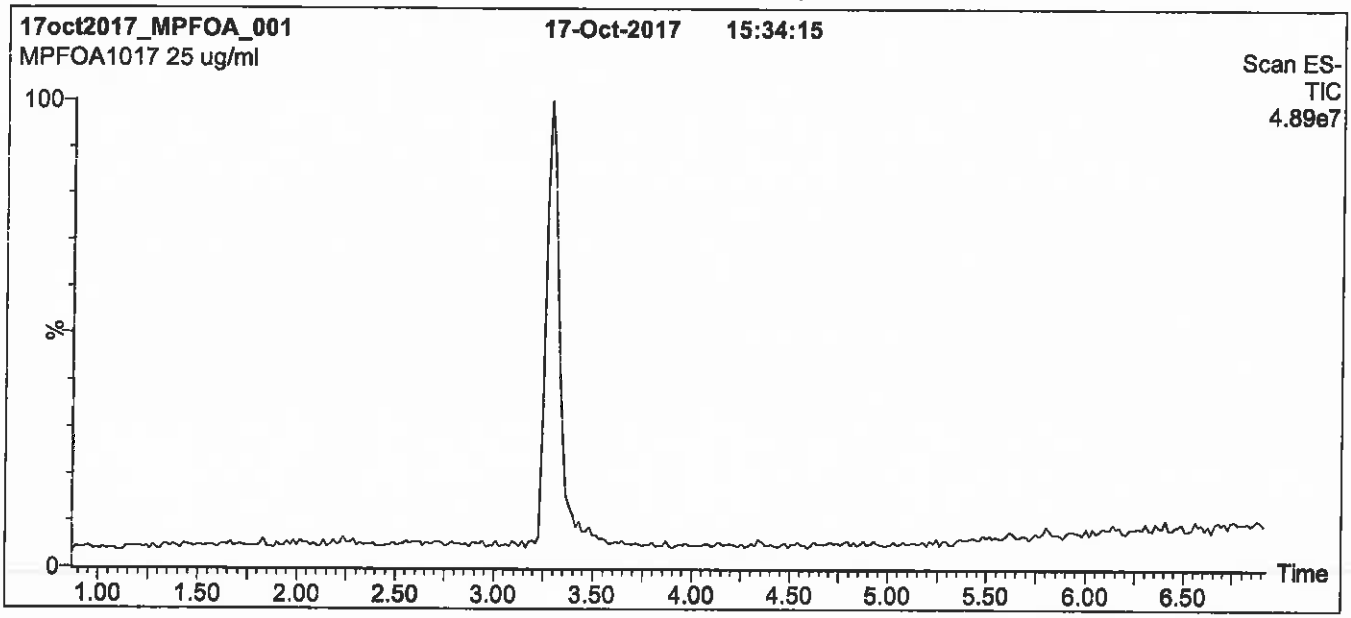
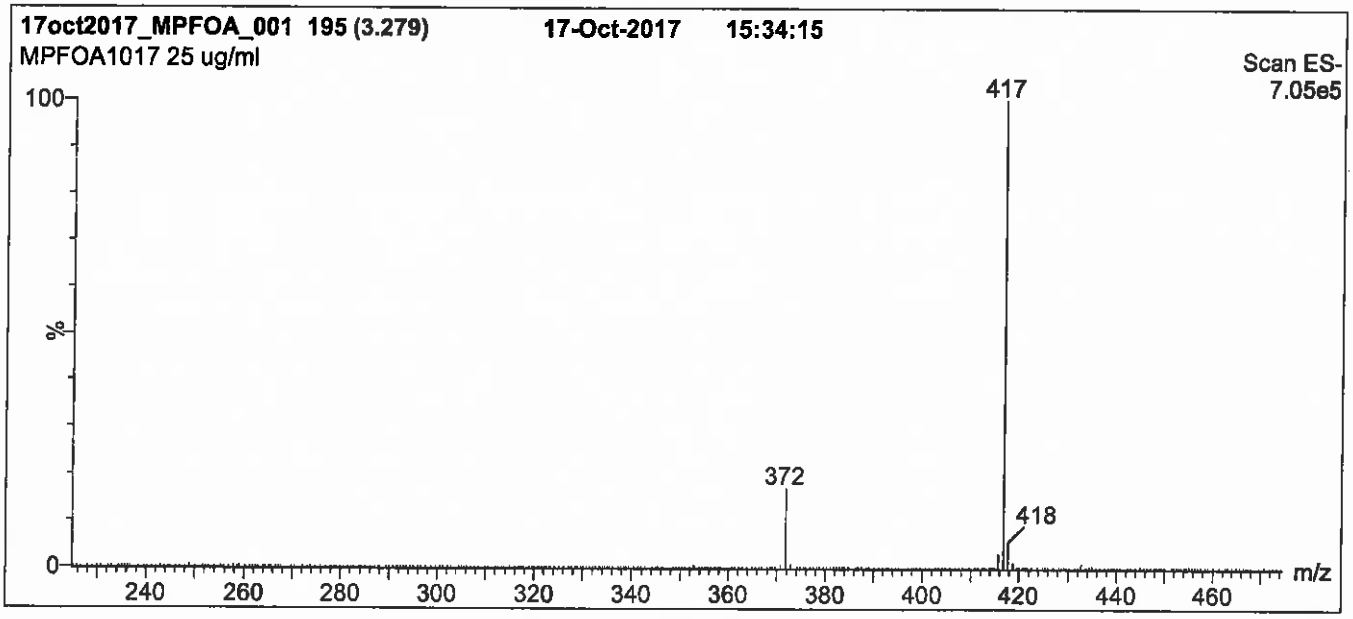




Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

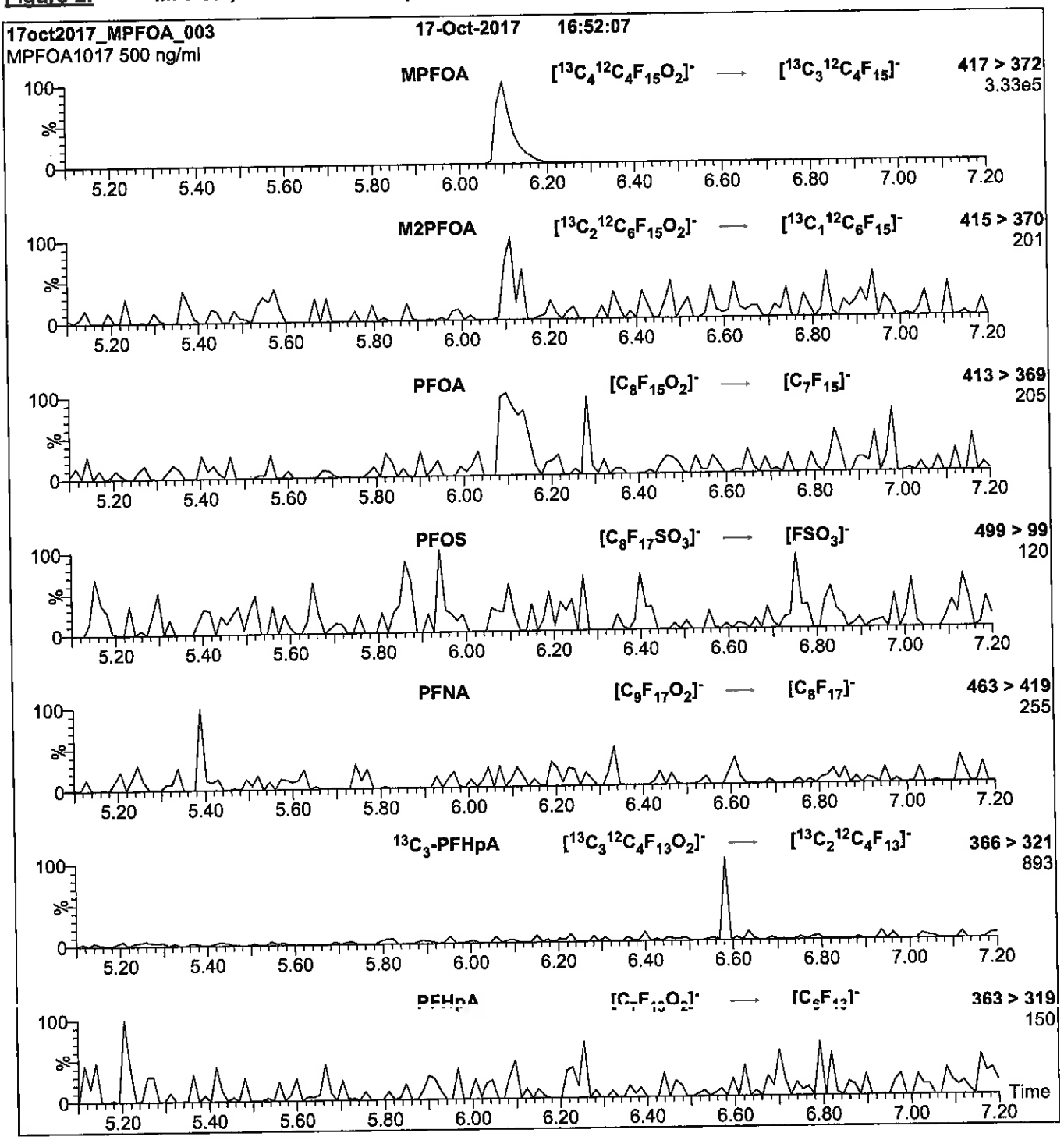
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

Reagent

LCMPFOS_00025

1106029
ID: LCMPFOS_00025
Exp: 10/17/22 Rpd: SKV
13C4-Perfluorooctanesulfo

P: 12/4/17 CCL

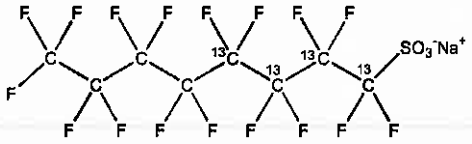
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1017

COMPOUND: Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	10/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/17/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.4% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/18/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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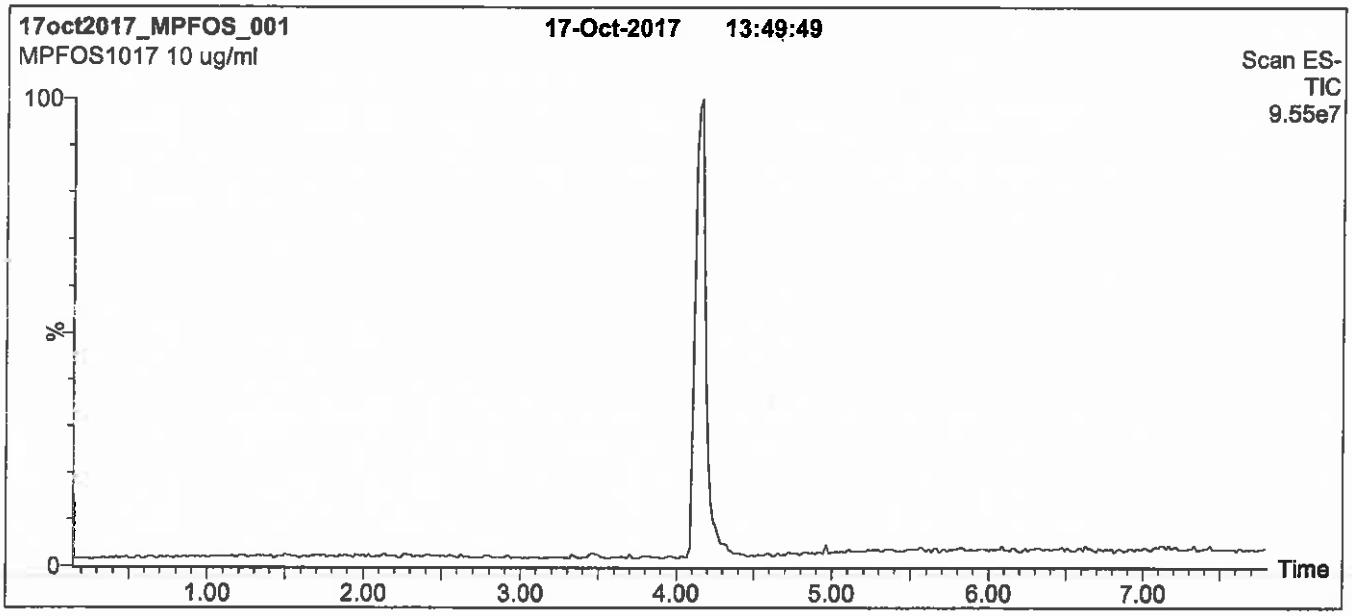
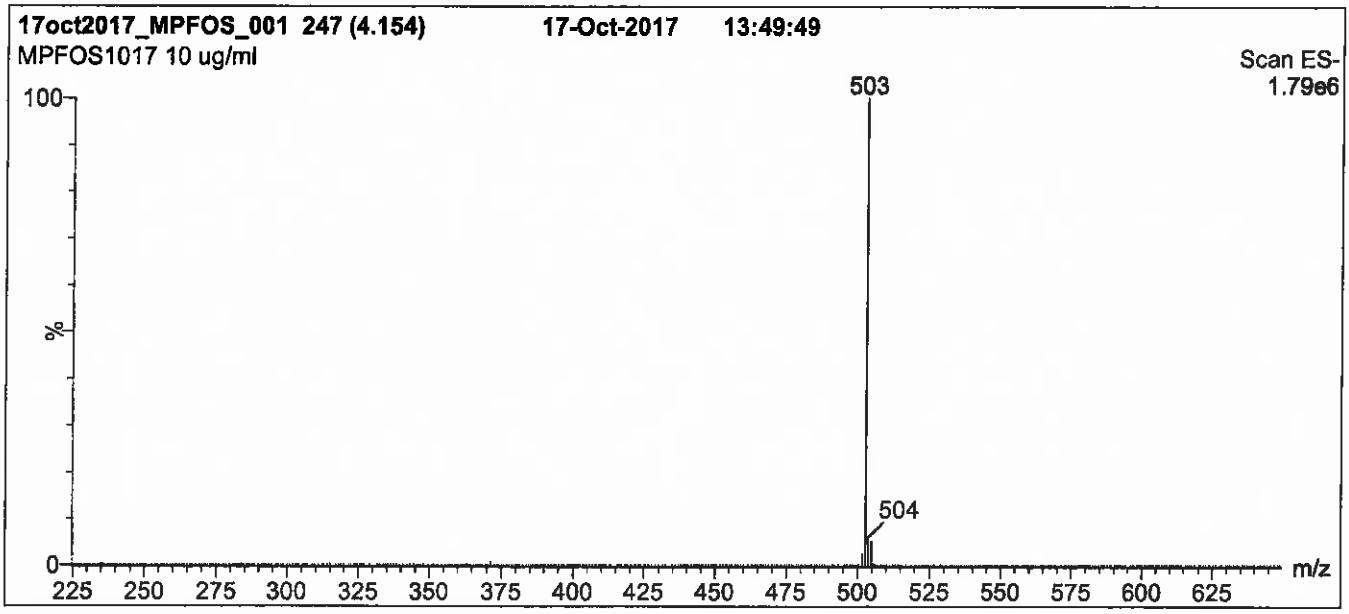




Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

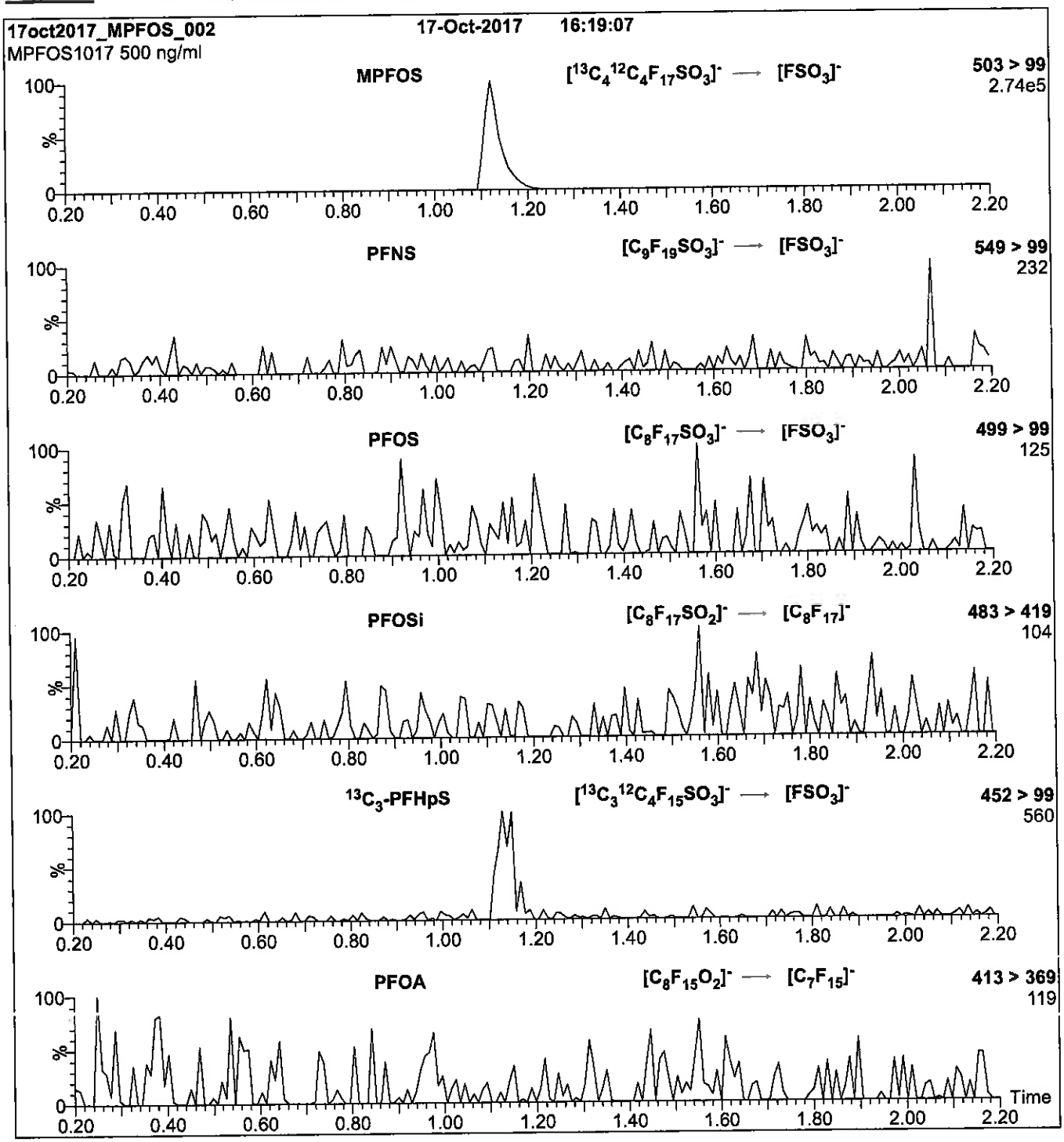
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop Injection
10 µl (500 ng/ml MPFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 40

Reagent

LCMPFUdA_00014

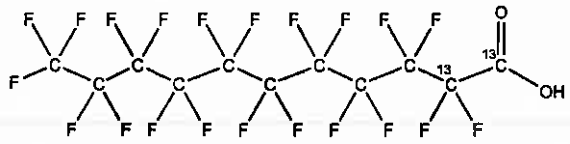
1106187
ID: LCMPFUdA_00014
Exp: 11/22/21 Prpd: CCL
13C2-Perfluoroundecanoic

R: 12/4/17 ccl

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFUdA	**LOT NUMBER:**	MPFUdA1116
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Presence of 1-$^{13}C_1$-PFUdA (~1%; see Figure 2), 2-$^{13}C_1$-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ^{13}C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/07/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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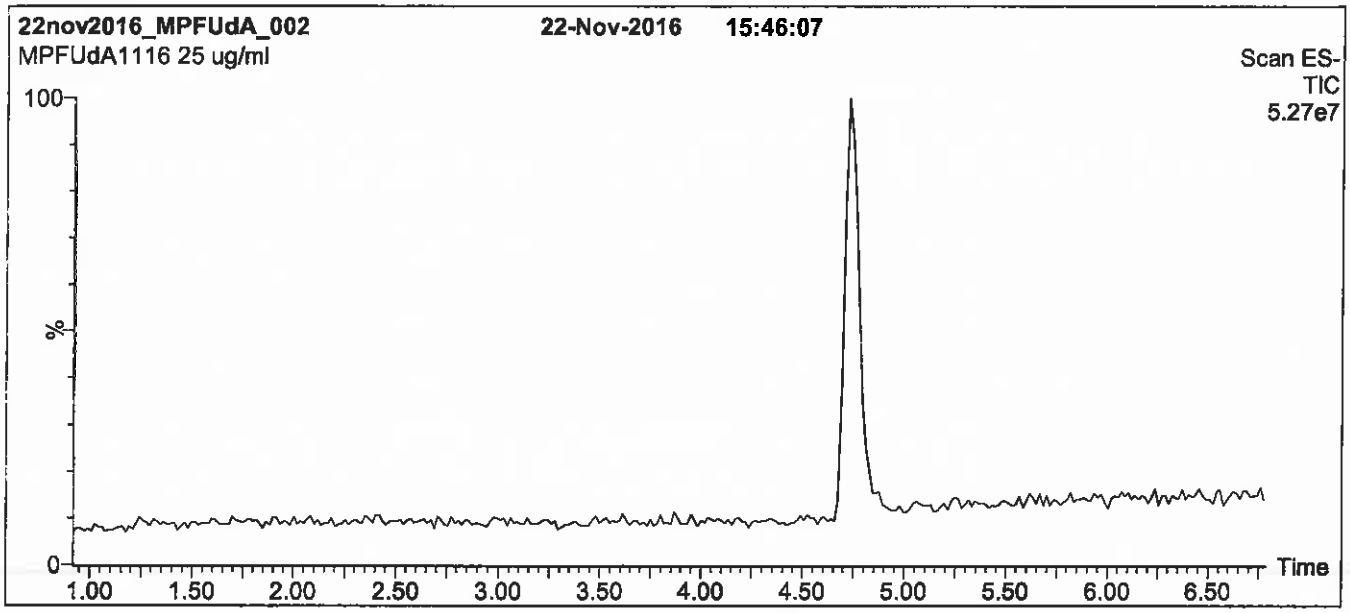
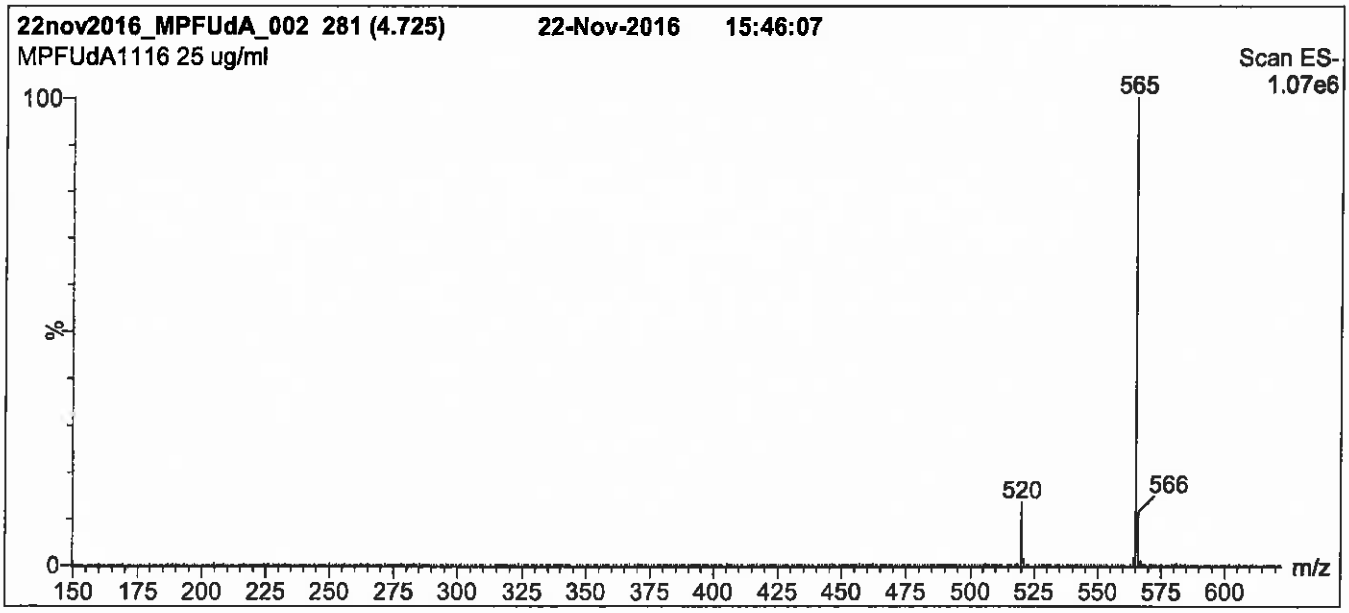
Figure 1: **MPFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

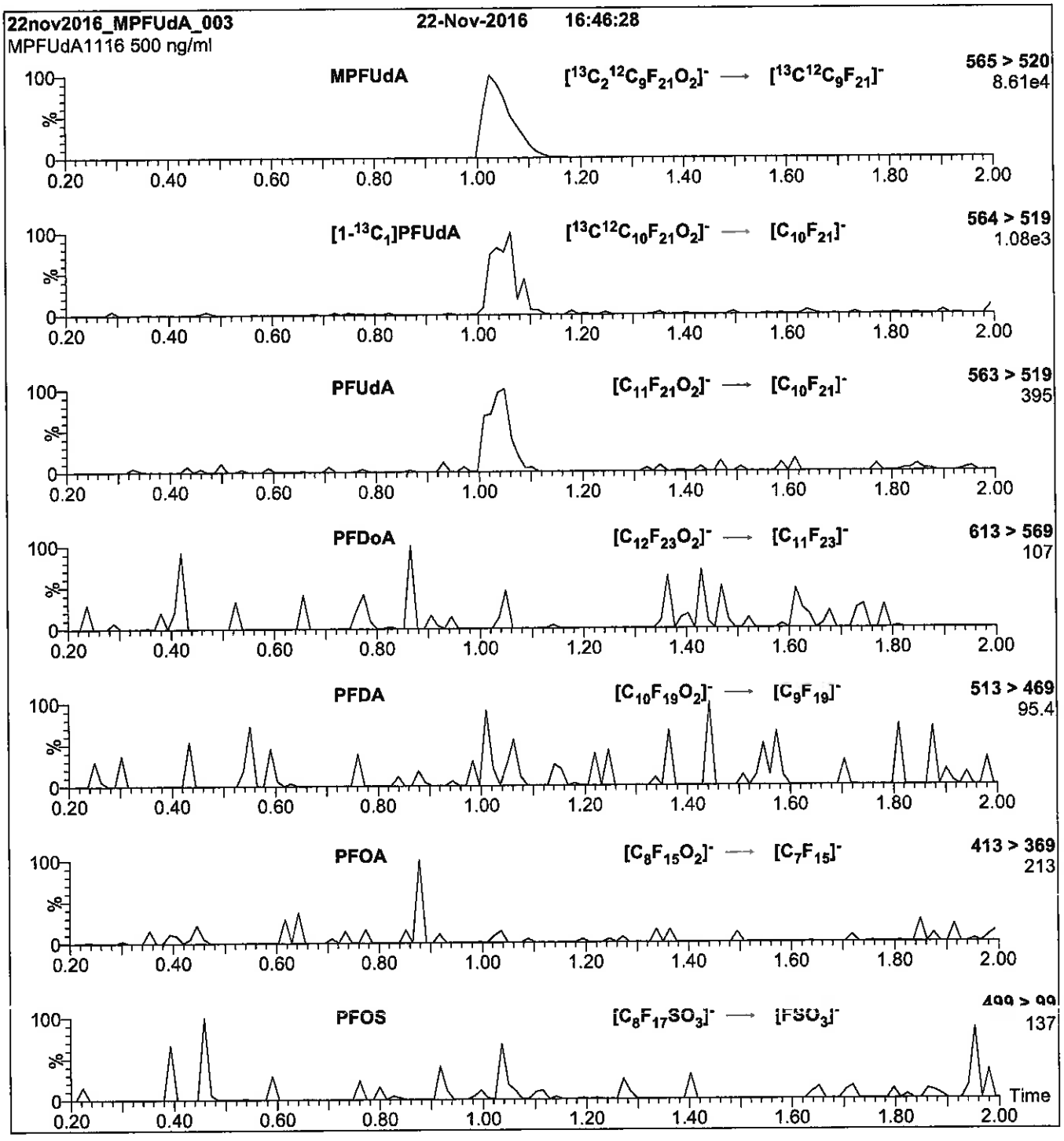
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

Figure 2: **MPFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 11

Reagent

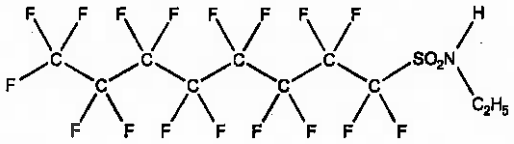
LCN-EtFOSA-M_00005

R: 12/20/16 SK✓

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	N-EtFOSA-M	**LOT NUMBER:**	NEtFOSA0516M
COMPOUND:	N-ethylperfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	4151-50-2



MOLECULAR FORMULA:	$C_{10}H_5F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/24/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/27/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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TRACEABILITY:

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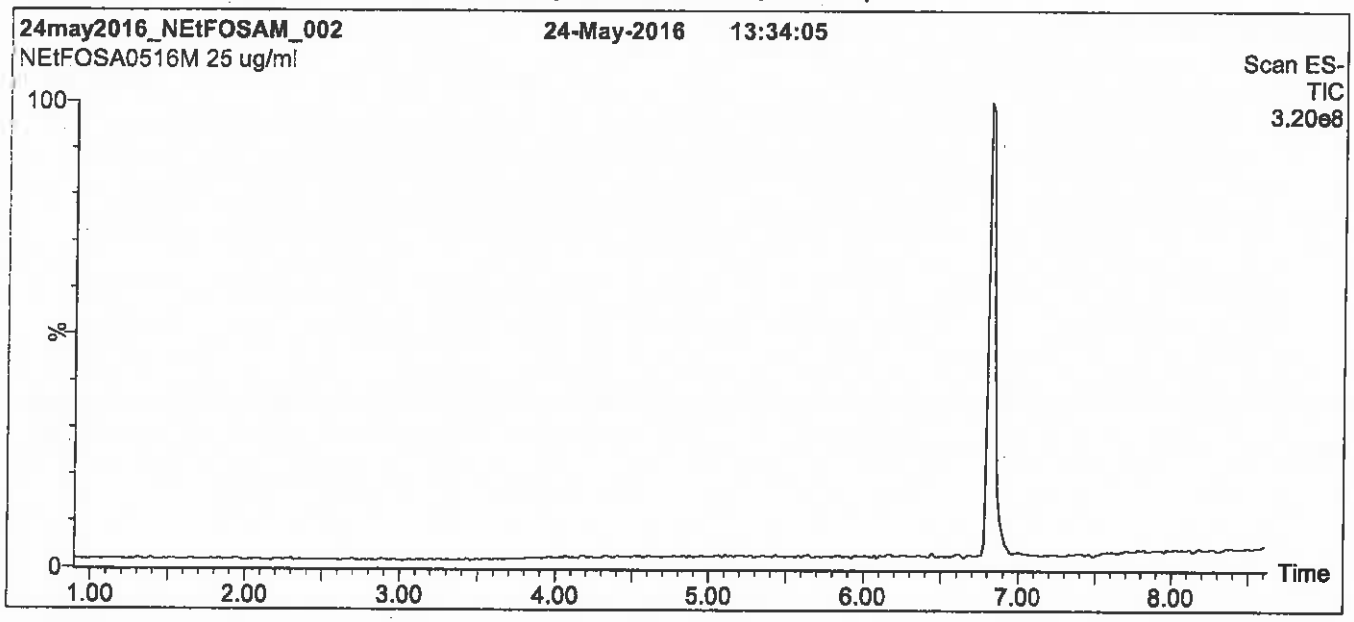
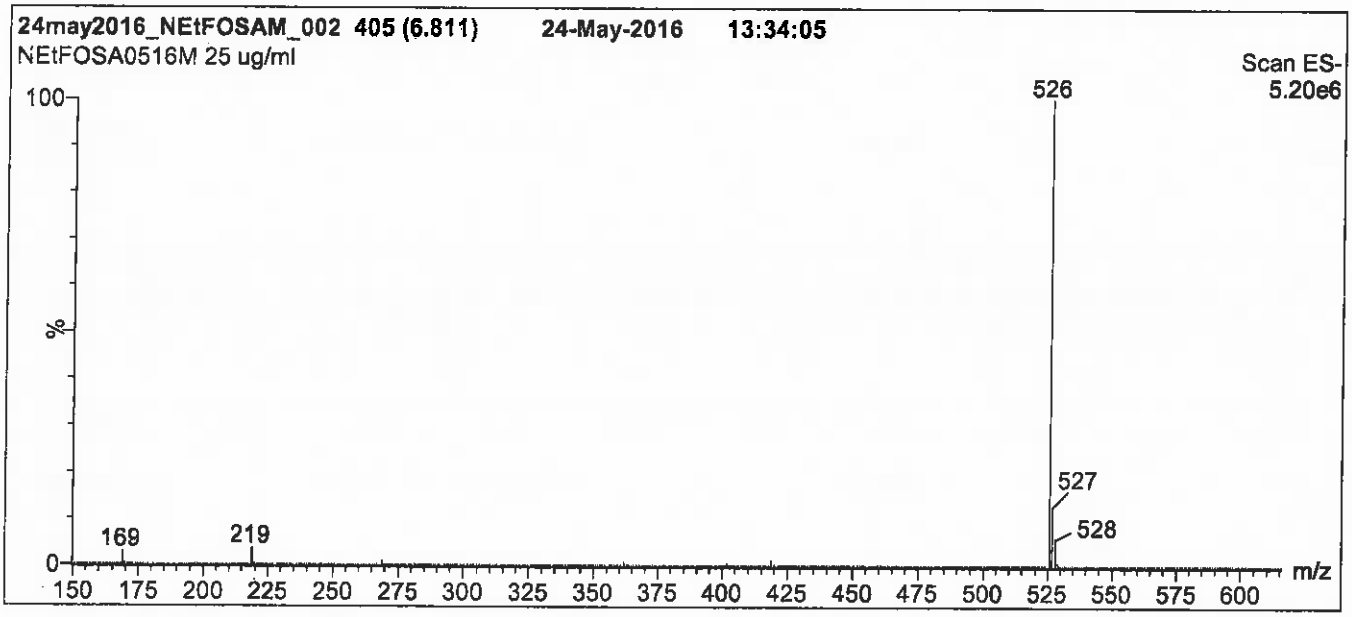
Figure 1: **N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

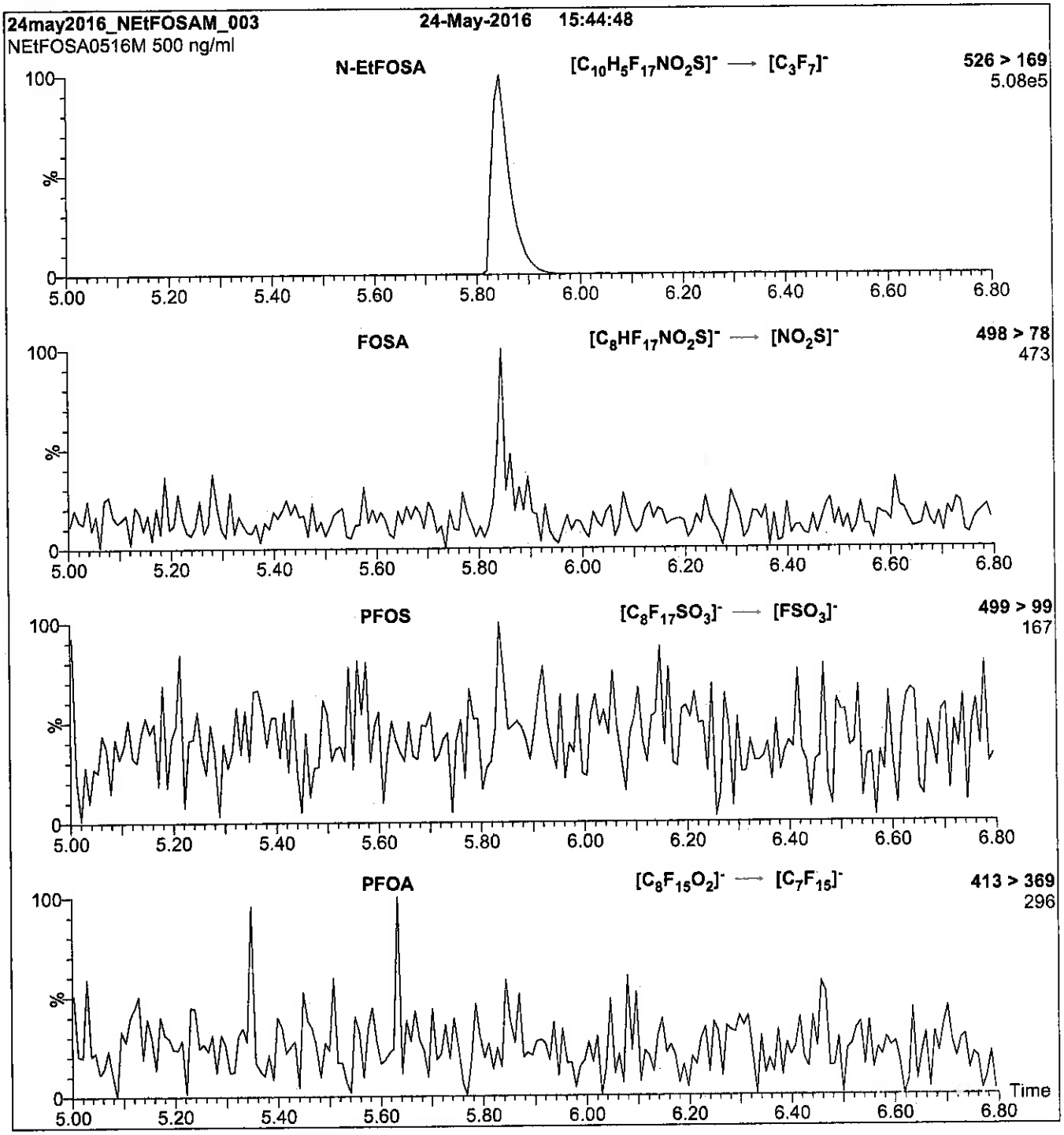
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

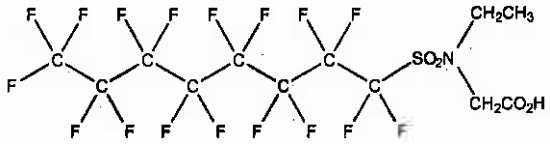
LCN-EtFOSAA_00004

P: 12/29/16 SFV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	N-EtFOSAA	**LOT NUMBER:**	NEtFOSAA0916
COMPOUND:	N-ethylperfluoro-1-octanesulfonamidoacetic acid		
STRUCTURE:		**CAS #:**	2991-50-6



MOLECULAR FORMULA:	$C_{12}H_8F_{17}NO_4S$	**MOLECULAR WEIGHT:**	585.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid molety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/07/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA

ANAB ACCREDITED

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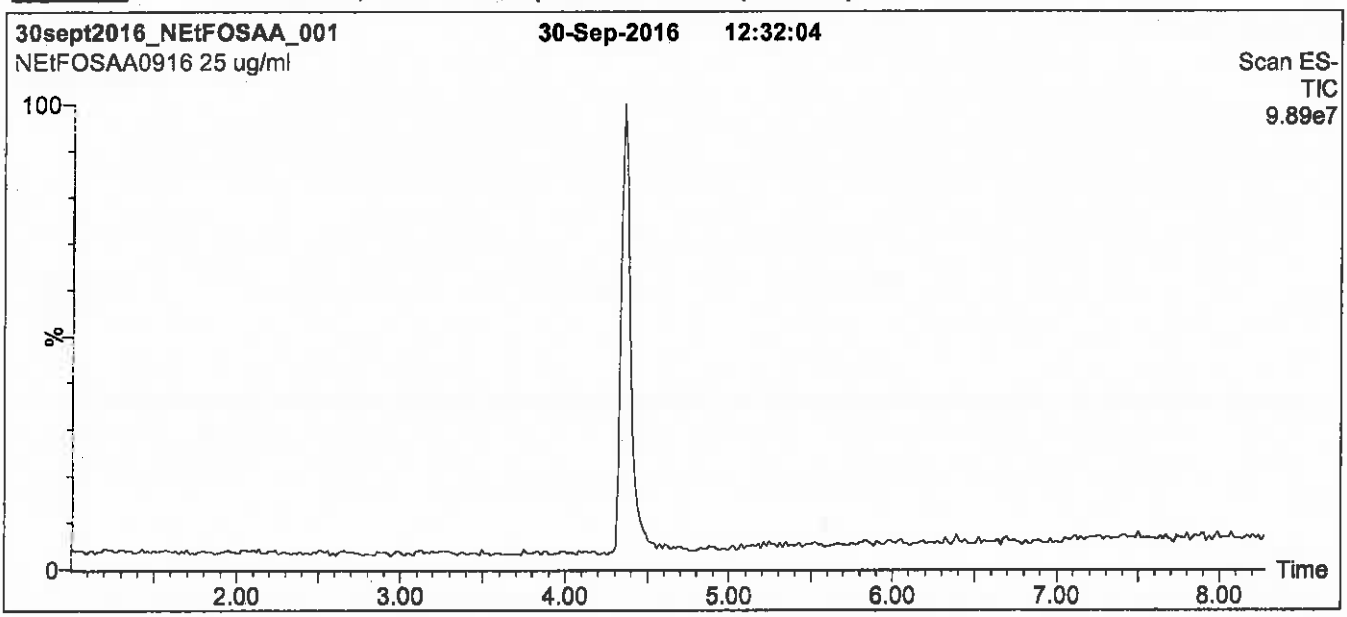
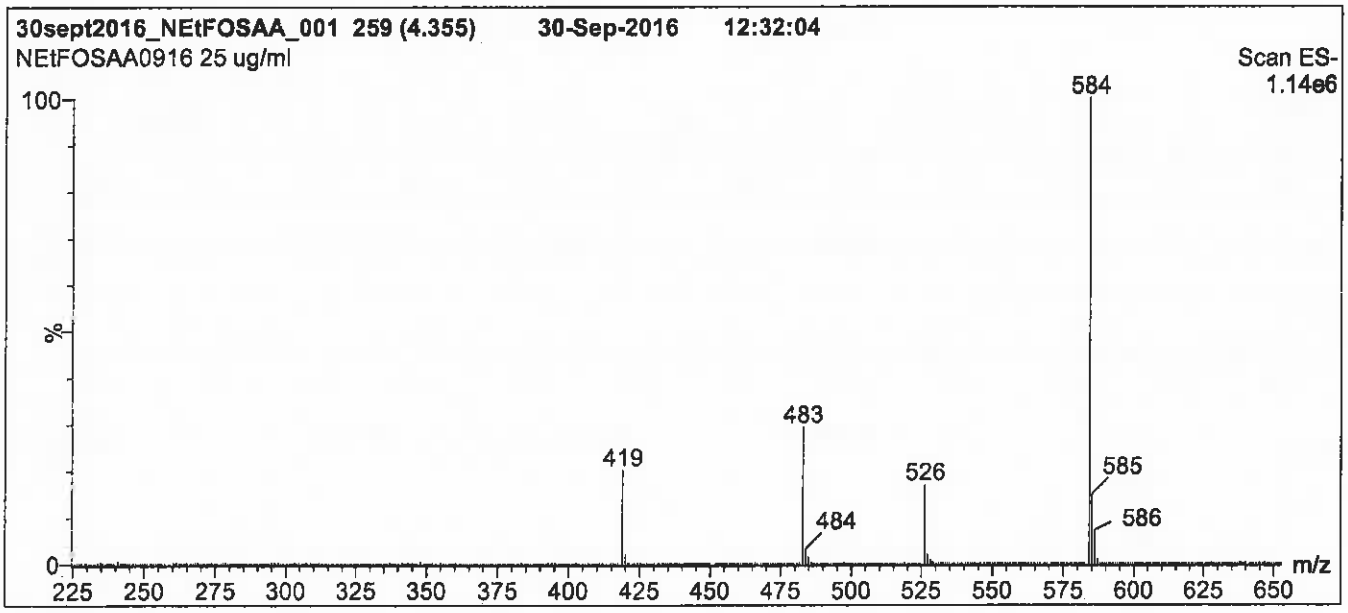
Figure 1: **N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

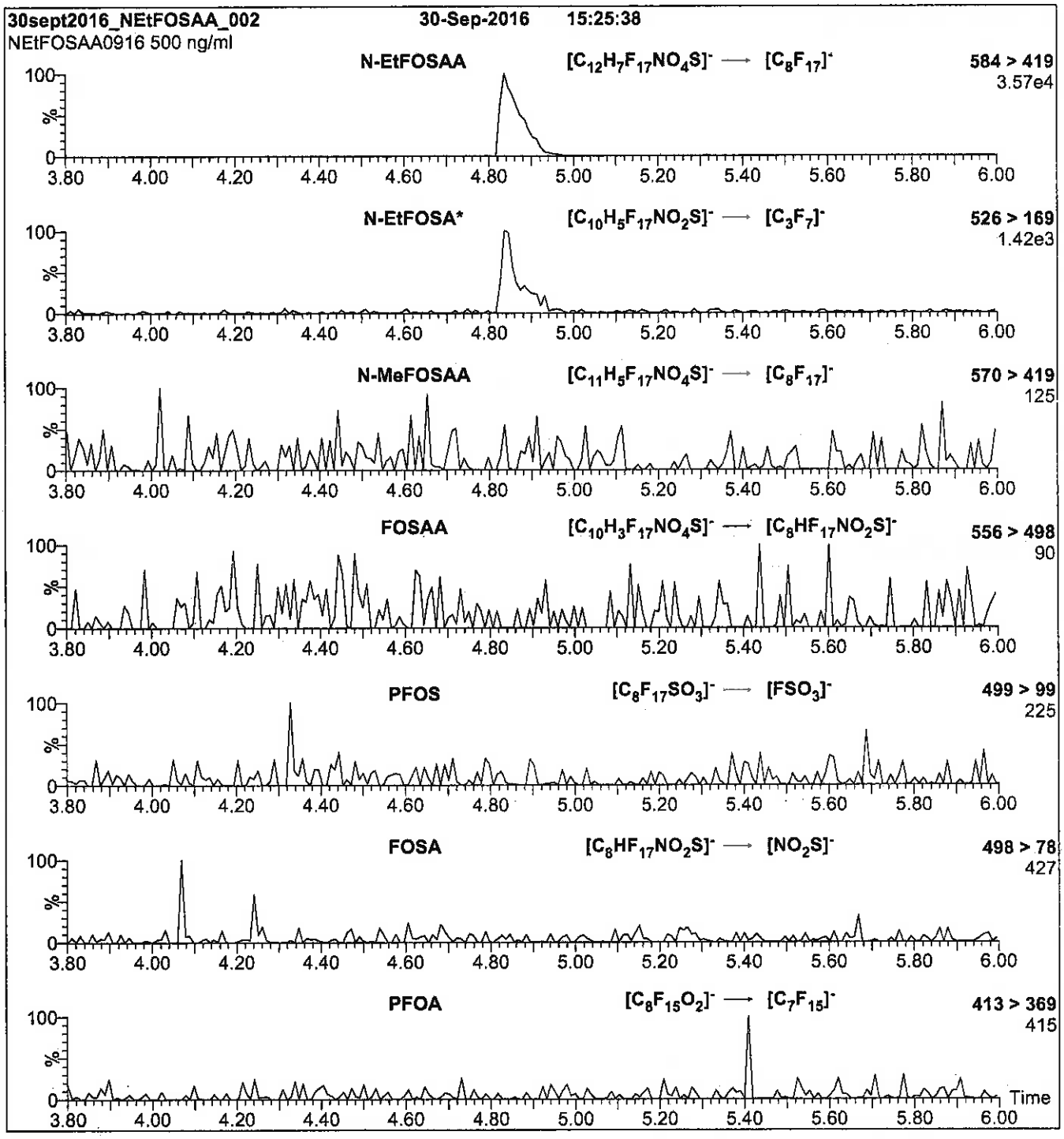
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Note: N-EtFOSA is formed by fragmentation of N-EtFOSAA.

Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 20

Reagent

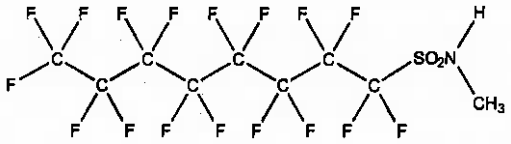
LCN-MeFOSA-M_00004

Pr 12/20/16 SRV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	N-MeFOSA-M	**LOT NUMBER:**	NMeFOSA0516M
COMPOUND:	N-methylperfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	31506-32-8



MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/24/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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CALA

ANAB ACCREDITED

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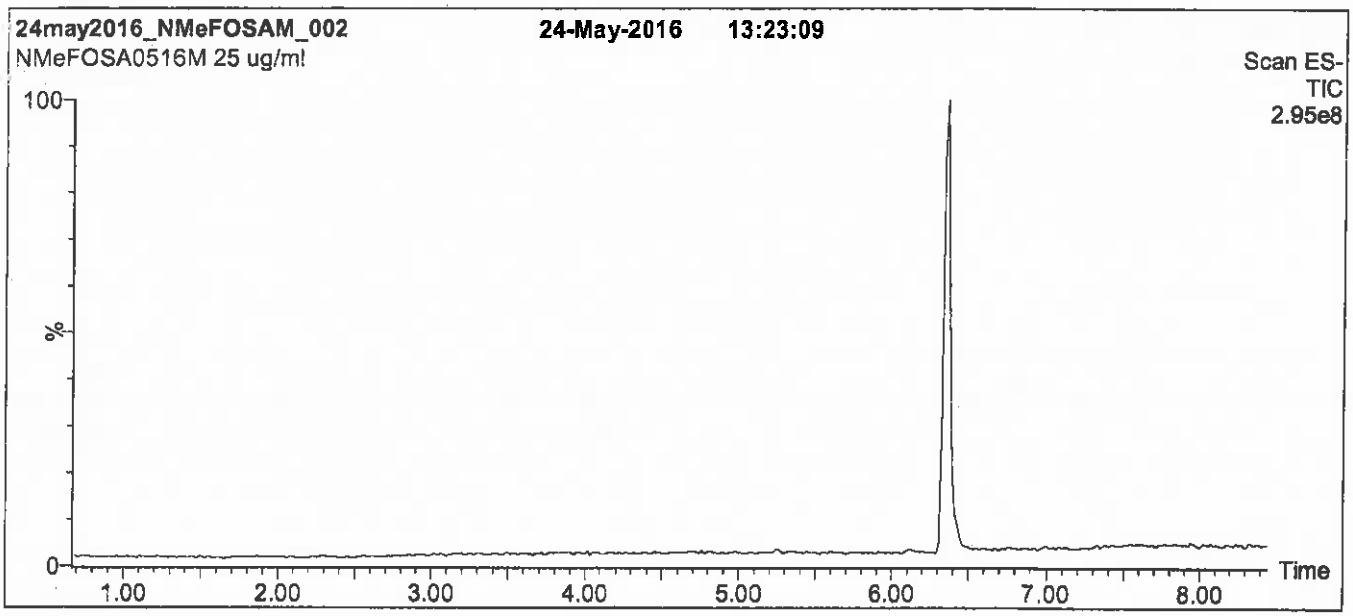
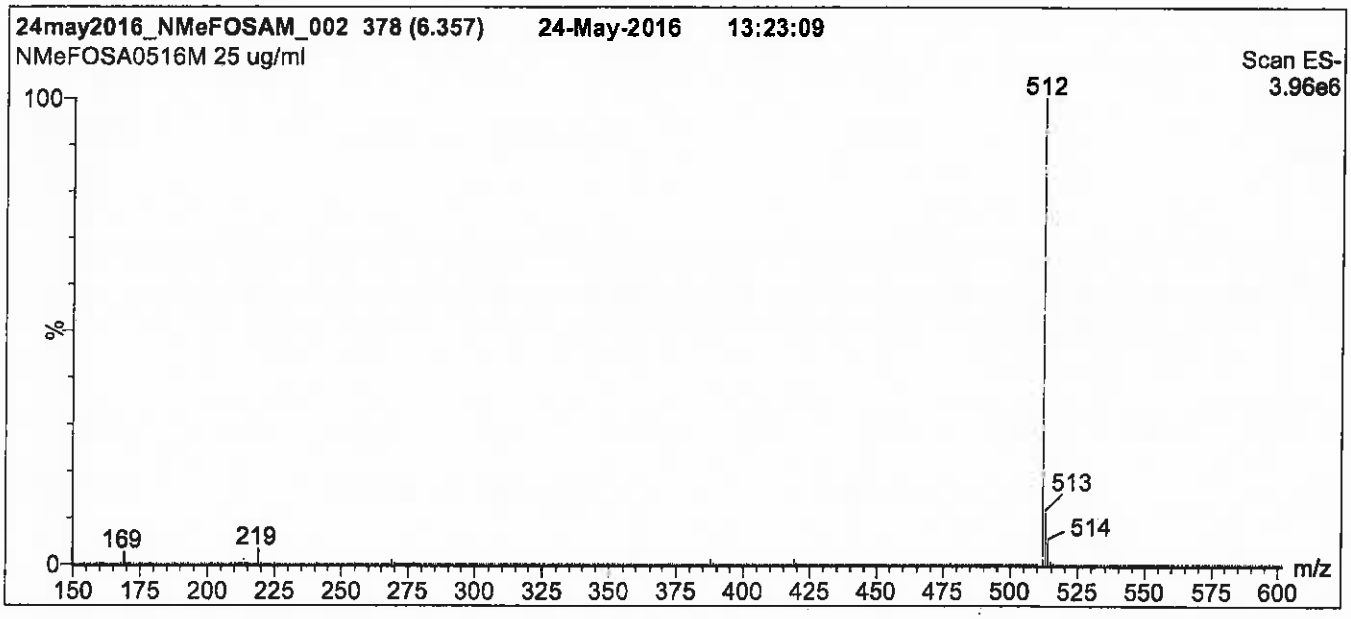
Figure 1: **N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

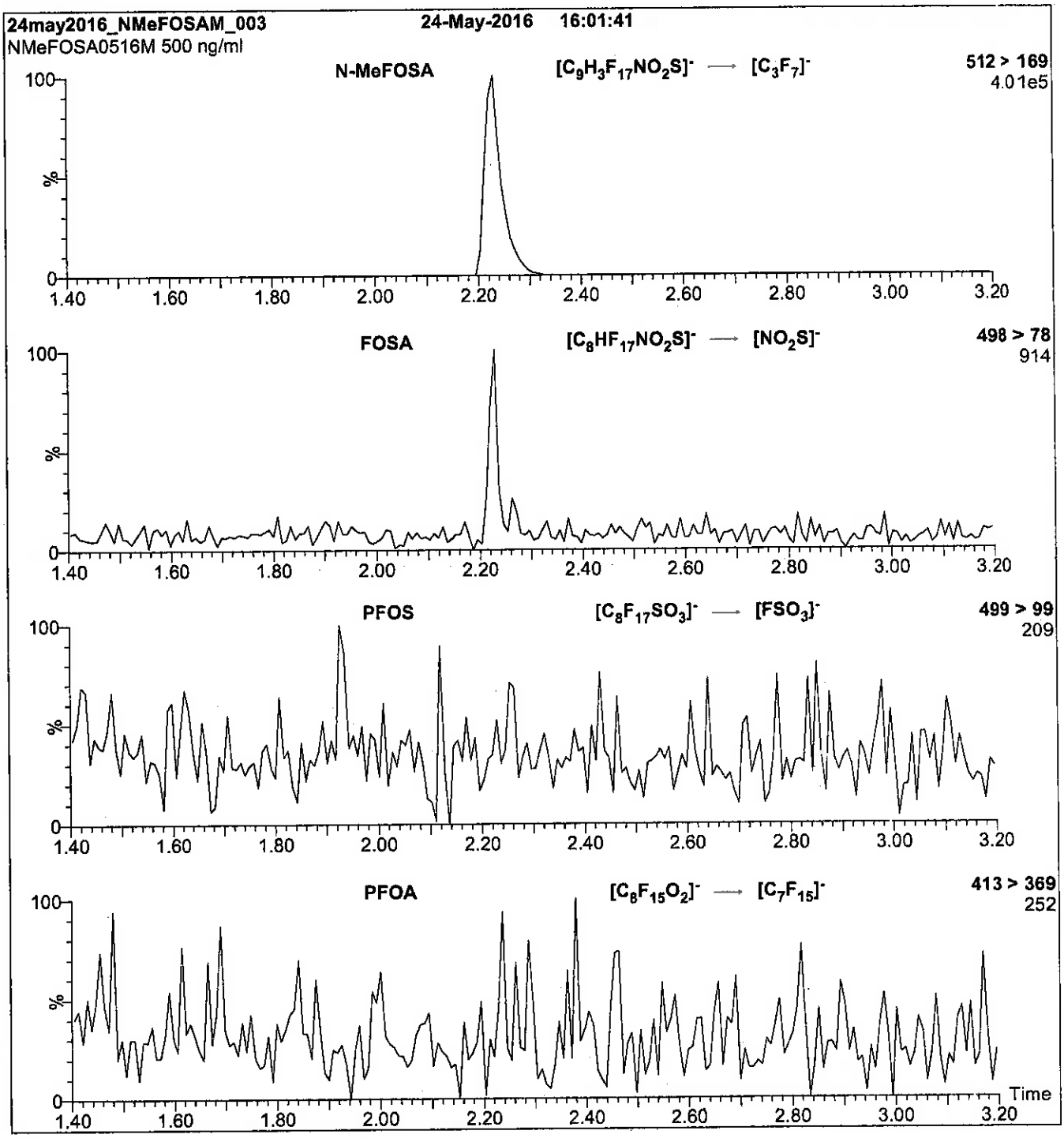
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

LCN-MeFOSAA_00004

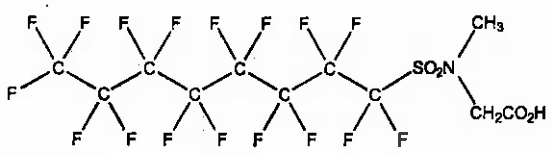
P: R/28/16 SRV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSAA
LOT NUMBER: NMeFOSAA0916
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:
CAS #: 2355-31-9



MOLECULAR FORMULA:	$C_{11}H_8F_{17}NO_4S$	**MOLECULAR WEIGHT:**	571.21
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	10/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	10/12/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid molety to the methyl ester.

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Certified By: B.G. Chittim **Date:** 10/25/2016 (mm/dd/yyyy)

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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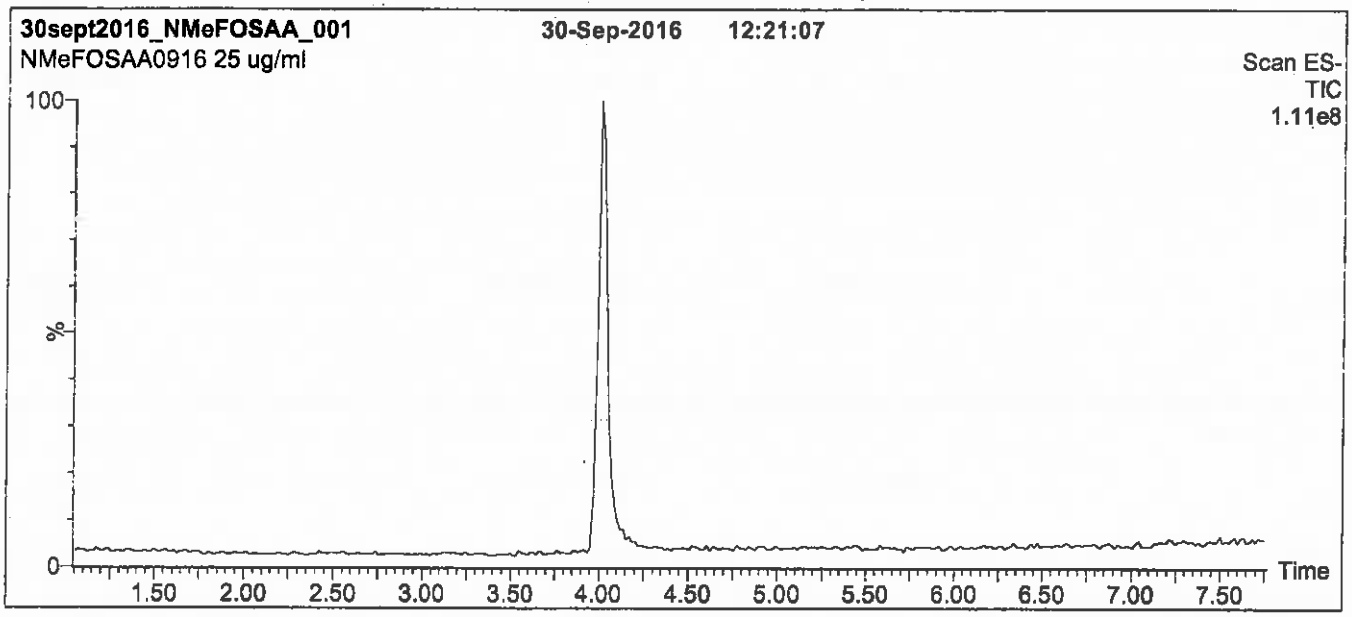
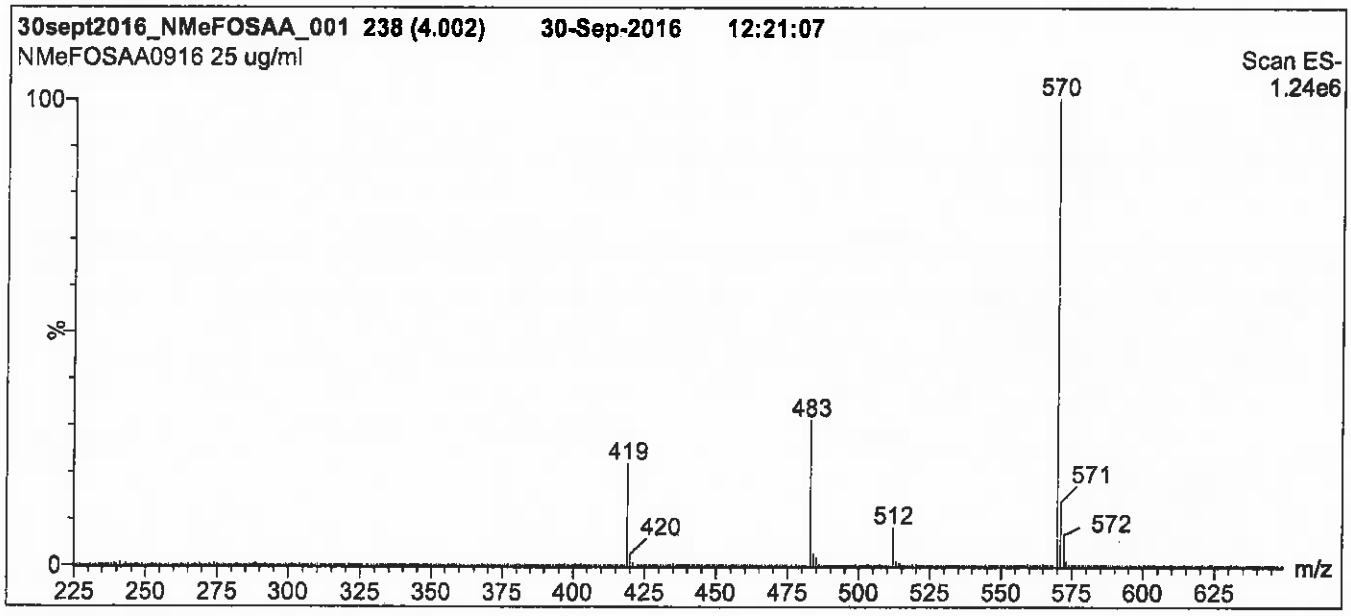
Figure 1: **N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

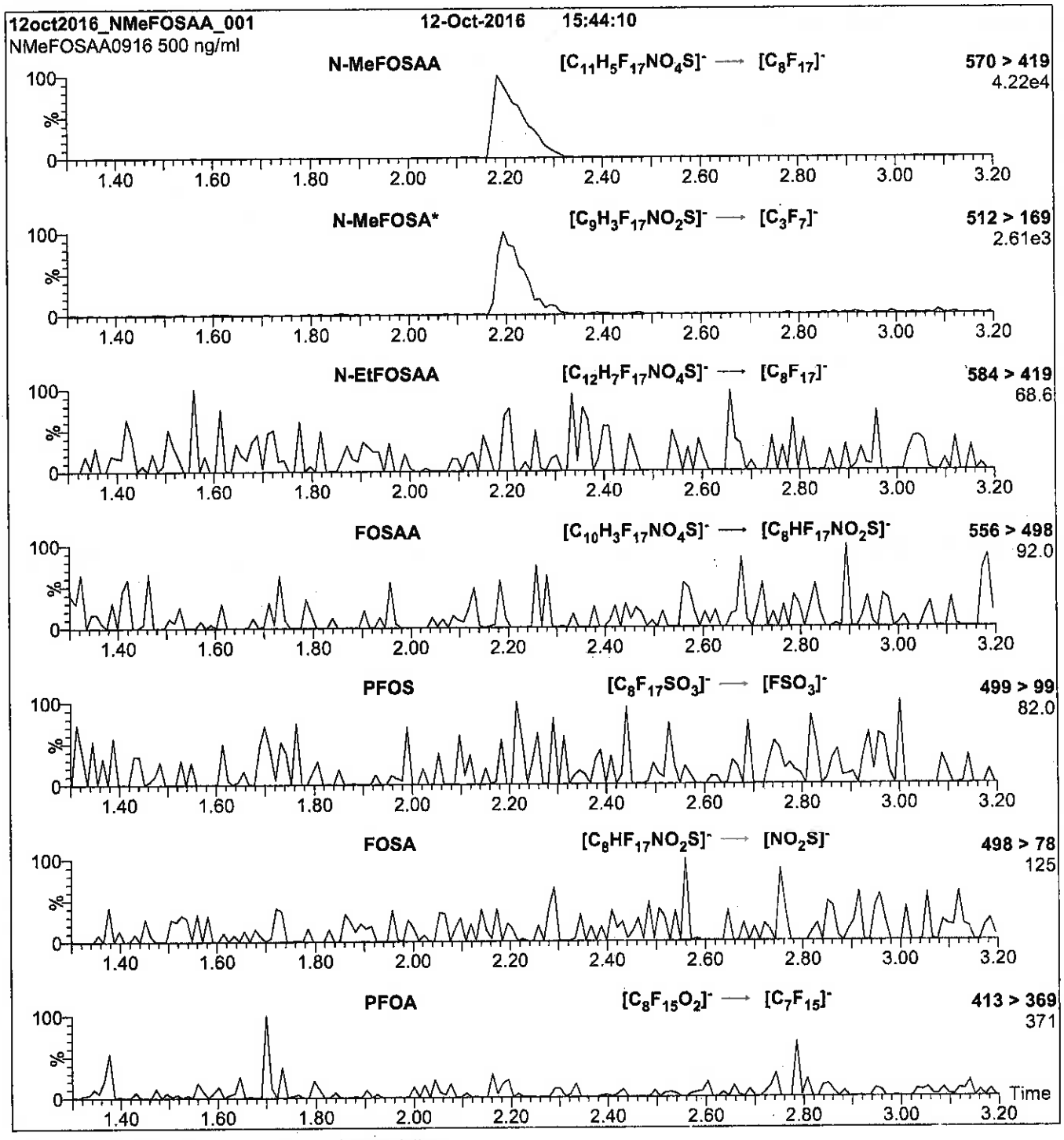
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



***Note**: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 20

Reagent

LCN-MeFOSAA_00005

P: R/28/16 SRV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:
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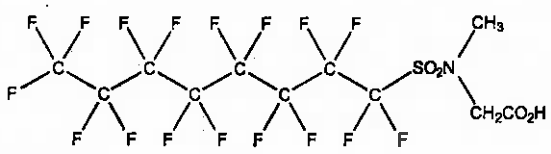

MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_4S$
MOLECULAR WEIGHT: 571.21
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/12/2016
EXPIRY DATE: (mm/dd/yyyy) 10/12/2021
RECOMMENDED STORAGE: Refrigerate ampoule

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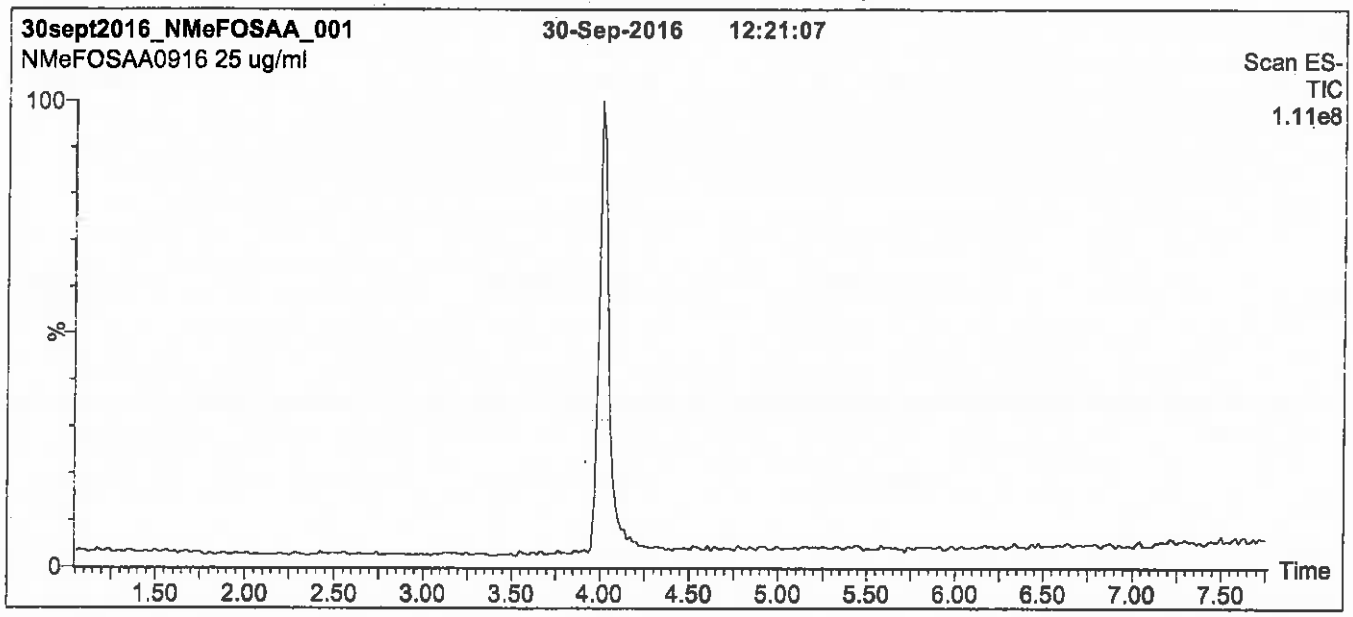

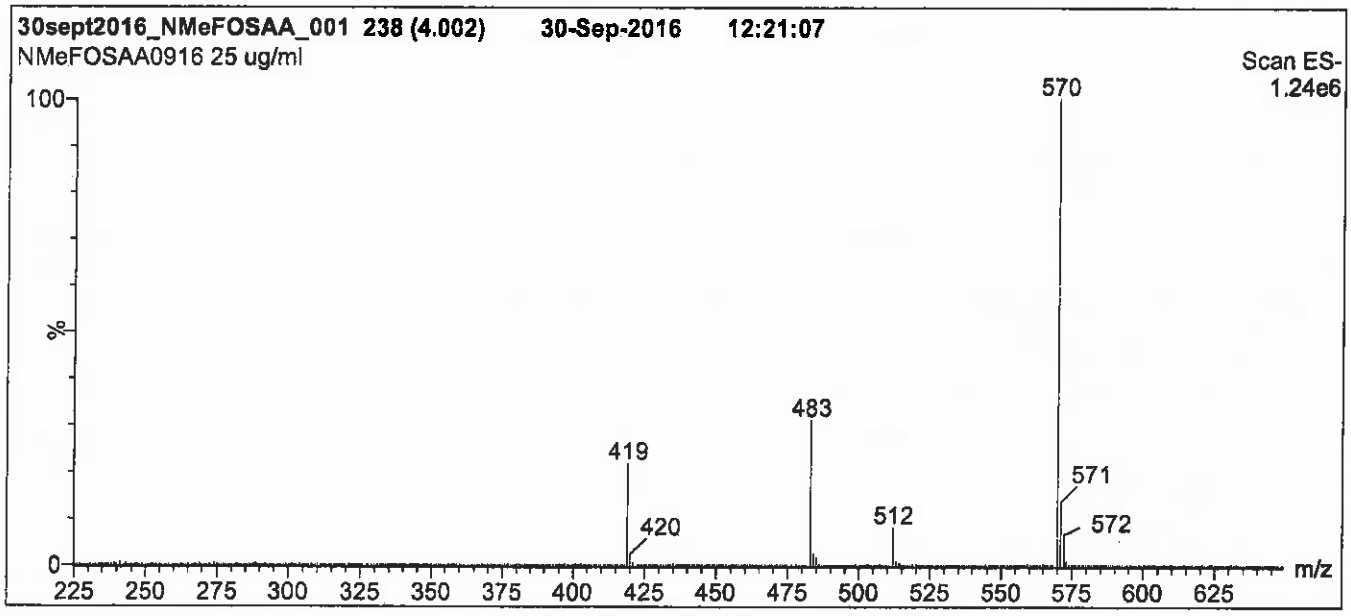

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MS: **Micromass Quattro *micro* API MS**

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1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

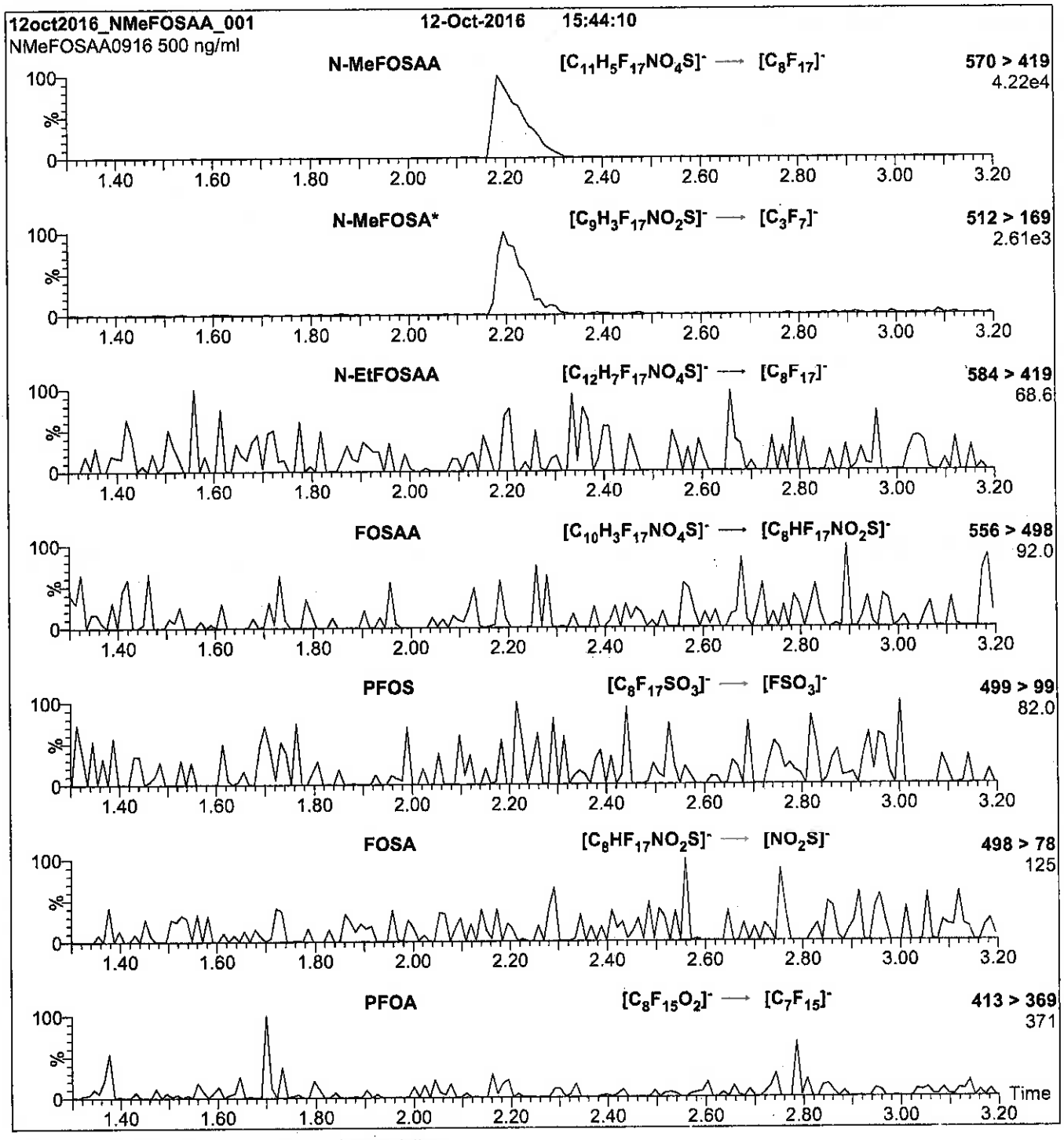
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



***Note**: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 20

Reagent

LCPFAC-24PAR_00001

P: 11/B/17SW SW

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-24PAR

Native Per- and Poly-fluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC-24PAR
LOT NUMBER:	PFAC24PAR0917
SOLVENT(S):	Methanol / Isopropanol (4%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	09/13/2017
LAST TESTED: (mm/dd/yyyy)	09/15/2017
EXPIRY DATE: (mm/dd/yyyy)	09/15/2022
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-24PAR is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), seven native perfluoroalkylsulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_8 and C_8 linear and branched), three native telomer sulfonates (4:2, 6:2, and 8:2), two native perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual native perfluoroalkylcarboxylic acids, native perfluoroalkylsulfonates, native telomer sulfonates, native perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of PFHxSK
Table C: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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Table A: **PFAC-24PAR; Components and Concentrations (ng/ml, ± 5% in Methanol / Isopropanol (4%) / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	2000	A
Perfluoro-n-pentanoic acid	PFPeA	2000	B
Perfluoro-n-hexanoic acid	PFHxA	2000	E
Perfluoro-n-heptanoic acid	PFHpA	2000	G
Perfluoro-n-octanoic acid	PFOA	2000	K
Perfluoro-n-nonanoic acid	PFNA	2000	M
Perfluoro-n-decanoic acid	PFDA	2000	Q
Perfluoro-n-undecanoic acid	PFUdA	2000	V
Perfluoro-n-dodecanoic acid	PFDoA	2000	X
Perfluoro-n-tridecanoic acid	PFTrDA	2000	Y
Perfluoro-n-tetradecanoic acid	PFTeDA	2000	Z
Perfluoro-1-octanesulfonamide	FOSA	2000	T
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000	S
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000	U

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2000	1880	F
Potassium perfluorohexanesulfonate*	PFHxSK: linear isomer	1620	1480	I
	PFHxSK: ∑ branched isomers	378	344	H
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2000	1900	L
Potassium perfluorooctanesulfonate**	PFOSK: linear isomer	1580	1460	O
	PFOSK: ∑ branched isomers	422	391	N
Sodium perfluoro-1-nonanesulfonate	L-PFNS	2000	1920	R
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	W
Sodium 1H,1H,2H,2H-perfluoro-1-hexanesulfonate	4:2FTS	2000	1870	D
Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate	6:2FTS	2000	1900	J
Sodium 1H,1H,2H,2H-perfluoro-1-decanesulfonate	8:2FTS	2000	1920	P

* See Table B for percent composition of linear and branched PFHxSK isomers.
** See Table C for percent composition of linear and branched PFOSK isomers.

Table B: **PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)CF_2CF_2SO_3^-K^+$	0.2	
7	Other Unidentified Isomers		0.5	

* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

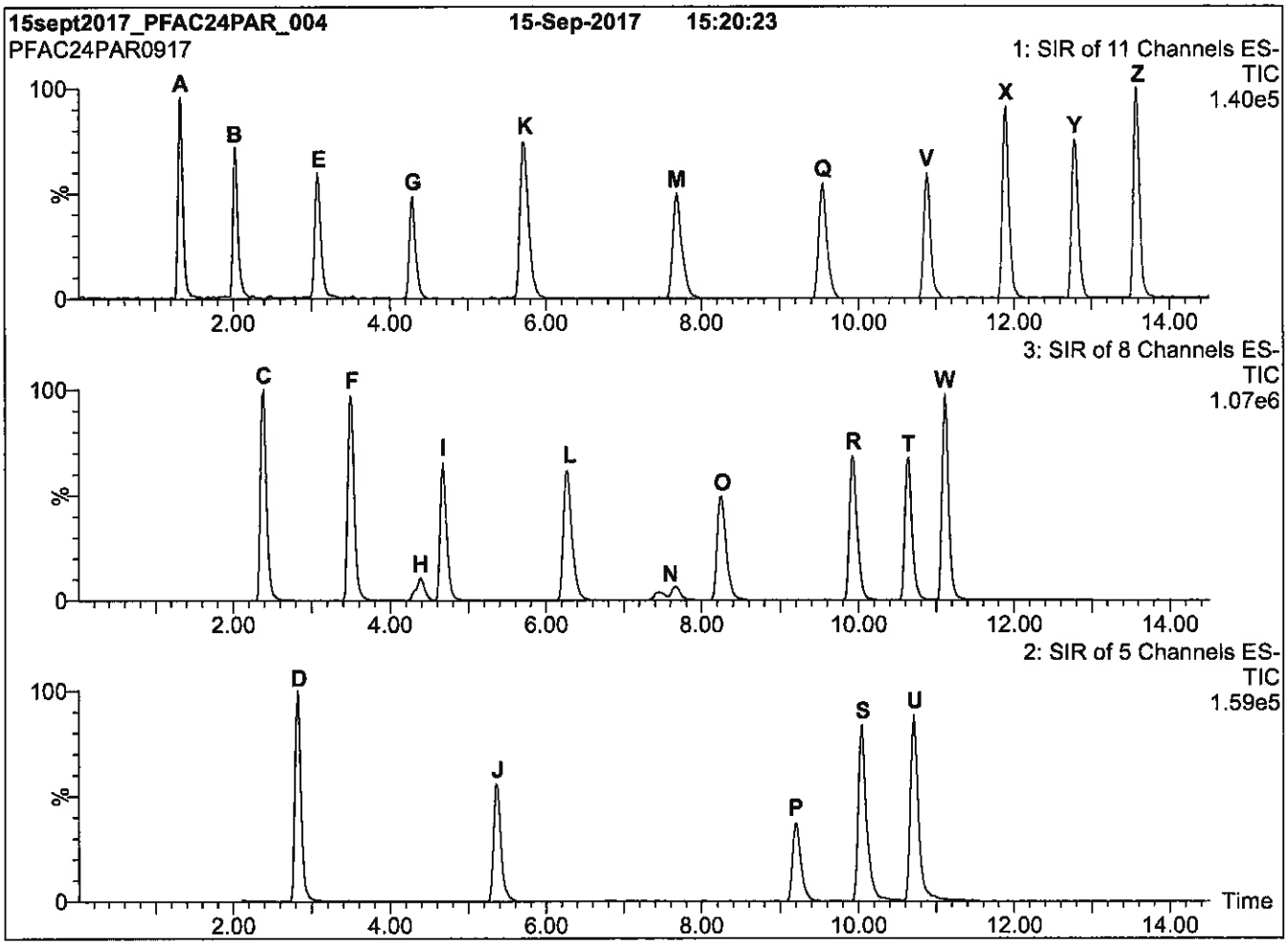
Table C: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: _____ **Date:** 09/19/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **PFAC-24PAR; LC/MS Data (Total Ion Current Chromatogram; SIR)**



Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 55% organic over 3.5 min.
Ramp to 70% organic over 6.5 min.
Ramp to 85% organic over 5 min and hold for
1 min before returning to initial conditions in 0.5 min.
Time: 17 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (10-70)
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**

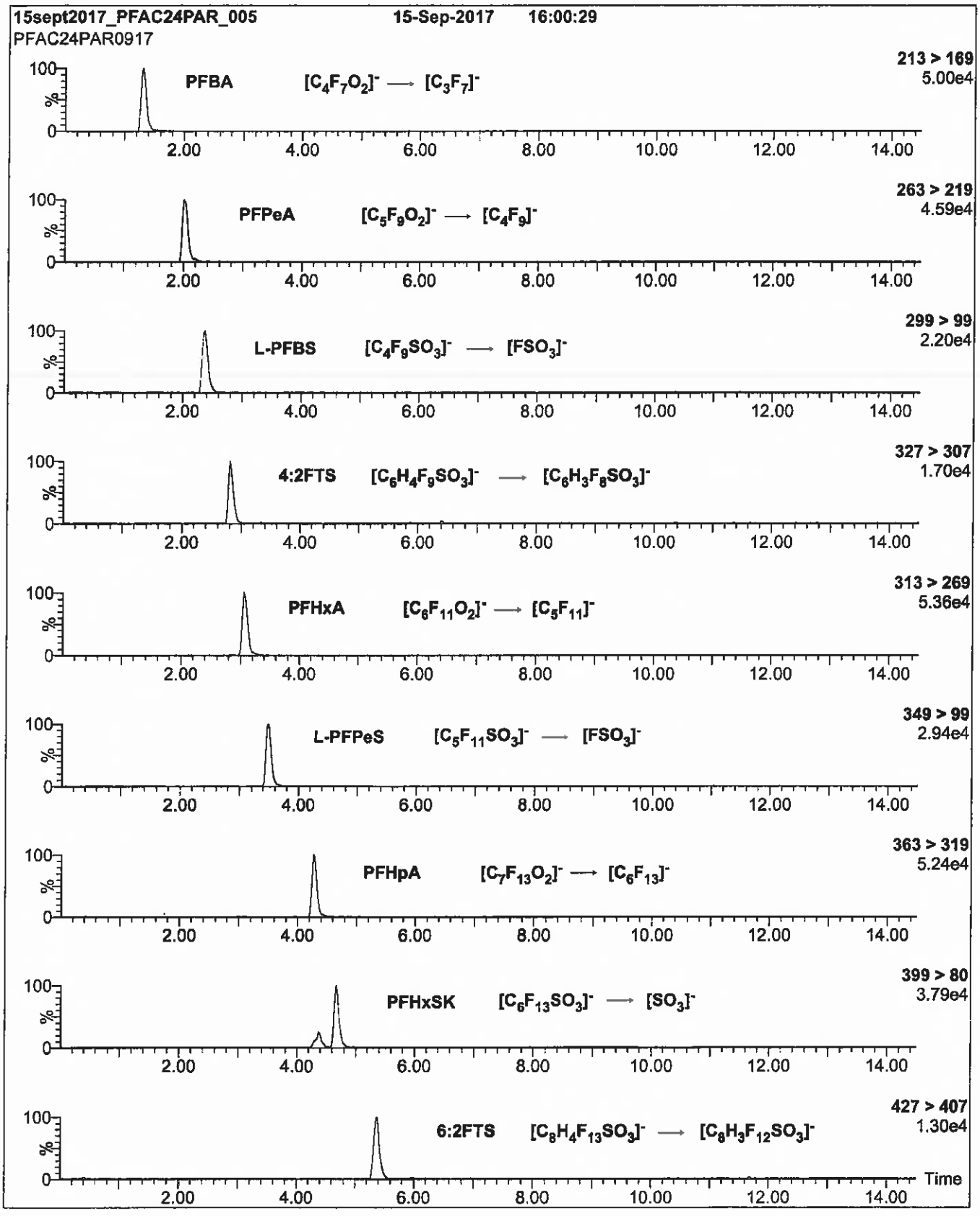


Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**

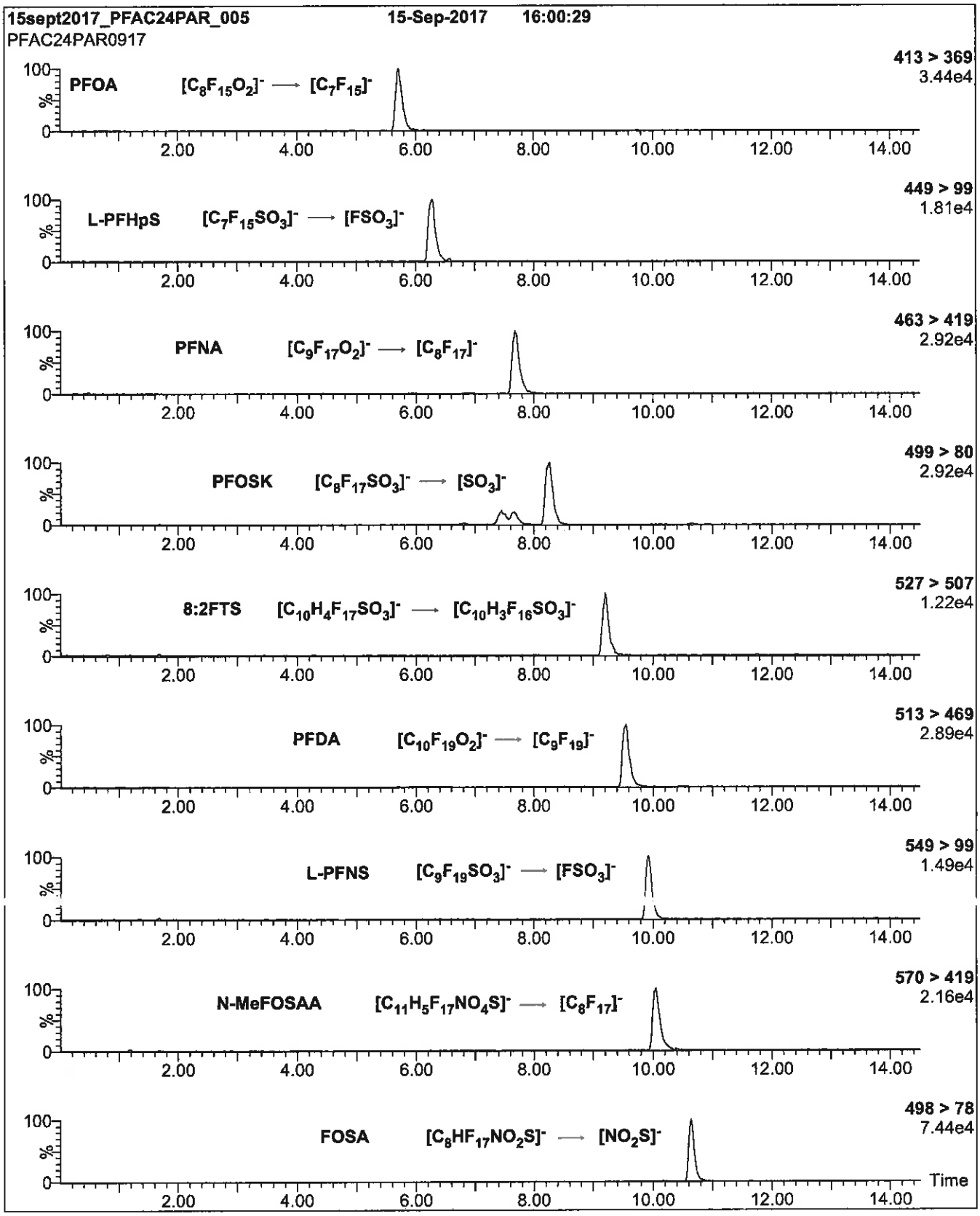
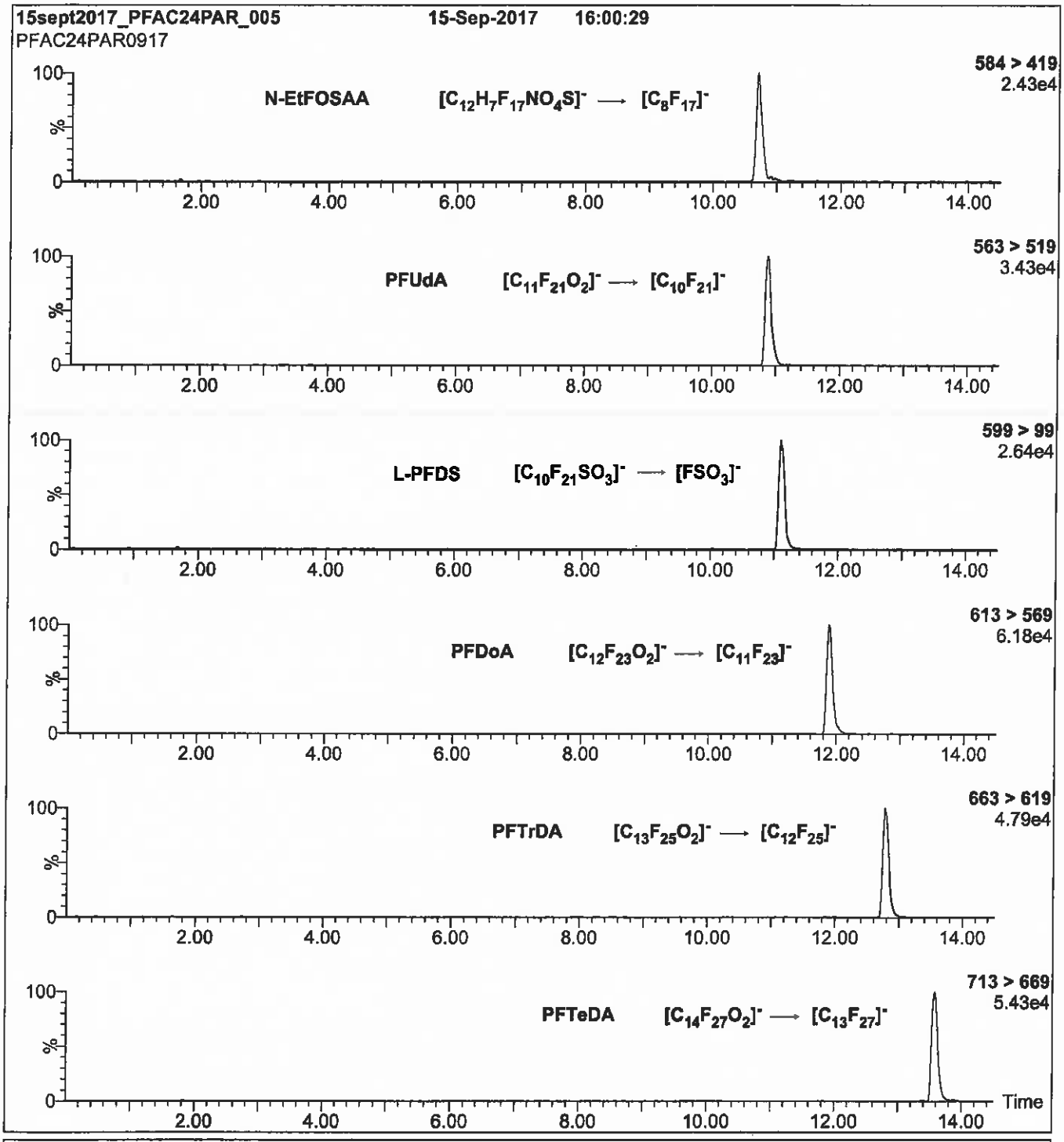


Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-24PAR)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3

Collision Energy (eV) = 8-50 (variable)

Reagent

LCPFBA_00007

r: 12/20/16 SN
S

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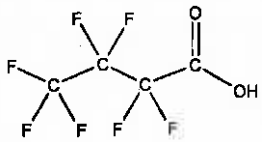
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFBA	**LOT NUMBER:**	PFBA0516
COMPOUND:	Perfluoro-n-butanoic acid		
STRUCTURE:		**CAS #:**	375-22-4



MOLECULAR FORMULA:	$C_4HF_7O_2$	**MOLECULAR WEIGHT:**	214.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/27/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/27/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/31/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

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CALA

ANAB ACCREDITED

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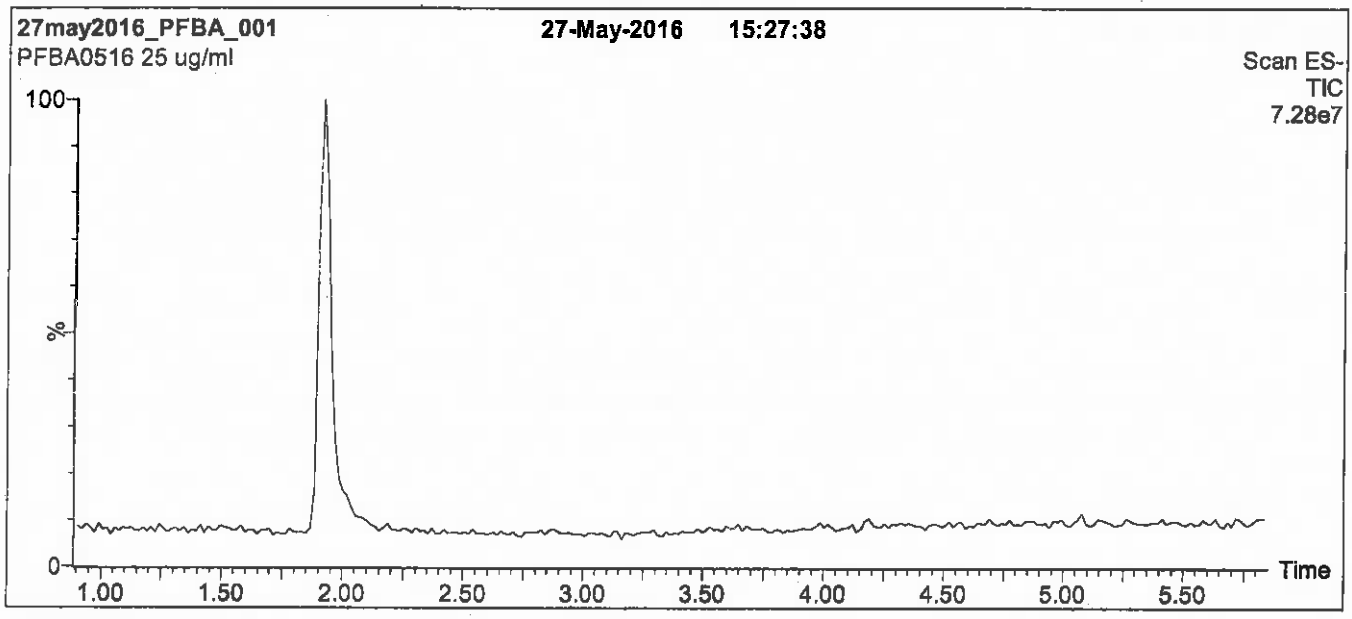
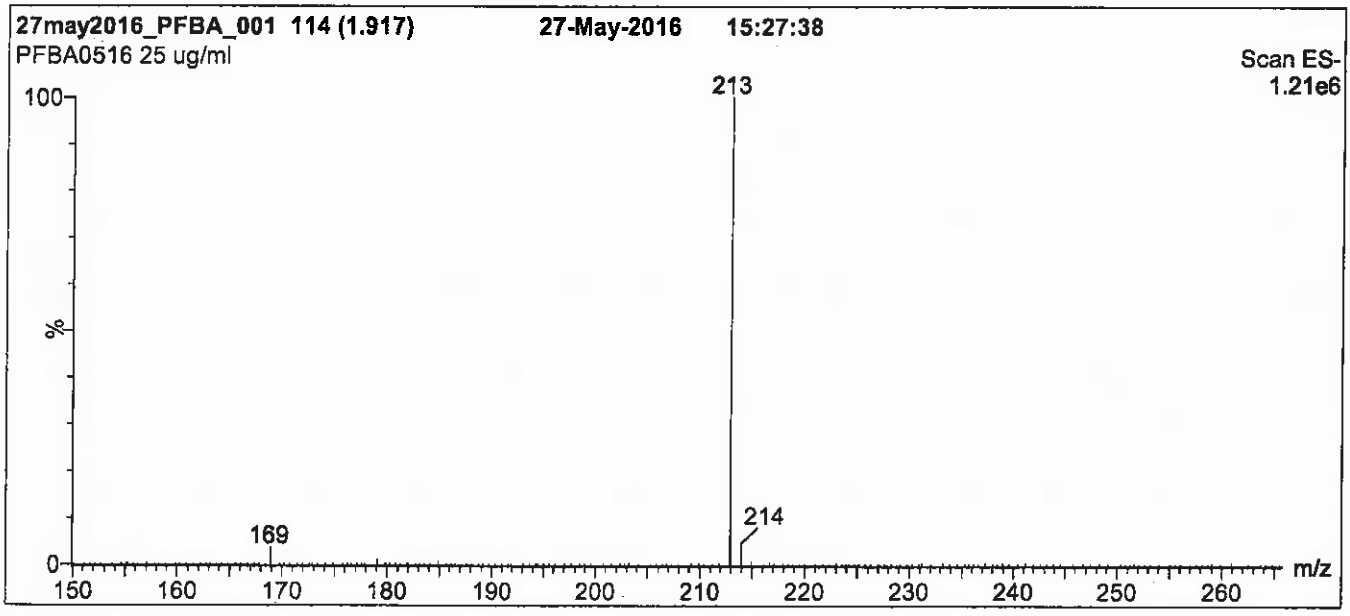
Figure 1: **PFBA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

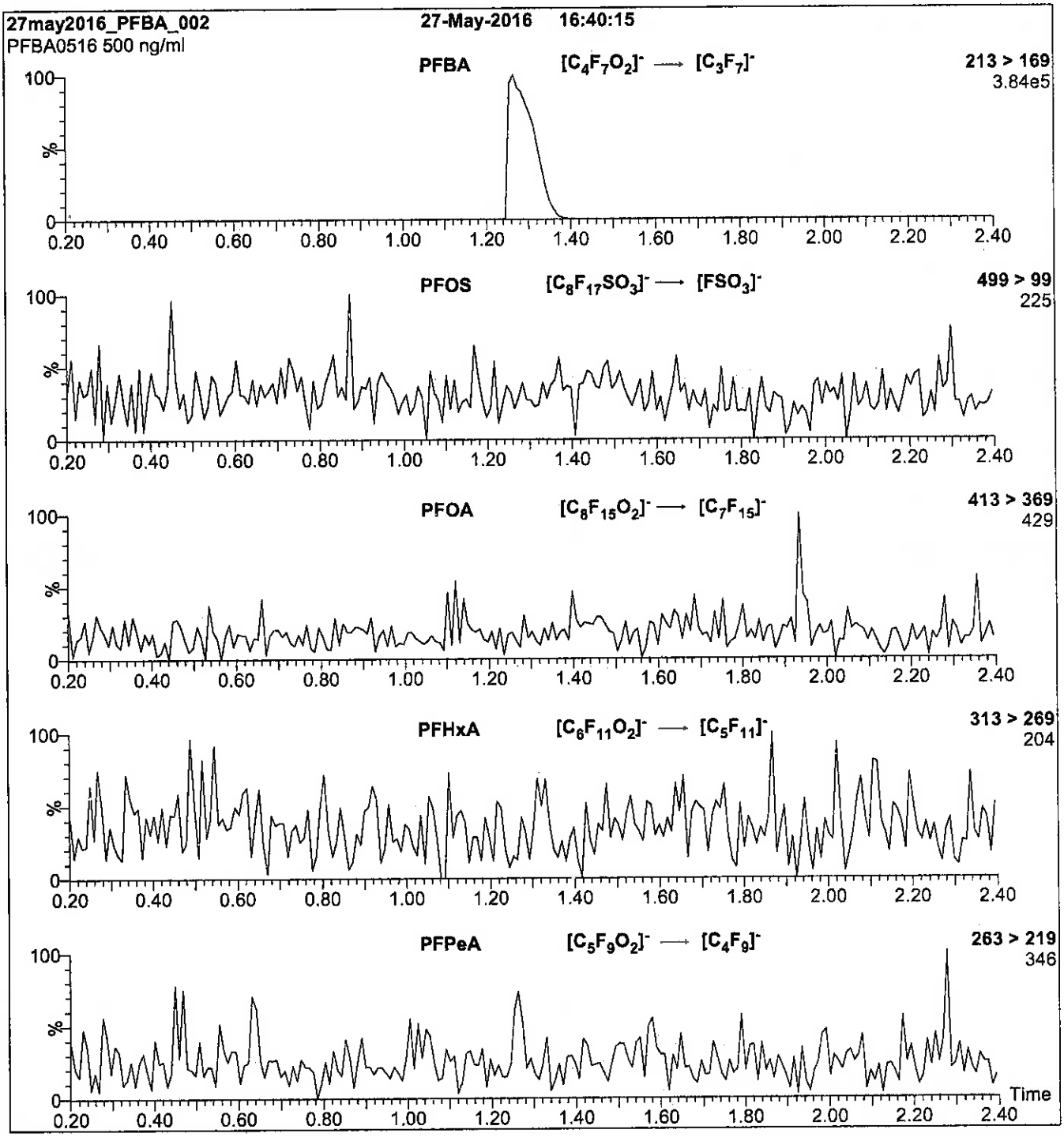
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 10

Reagent

LCPFBS_00008

R: SBC 9/13/16

730724
ID: LCPFBS_00007
Exp: 03/15/21 Prpd: SBC
PF-1-butanesulfonate K sa

730725
ID: LCPFBS_00008
Exp: 03/15/21 Prpd: SBC
PF-1-butanesulfonate K sa

WELLINGTON LABORATORIES

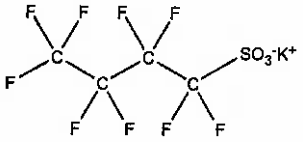
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate

LOT NUMBER: LPFBS0316

STRUCTURE:

CAS #: 29420-49-3



MOLECULAR FORMULA:	$C_4F_9SO_3K$	**MOLECULAR WEIGHT:**	338.19
CONCENTRATION:	50.0 ± 2.5 µg/ml (K salt) 44.2 ± 2.2 µg/ml (PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	03/15/2016		
EXPIRY DATE: (mm/dd/yyyy)	03/15/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: B.G. Chittim **Date:** 03/21/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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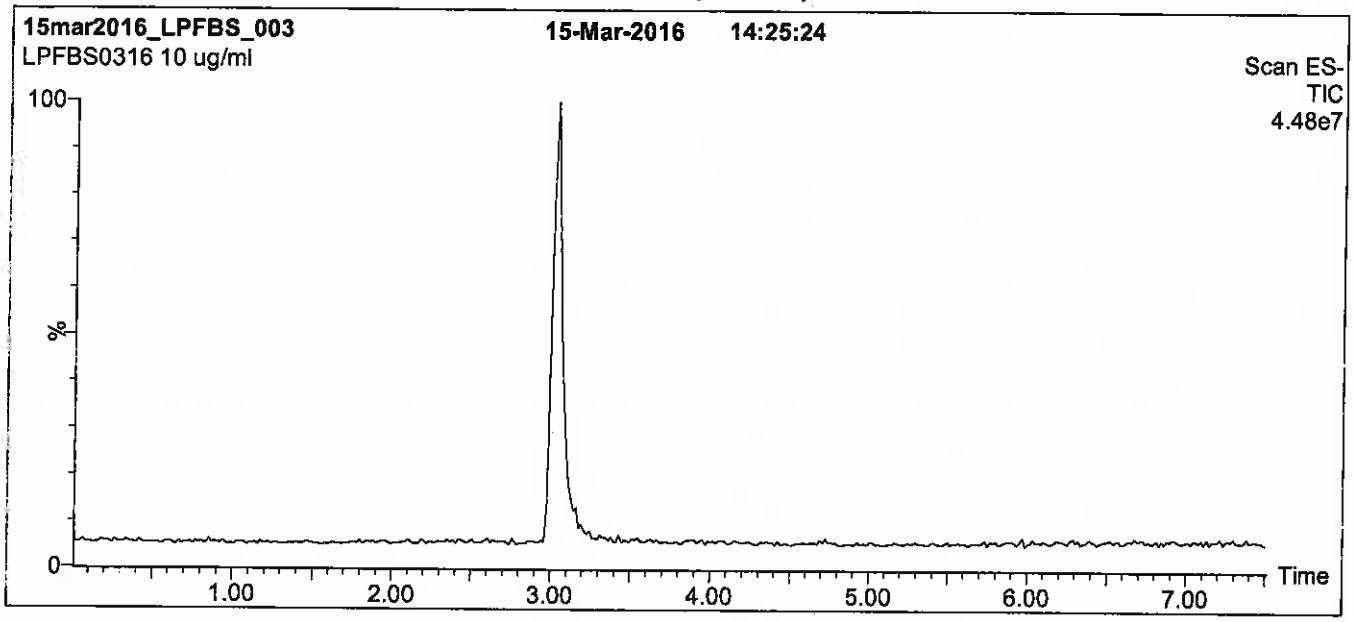
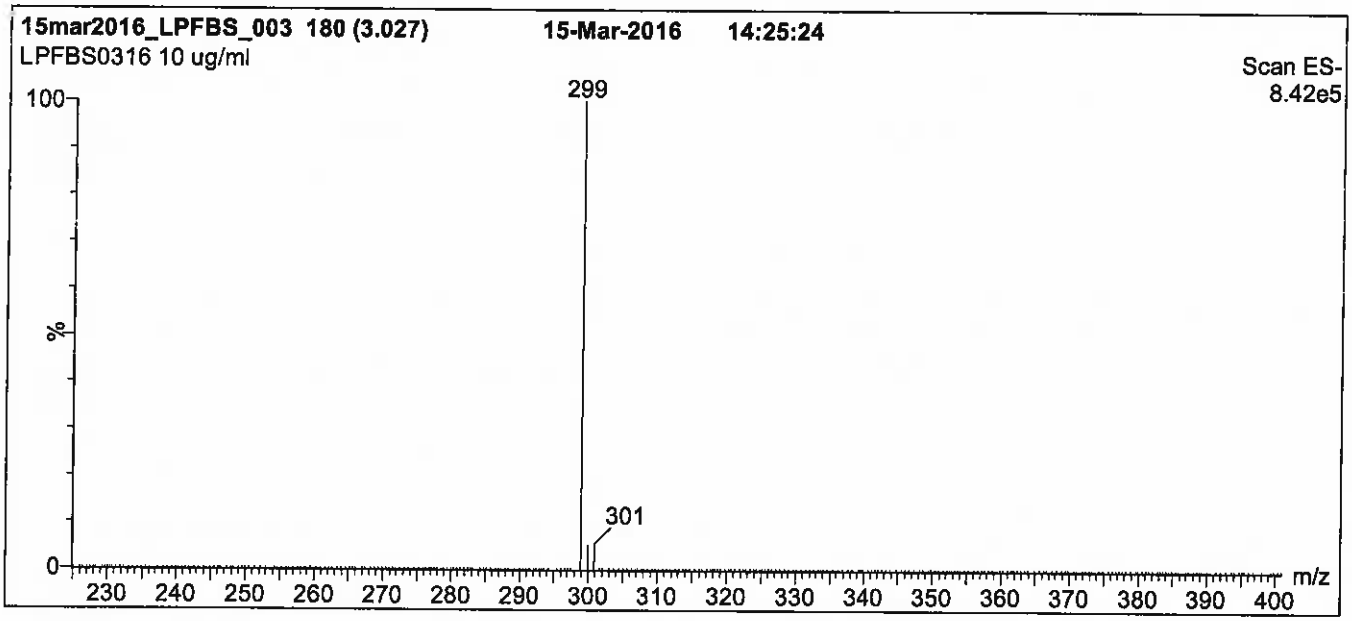
Figure 1: **L-PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

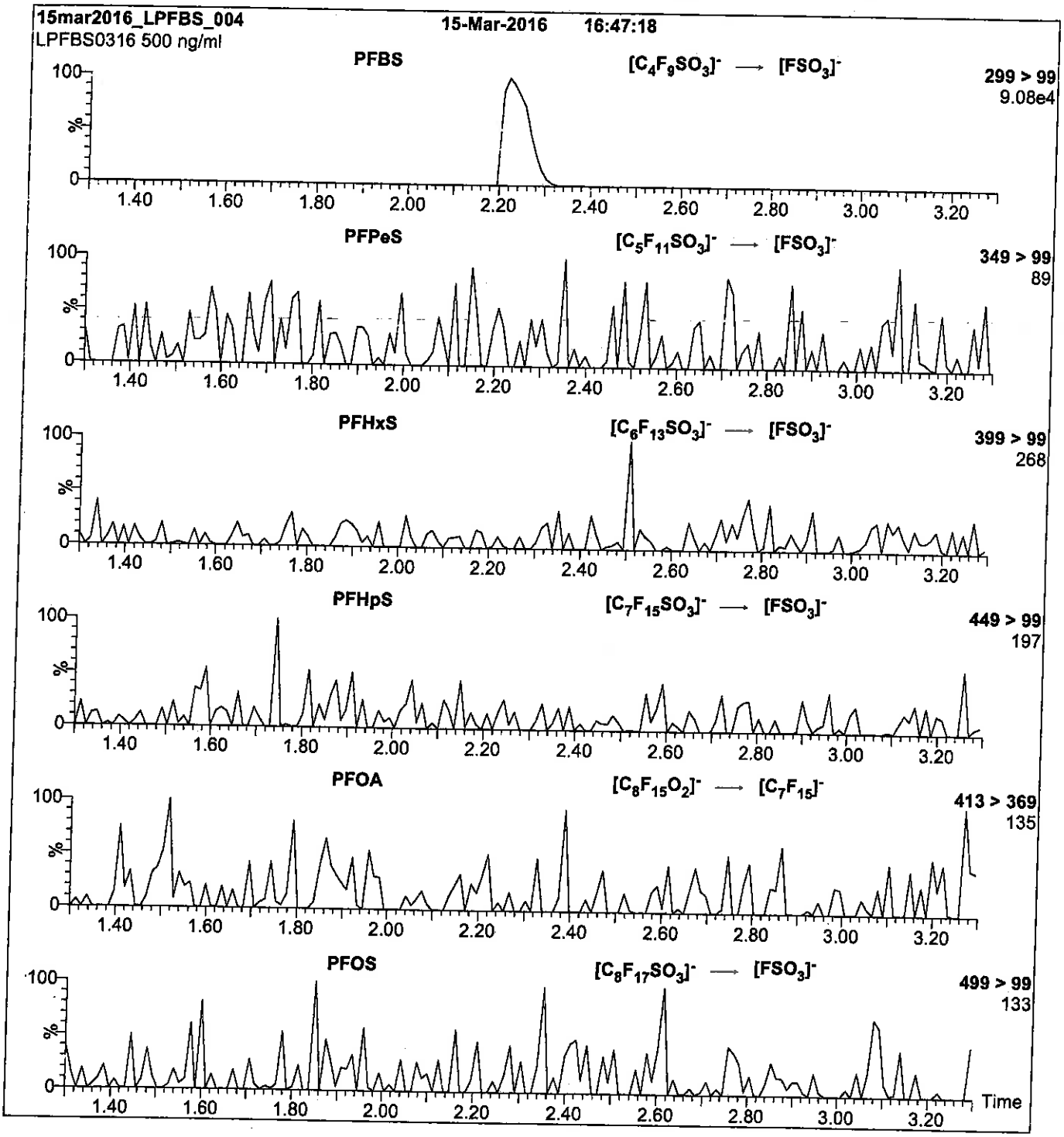
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **L-PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml L-PFBS)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 25

Reagent

LCPFDA_00007

R: SBC 9/13/16
scanned 10/4/16 SR

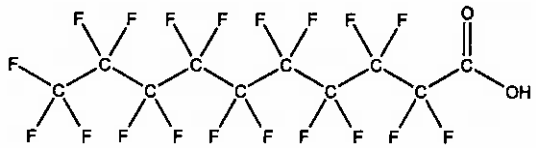
730620
ID: LCPFDA_00006
Exp: 05/31/21 Prpd: SBC
PF-n-decanoic acid

730621
ID: LCPFDA_00007
Exp: 05/31/21 Prpd: SBC
PF-n-decanoic acid

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFDA	**LOT NUMBER:**	PFDA0516
COMPOUND:	Perfluoro-n-decanoic acid		
STRUCTURE:		**CAS #:**	335-76-2



MOLECULAR FORMULA:	$C_{10}HF_{19}O_2$	**MOLECULAR WEIGHT:**	514.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of Perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ B.G. Chittim **Date:** 06/13/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

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Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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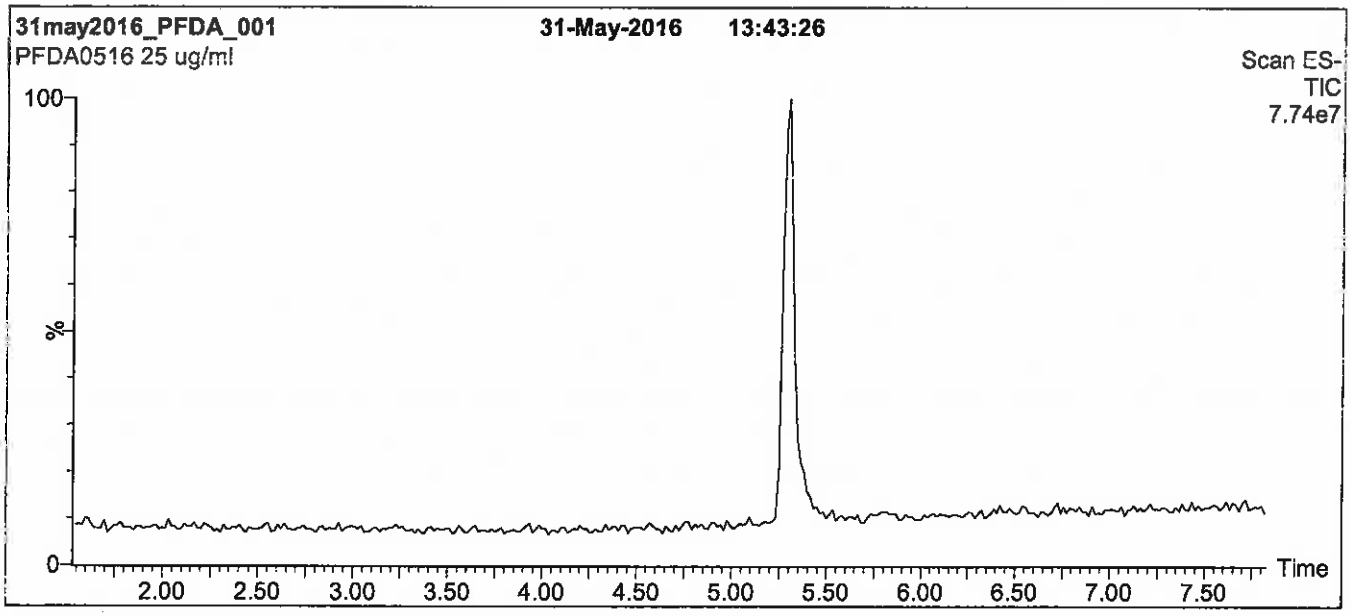
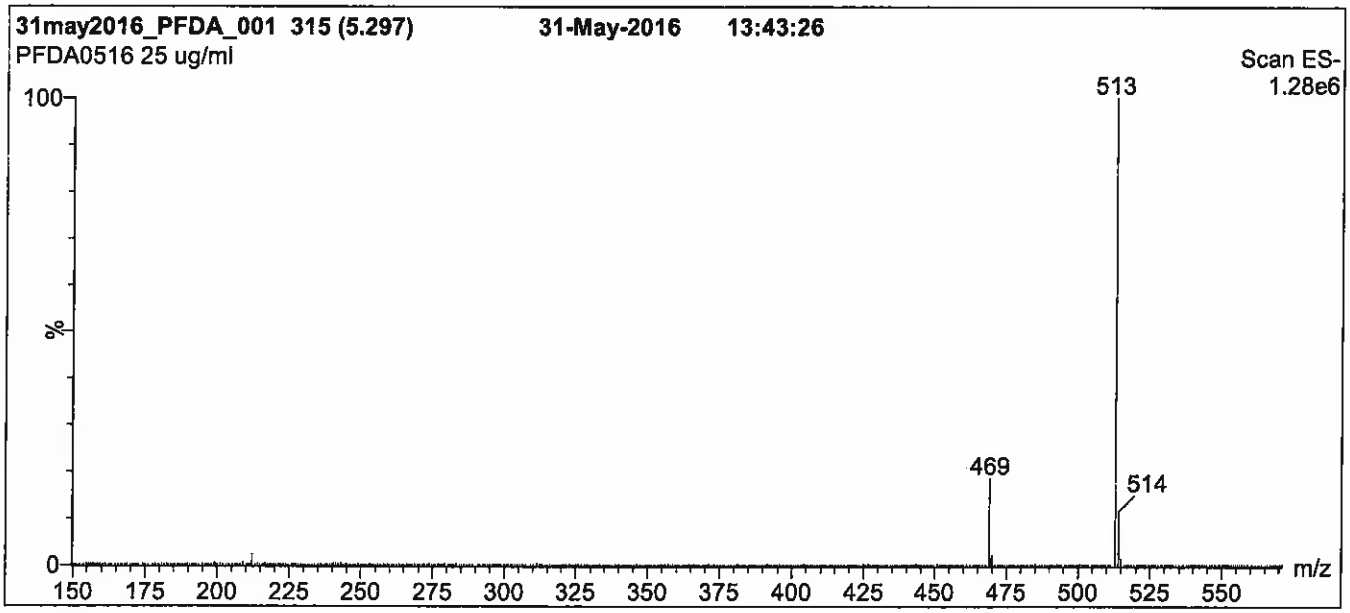
Figure 1: **PFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

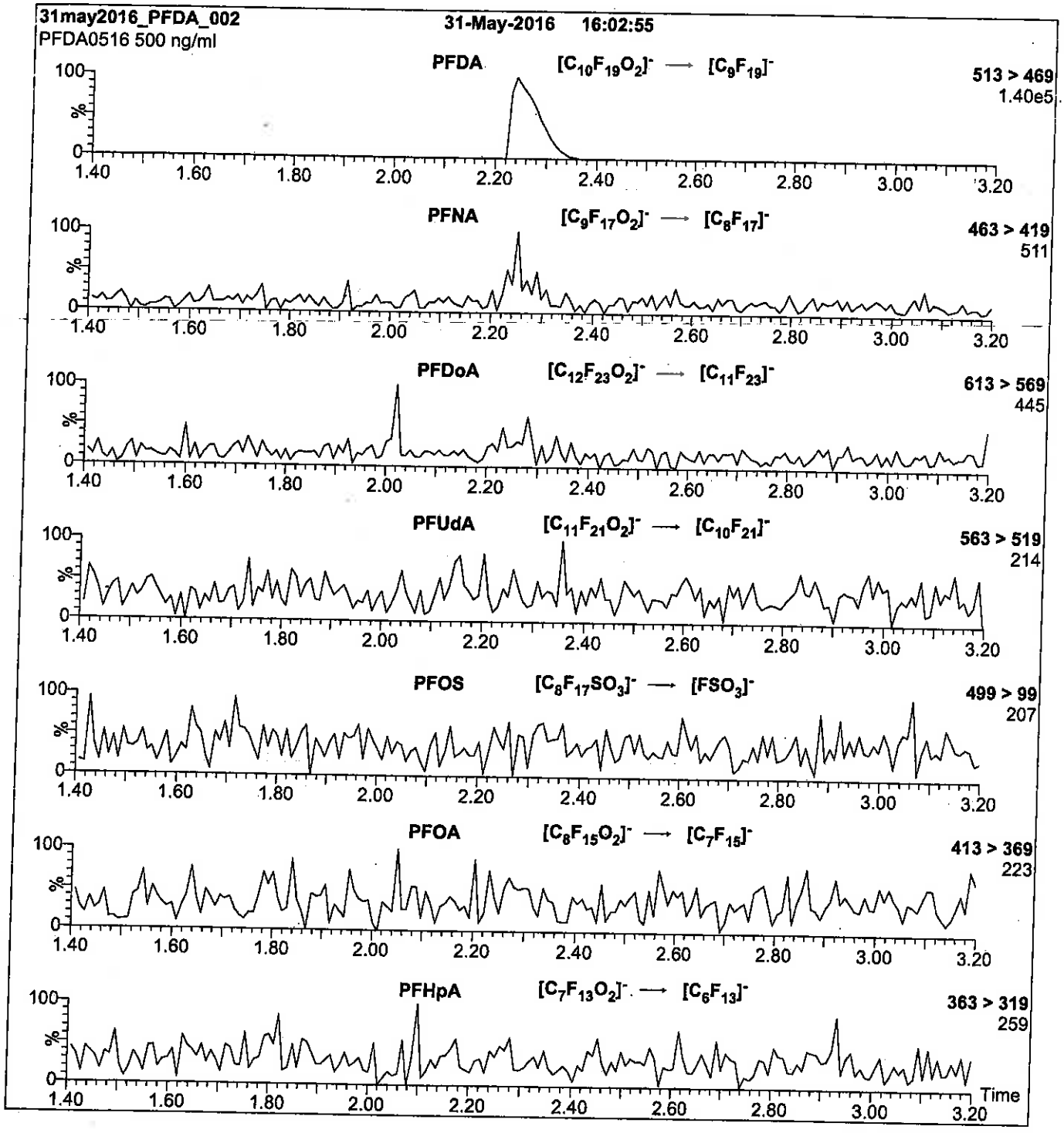
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

Reagent

LCPFDA_00008

R: 9/21/17 SKJ

WELLINGTON LABORATORIES

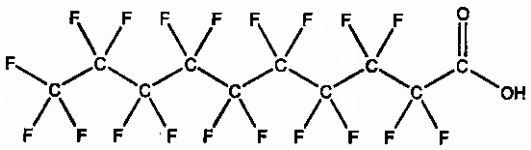
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA0517

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/29/2017
EXPIRY DATE: (mm/dd/yyyy) 05/29/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA

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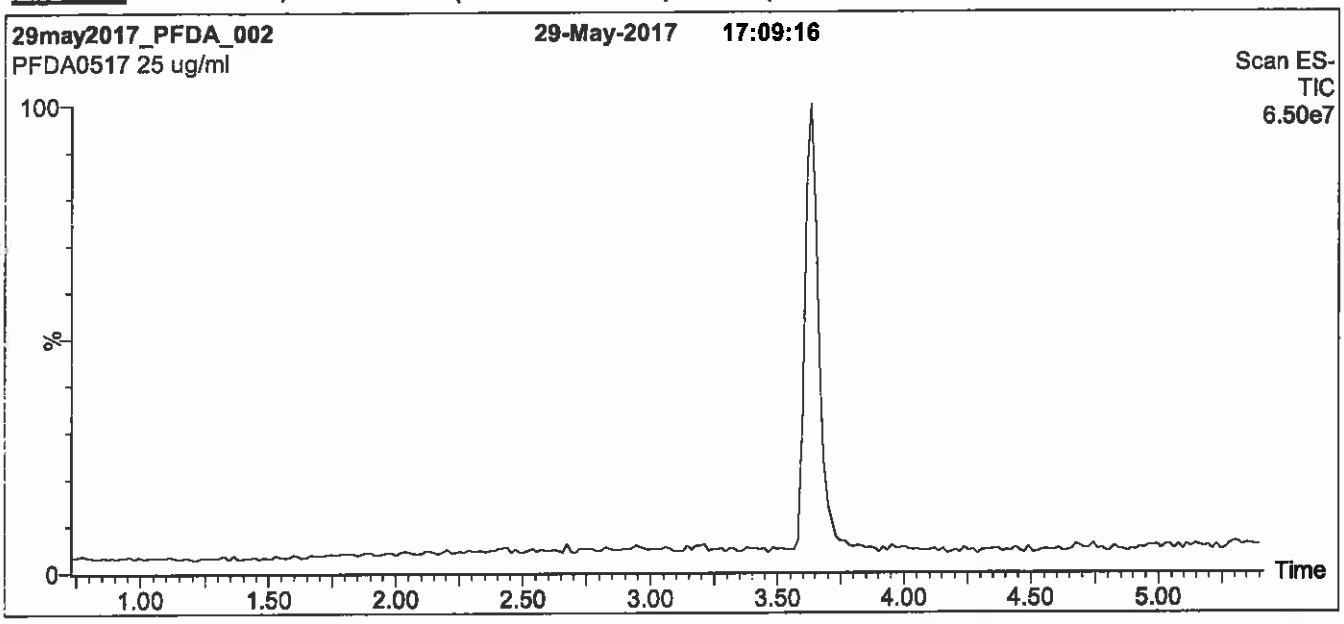
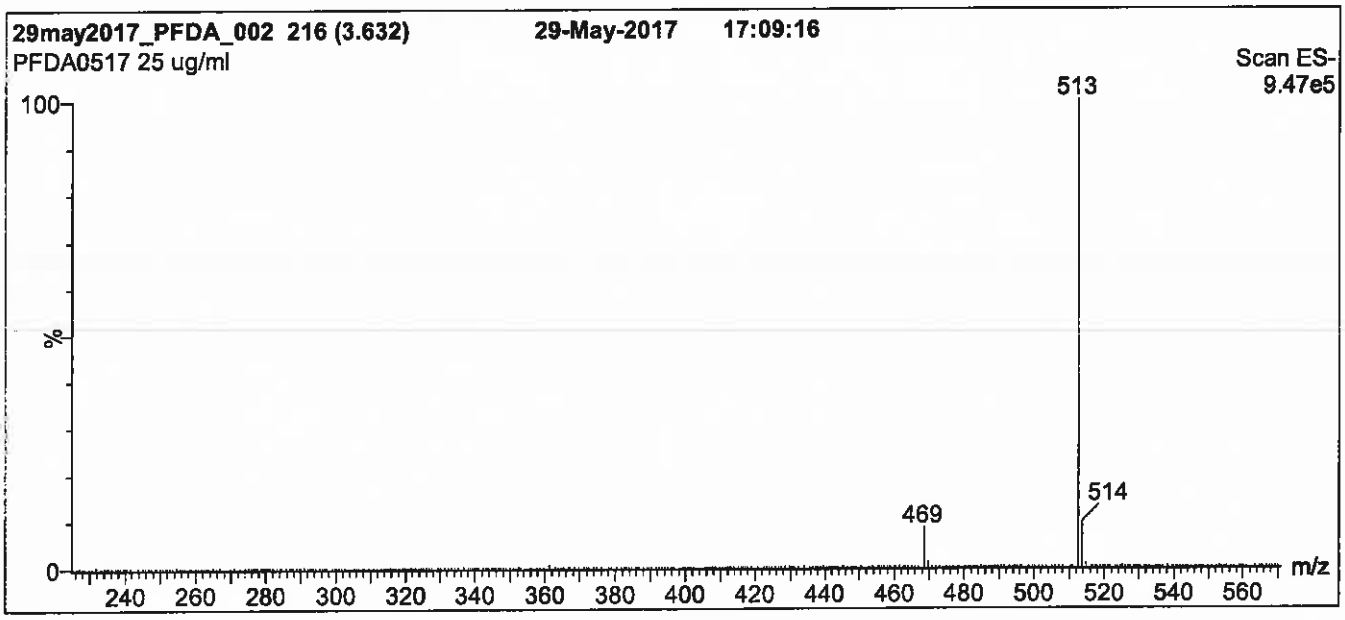
Figure 1: **PFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

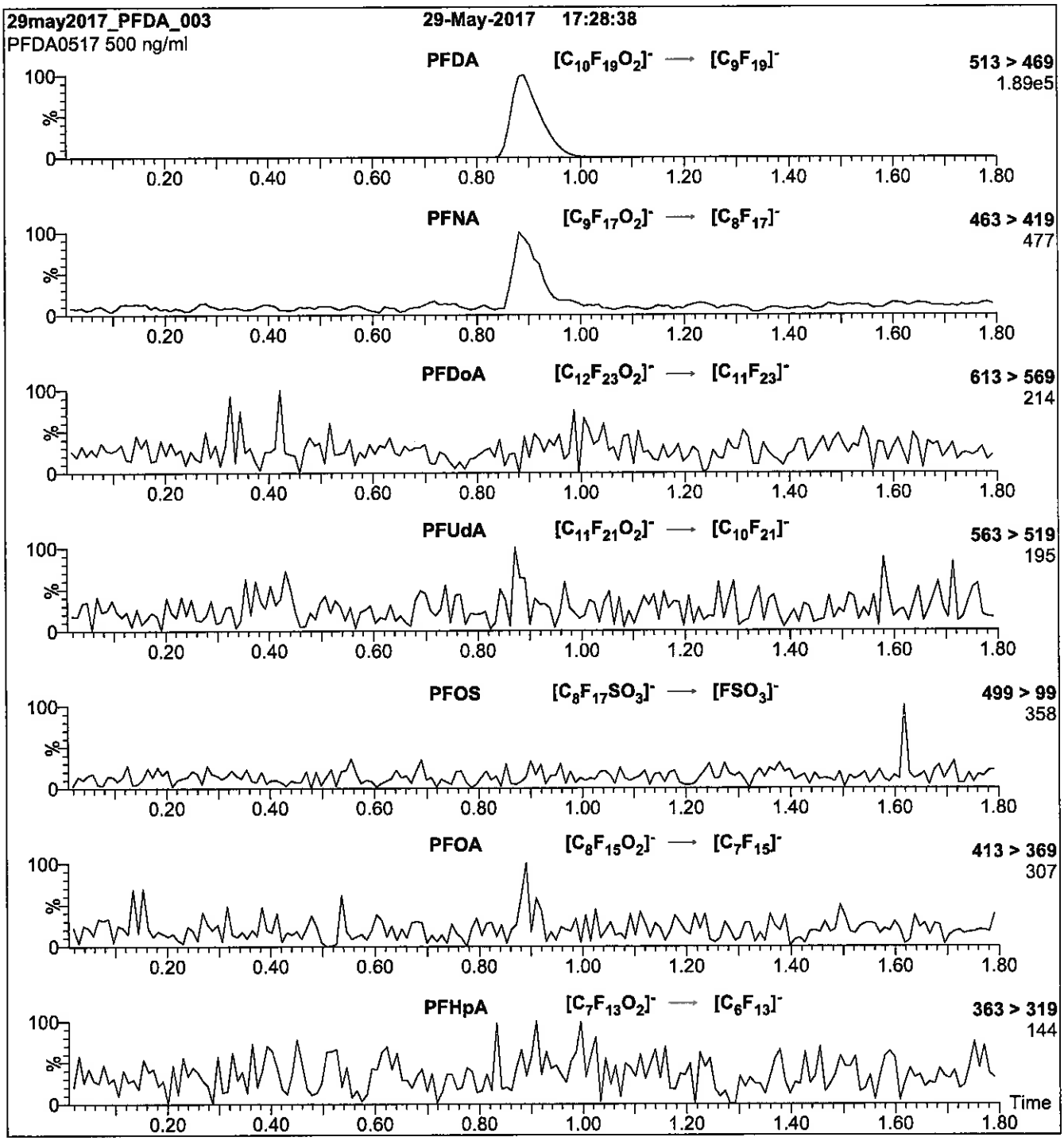
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 13

Reagent

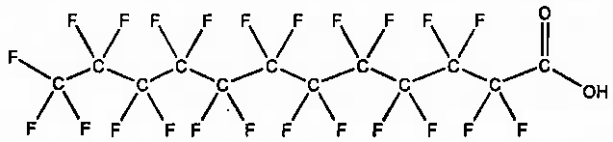
LCPFDoA_00007

r: 12/21/16 SPV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFDoA	**LOT NUMBER:**	PFDoA0516
COMPOUND:	Perfluoro-n-dodecanoic acid		
STRUCTURE:		**CAS #:**	307-55-1



MOLECULAR FORMULA:	$C_{12}HF_{23}O_2$	**MOLECULAR WEIGHT:**	614.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 06/02/2016 (mm/dd/yyyy)

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CALA

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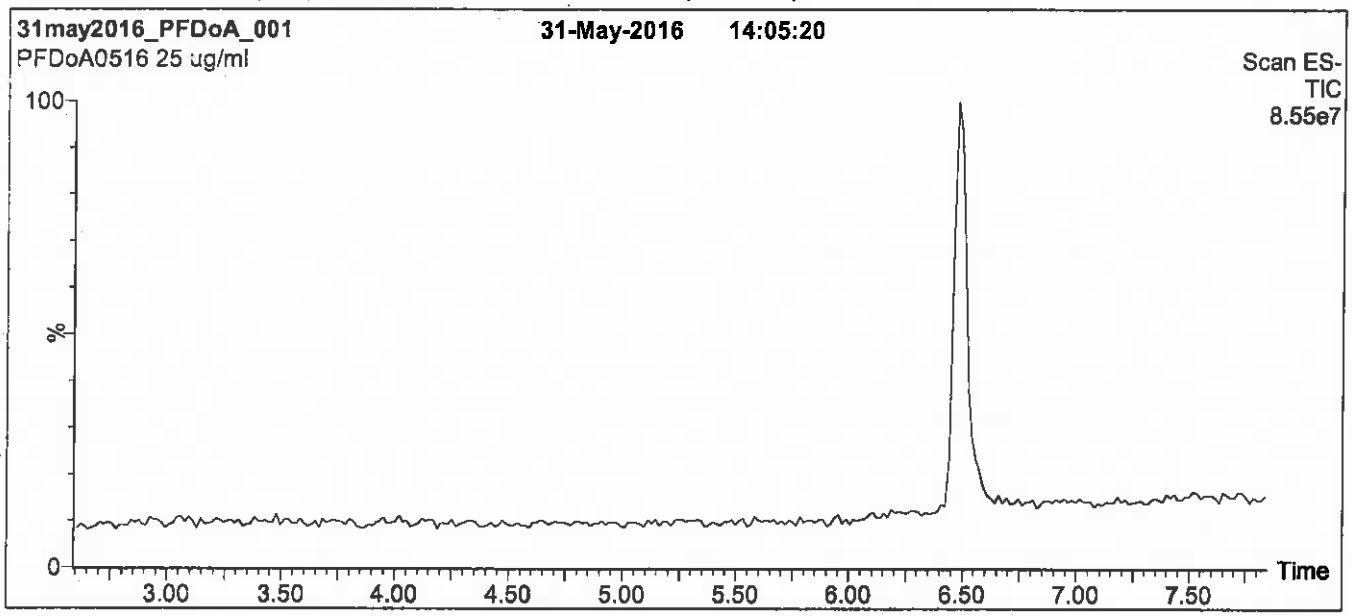
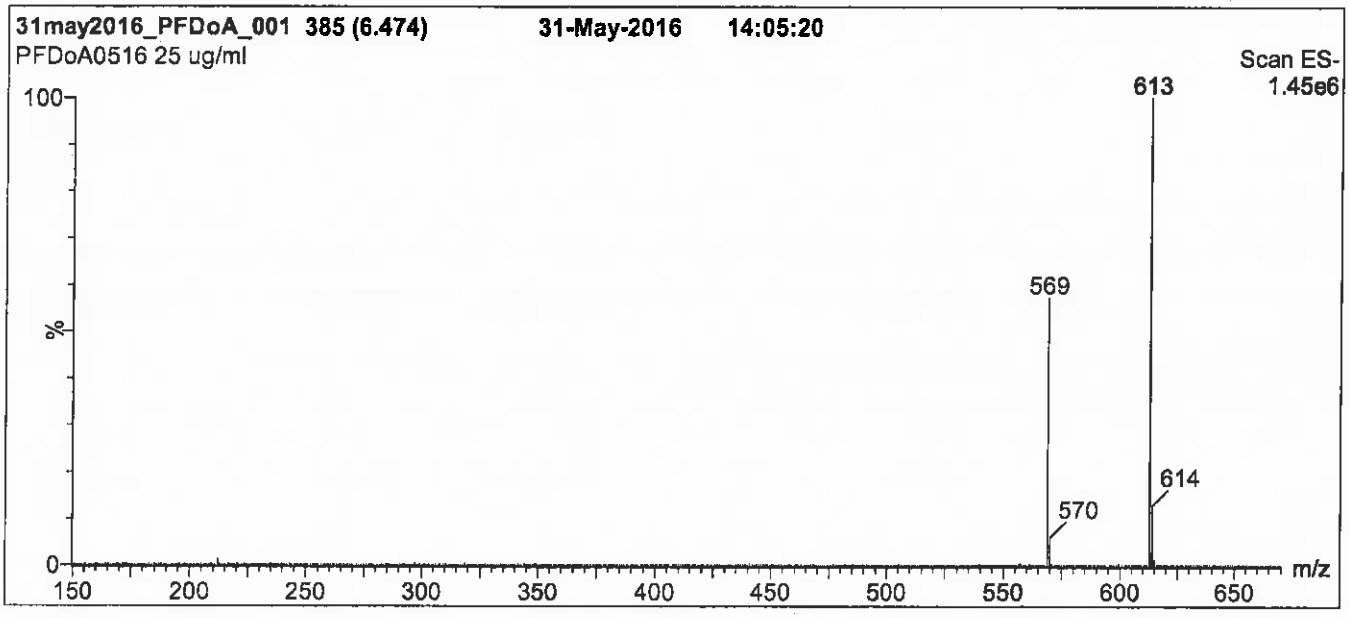
Figure 1: **PFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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MS: **Micromass Quattro *micro* API MS**

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Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

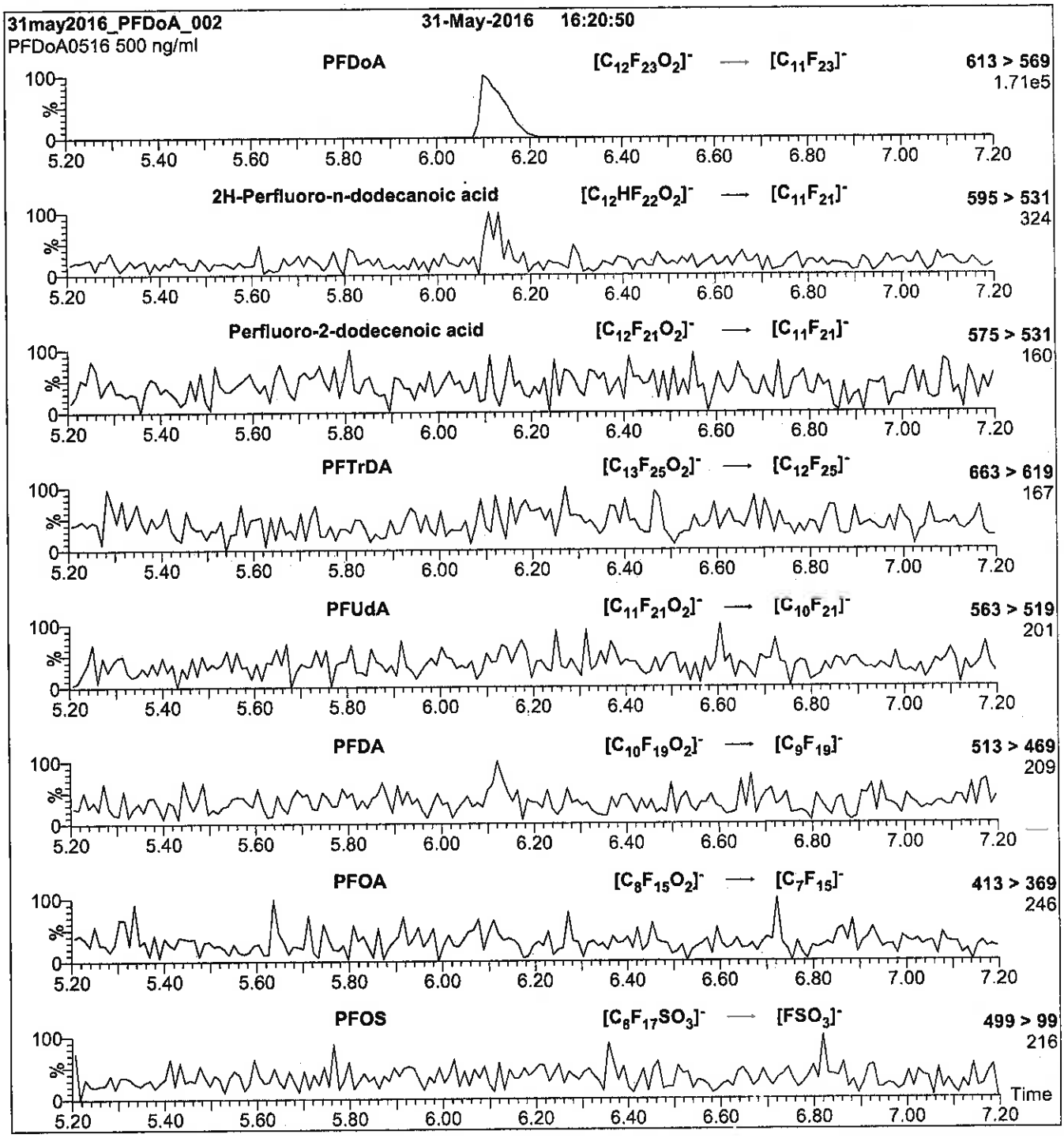
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDoA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

Reagent

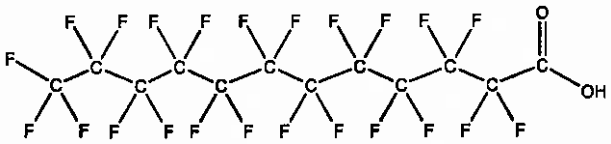
LCPFDoA_00008

P: 10/20/17 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFDoA	**LOT NUMBER:**	PFDoA0517
COMPOUND:	Perfluoro-n-dodecanoic acid		
STRUCTURE:		**CAS #:**	307-55-1



MOLECULAR FORMULA:	$C_{12}HF_{23}O_2$	**MOLECULAR WEIGHT:**	614.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/29/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/29/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

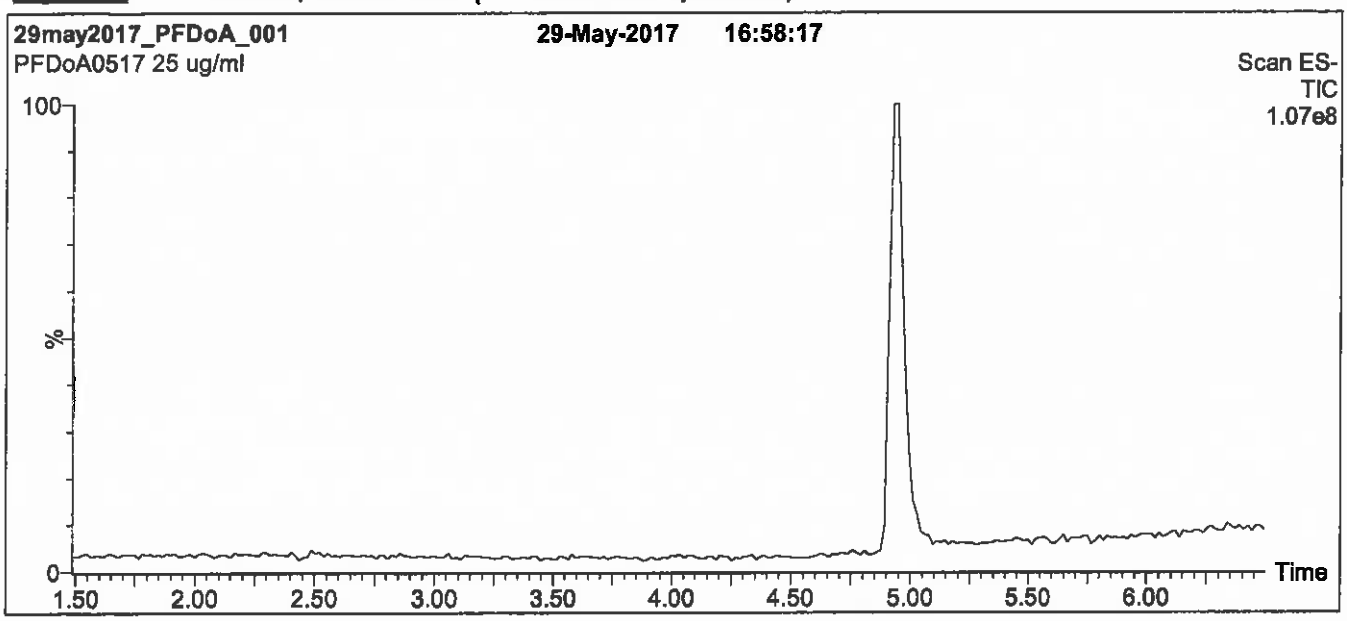
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

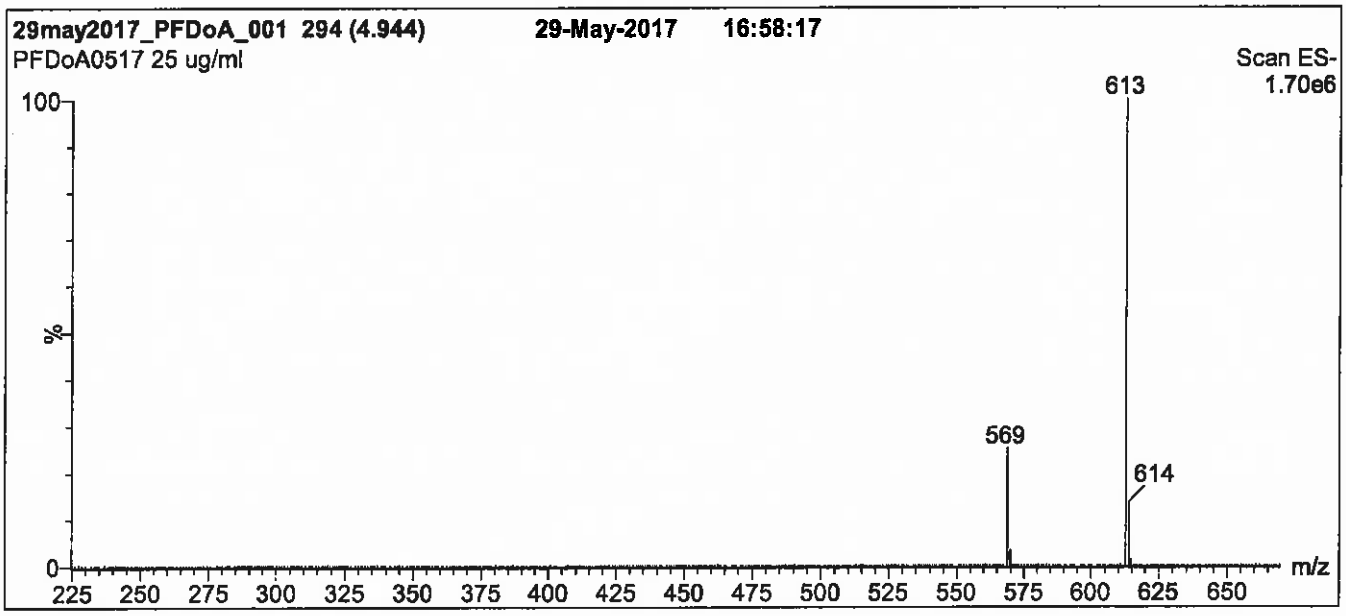
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **PFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

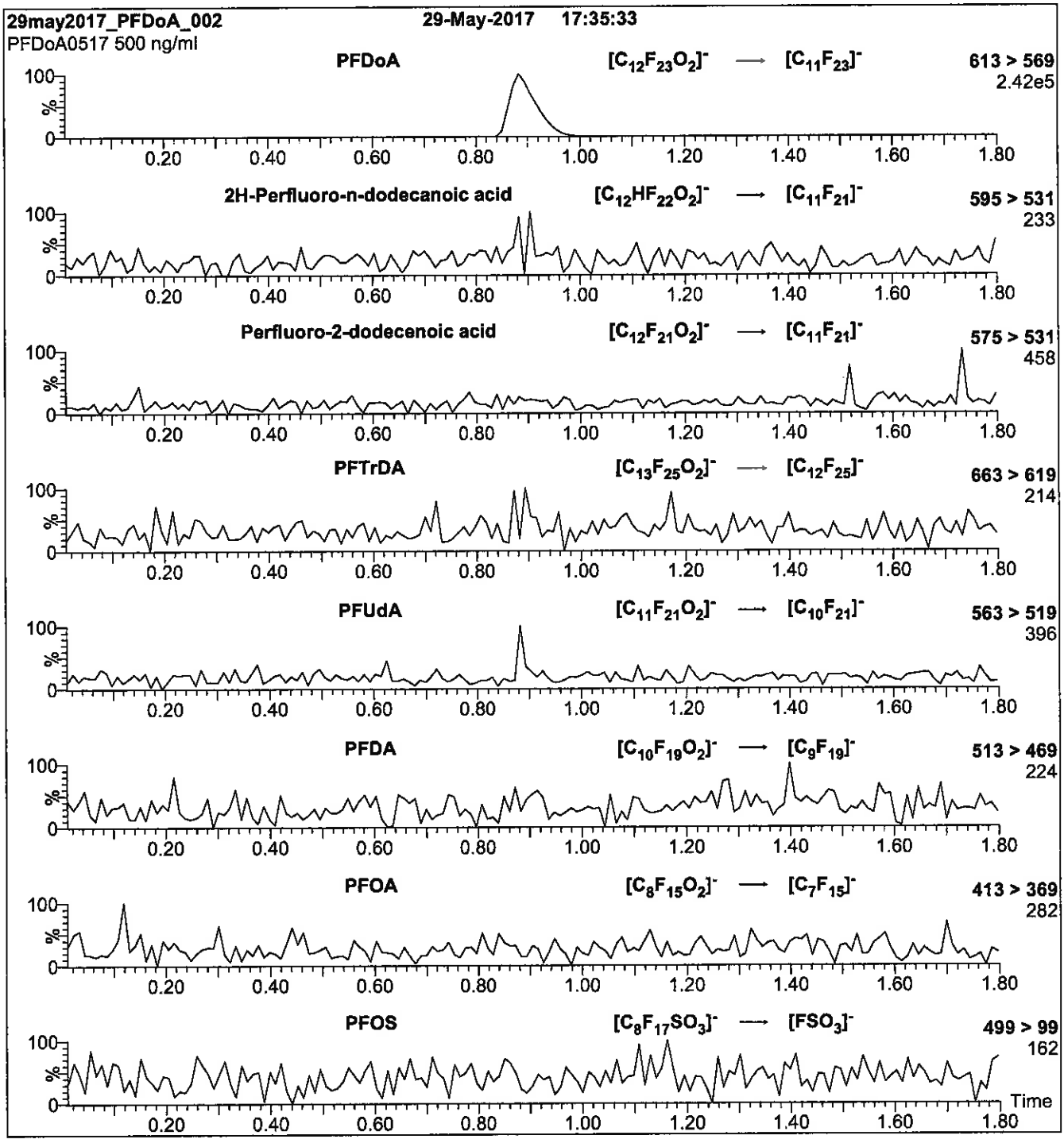
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDoA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

Reagent

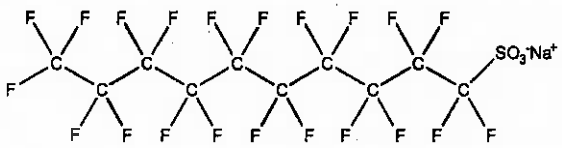
LCPFDSA_00002

D: 12/29/16 SK✓

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	L-PFDS	**LOT NUMBER:**	LPFDS0516
COMPOUND:	Sodium perfluoro-1-decanesulfonate		
STRUCTURE:		**CAS #:**	2806-15-7



MOLECULAR FORMULA:	$C_{10}F_{21}SO_3Na$	**MOLECULAR WEIGHT:**	622.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 48.2 ± 2.4 µg/ml (PFDS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/24/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/26/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

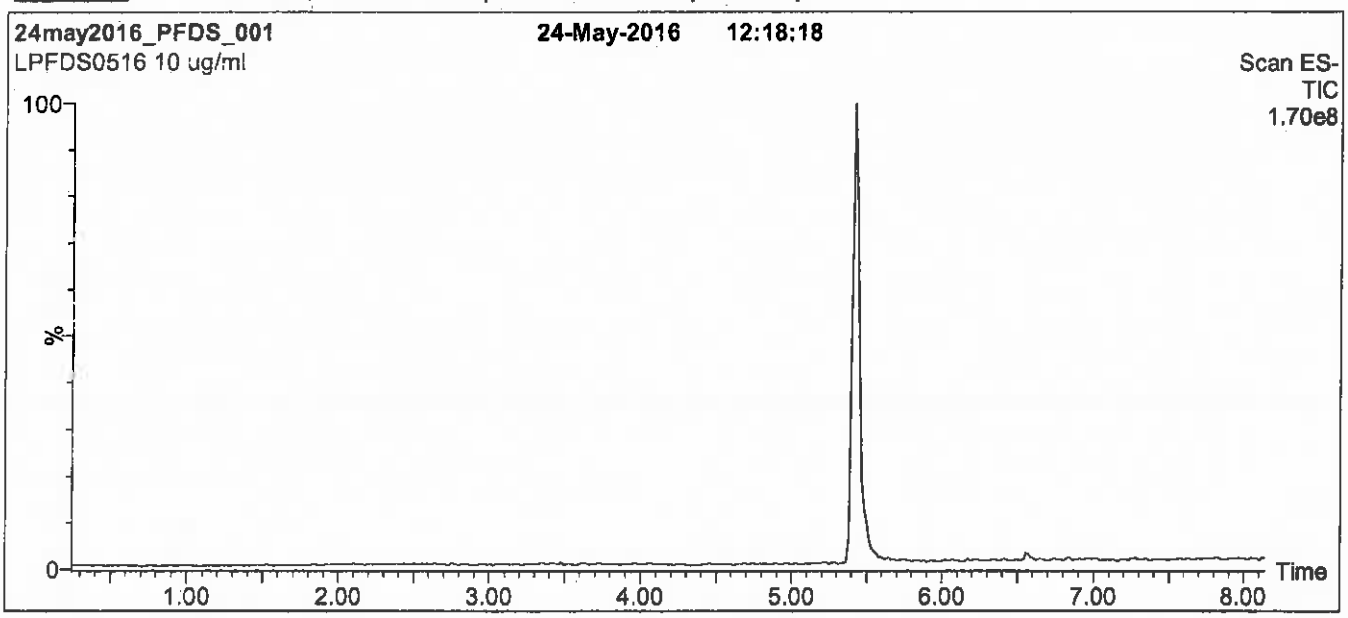
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

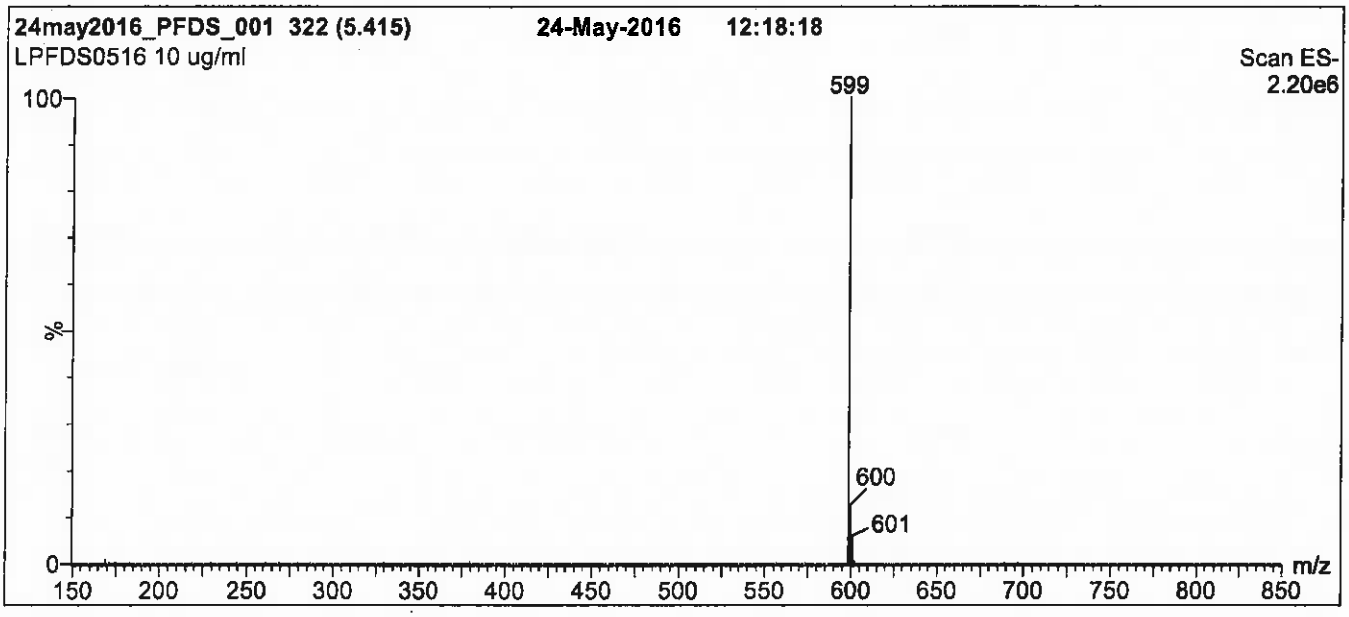
CALA

ANAB ACCREDITED

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **L-PFDS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

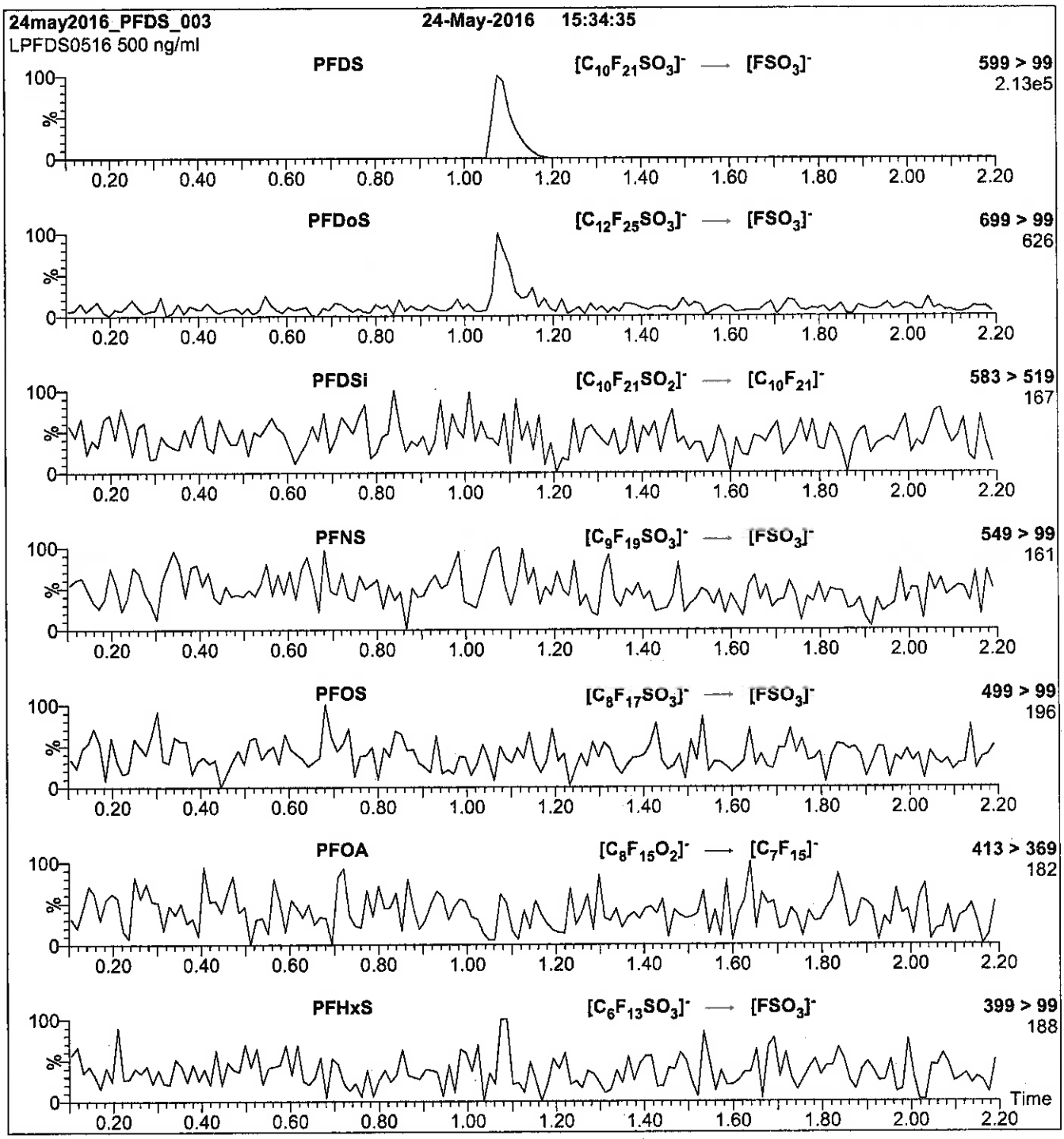
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 70.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **L-PFDS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFDS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.70e-3
Collision Energy (eV) = 50

Reagent

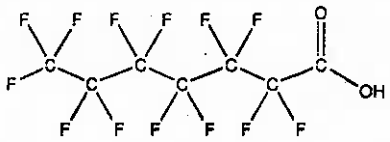
LCPFHpA_00008

R: 12/29/16 SKN

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHpA	**LOT NUMBER:**	PFHpA1216
COMPOUND:	Perfluoro-n-heptanoic acid		
STRUCTURE:		**CAS #:**	375-85-9



MOLECULAR FORMULA:	$C_7HF_{13}O_2$	**MOLECULAR WEIGHT:**	364.06
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/02/2016		
EXPIRY DATE: (mm/dd/yyyy)	12/02/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/12/2016
B.G. Chittim (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED

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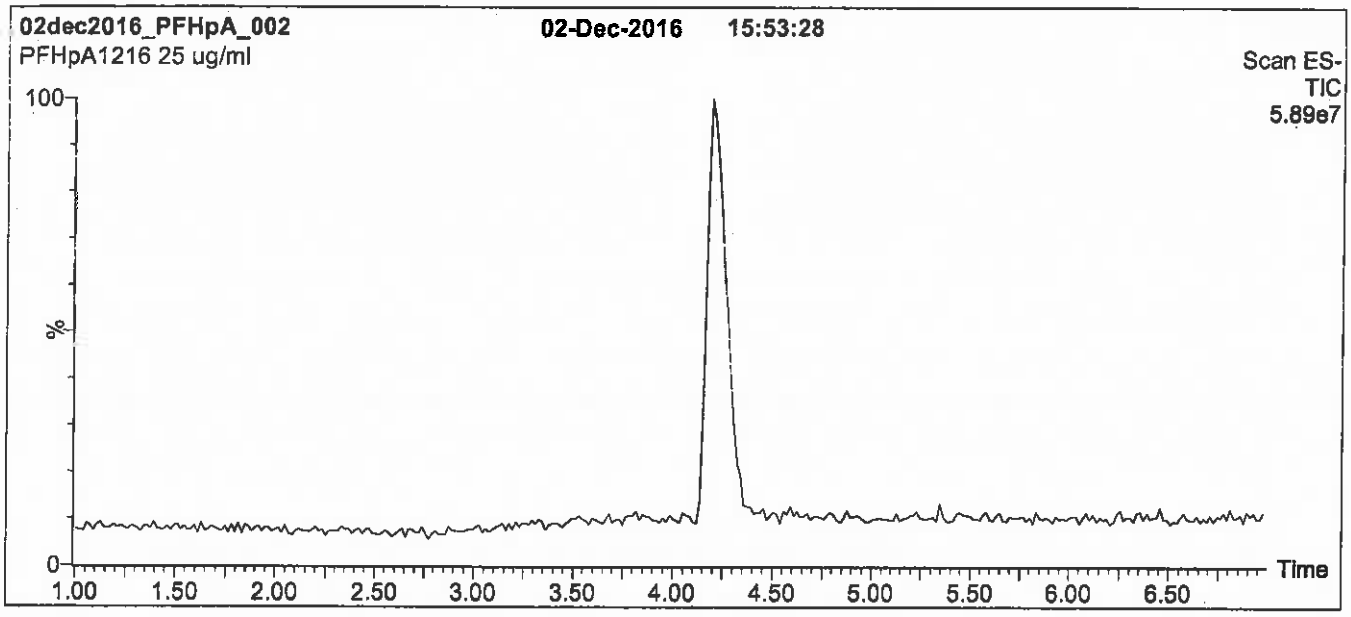
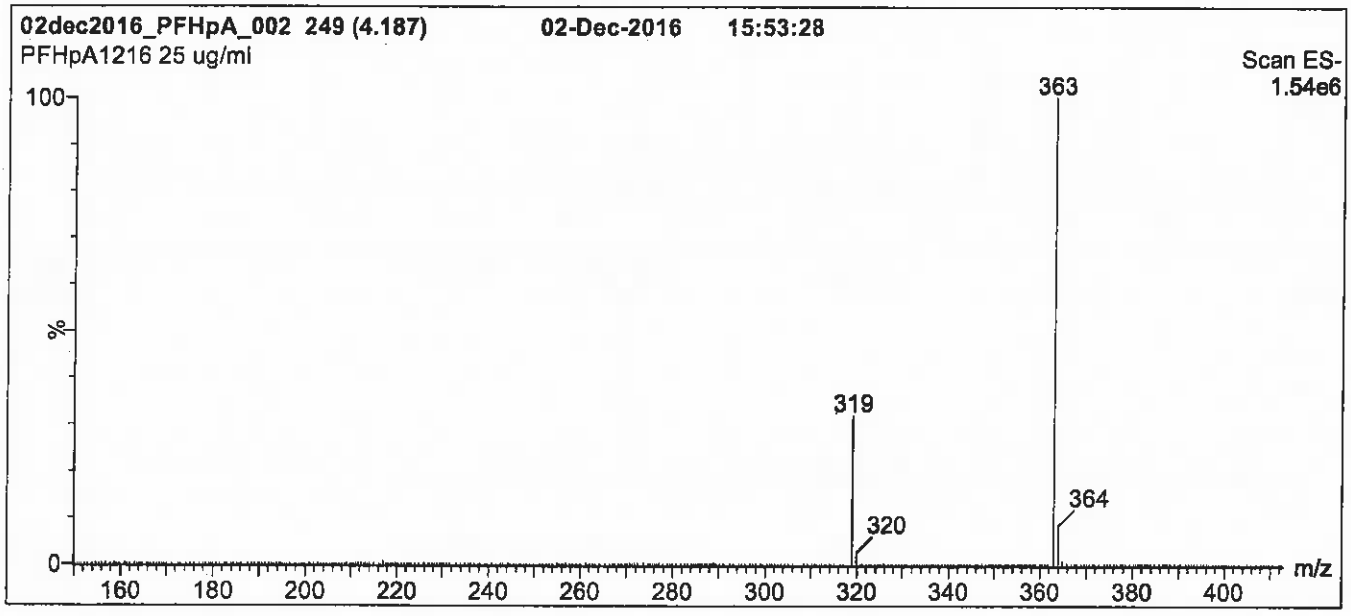
Figure 1: **PFHpA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

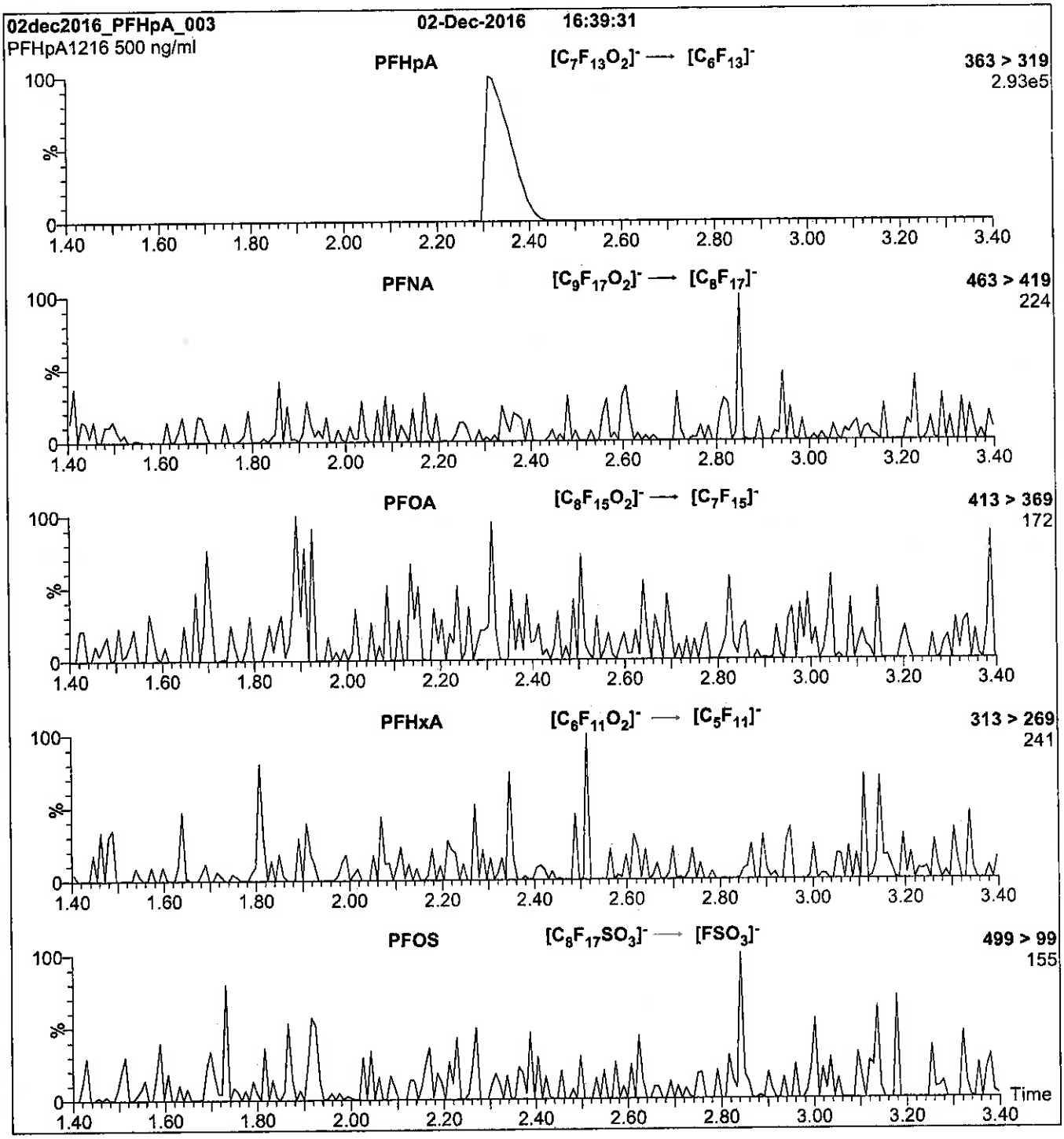
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 11

Reagent

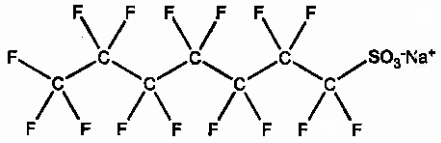
LCPFHpSA_00003

R: 9/21/17 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	L-PFHpS	**LOT NUMBER:**	LPFHpS0817
COMPOUND:	Sodium perfluoro-1-heptanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_7F_{15}SO_3Na$	**MOLECULAR WEIGHT:**	472.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.6 ± 2.4 µg/ml (PFHpS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/01/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/01/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of L-PFHxS ($C_6F_{13}SO_3Na$) and ~ 0.1% of L-PFOS ($C_8F_{17}SO_3Na$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/07/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

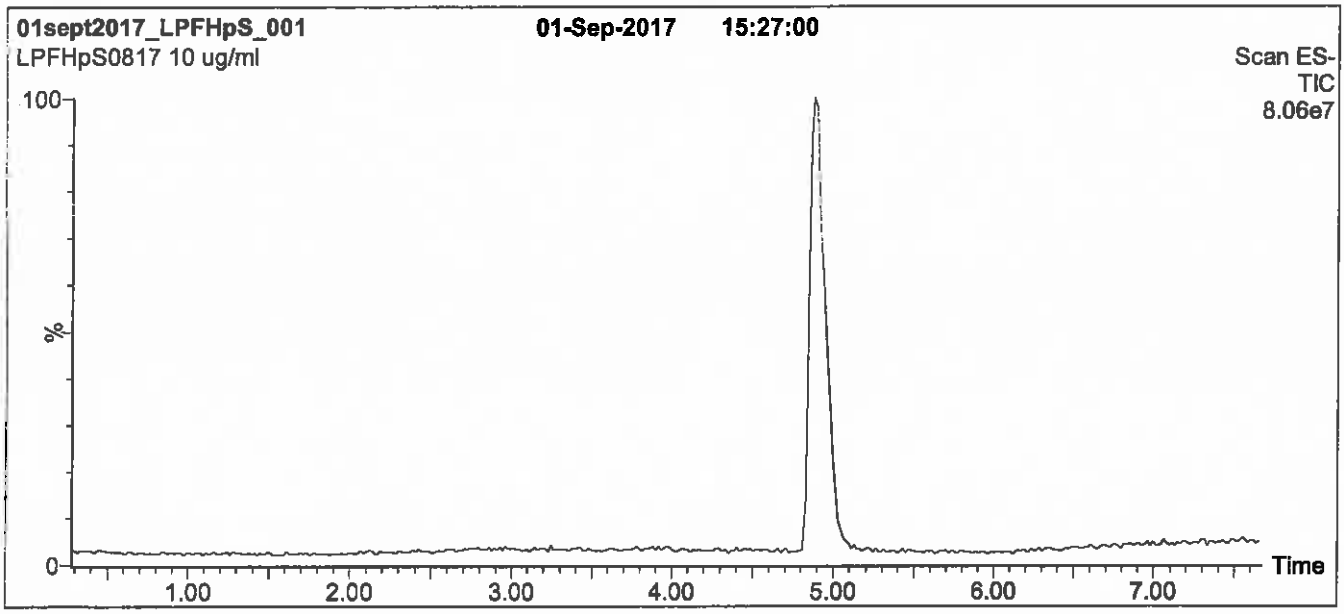
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

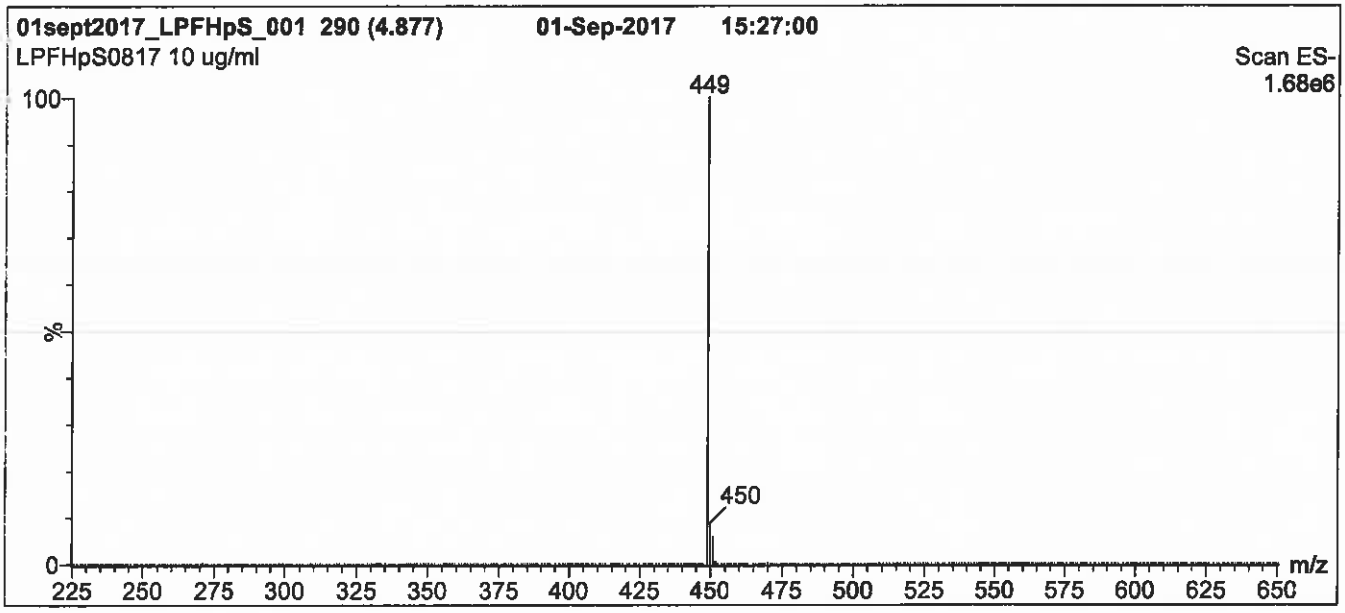
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **L-PFHpS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold
for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

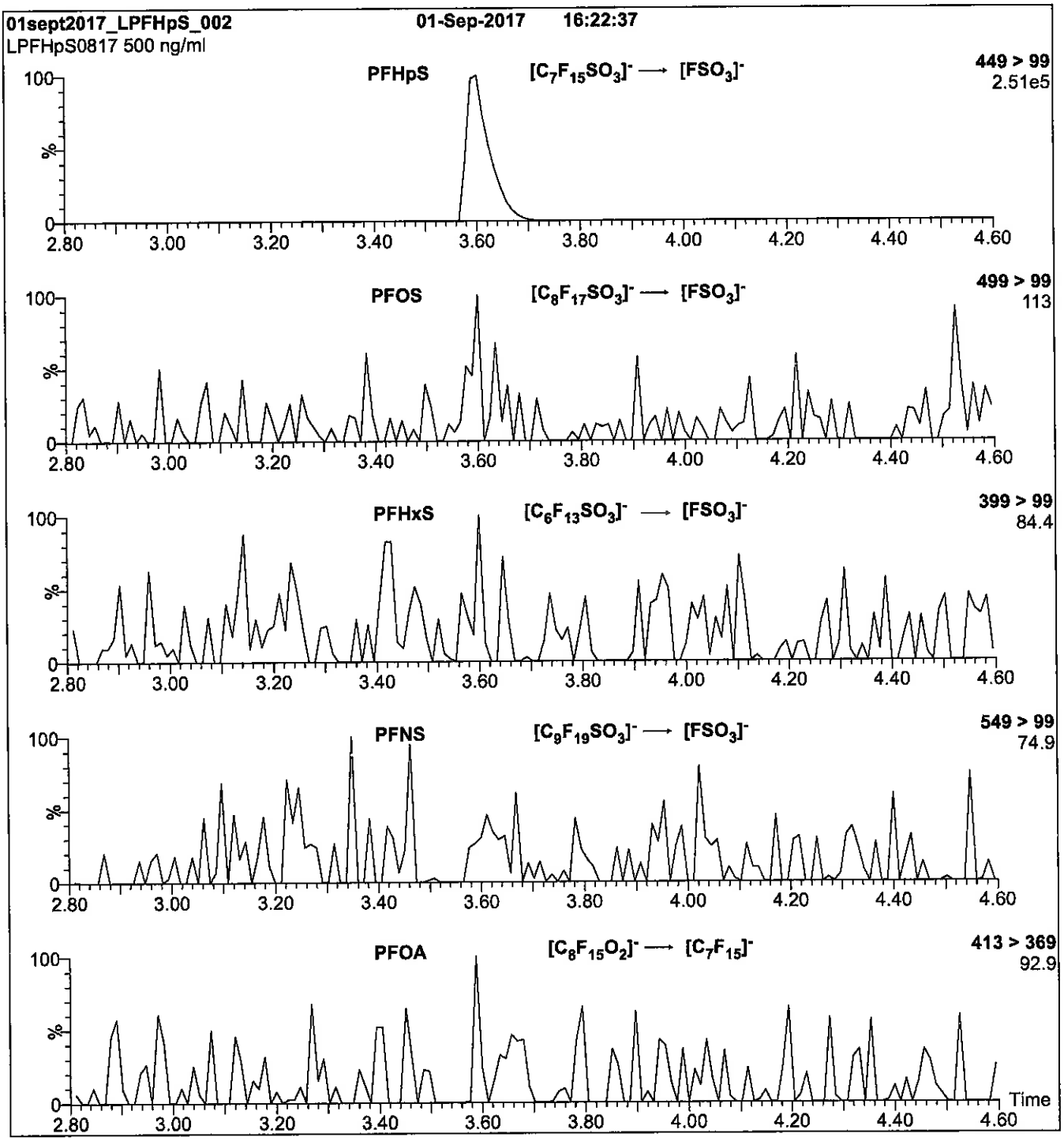
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **L-PFHpS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFHpS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 35

Reagent

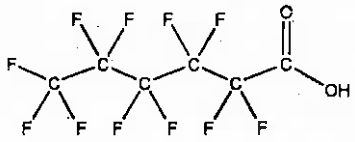
LCPFHxA_00007

R: 12/29/16 SAV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHxA	**LOT NUMBER:**	PFHxA1215
COMPOUND:	Perfluoro-n-hexanoic acid		
STRUCTURE:		**CAS #:**	307-24-4



MOLECULAR FORMULA:	$C_6HF_{11}O_2$	**MOLECULAR WEIGHT:**	314.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/22/2015		
EXPIRY DATE: (mm/dd/yyyy)	12/22/2020		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of Perfluoro-n-pentanoic acid (PFPeA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/23/2015 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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CALA

ANAB ACCREDITED

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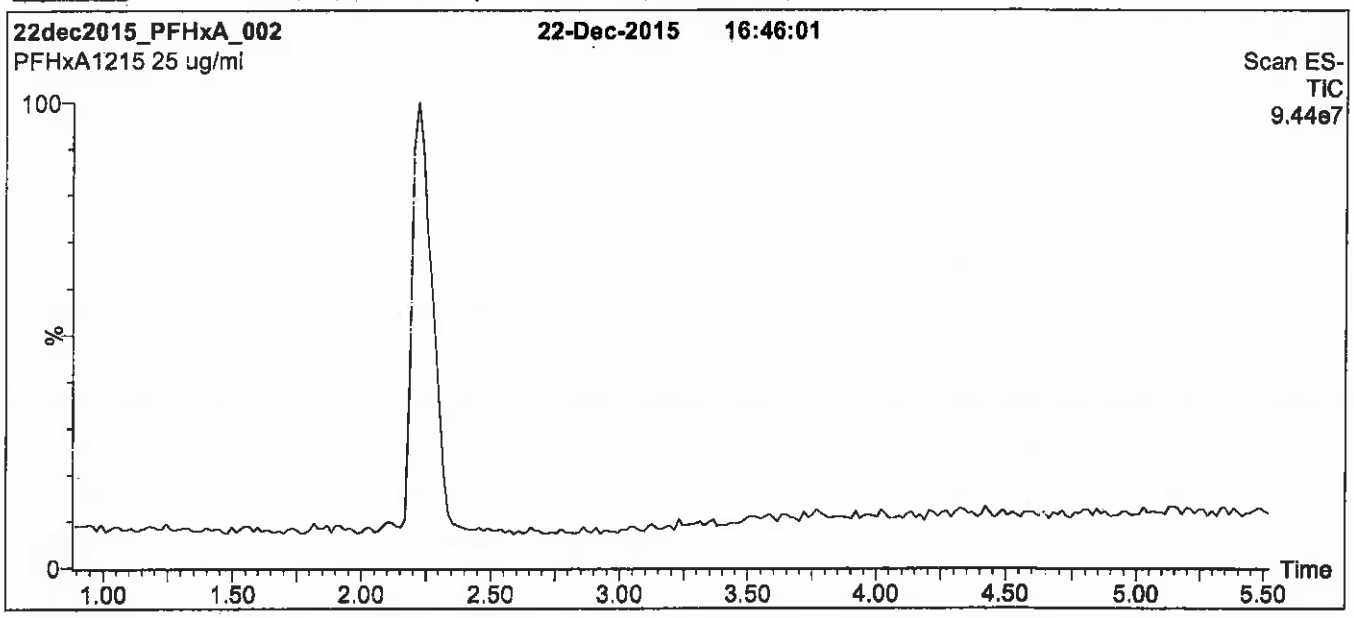
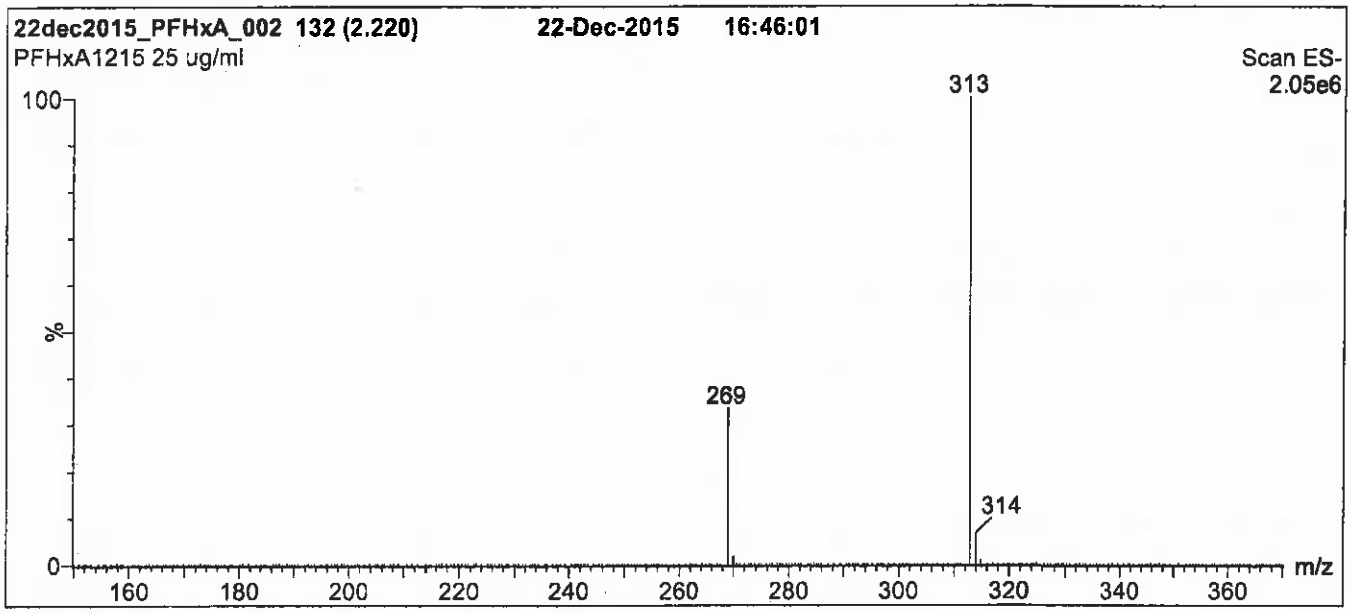
Figure 1: **PFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

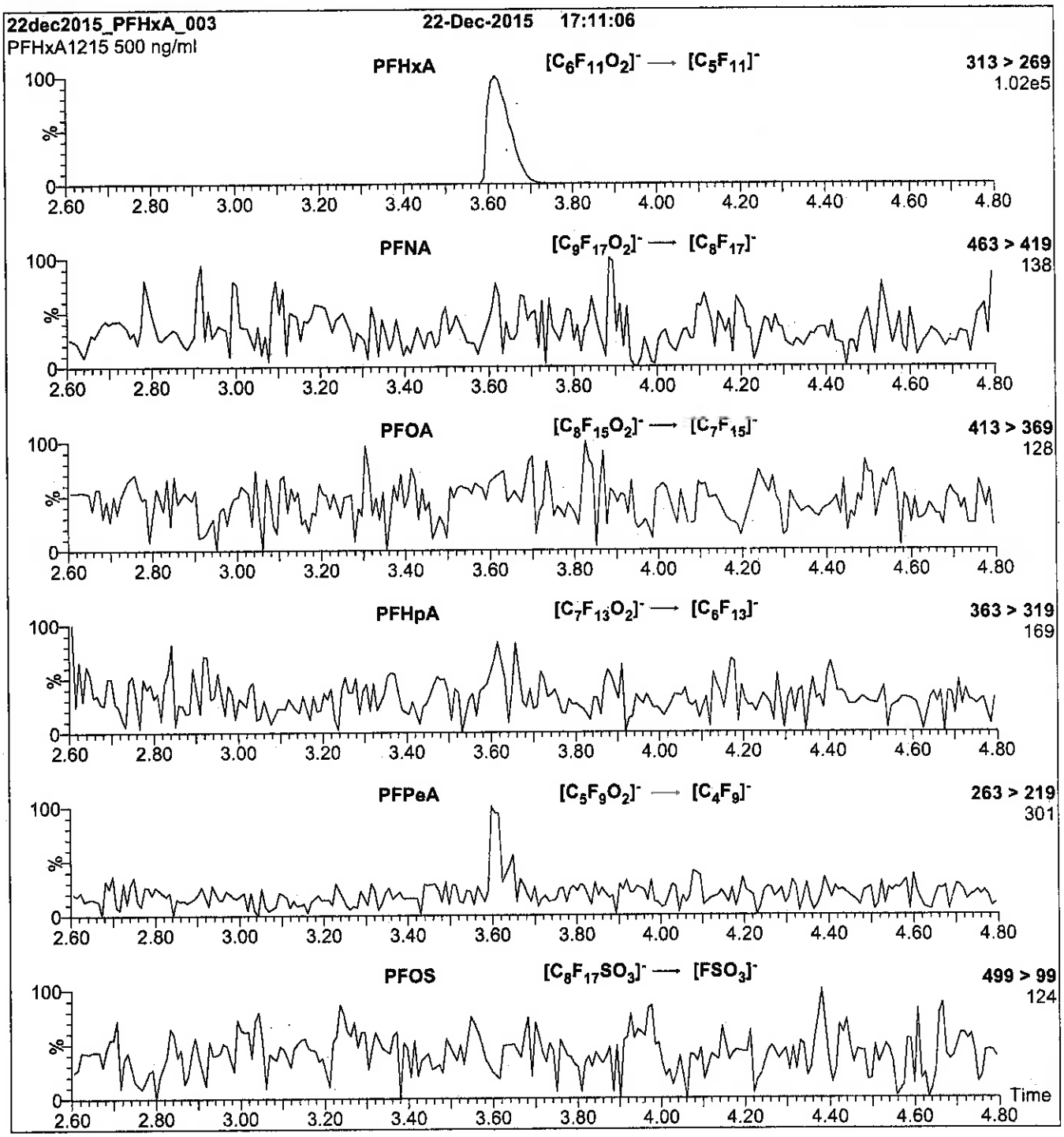
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 10

Reagent

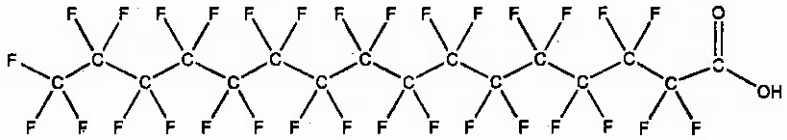
LCPFHxDA_00008

R: 12/29/16 SEV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHxDA	**LOT NUMBER:**	PFHxDA0516
COMPOUND:	Perfluoro-n-hexadecanoic acid		
STRUCTURE:		**CAS #:**	67905-19-5



MOLECULAR FORMULA:	$C_{16}HF_{31}O_2$	**MOLECULAR WEIGHT:**	814.13
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/25/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/25/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.4% of PFODA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/27/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HAZARDS:

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CALA

ANAB ACCREDITED

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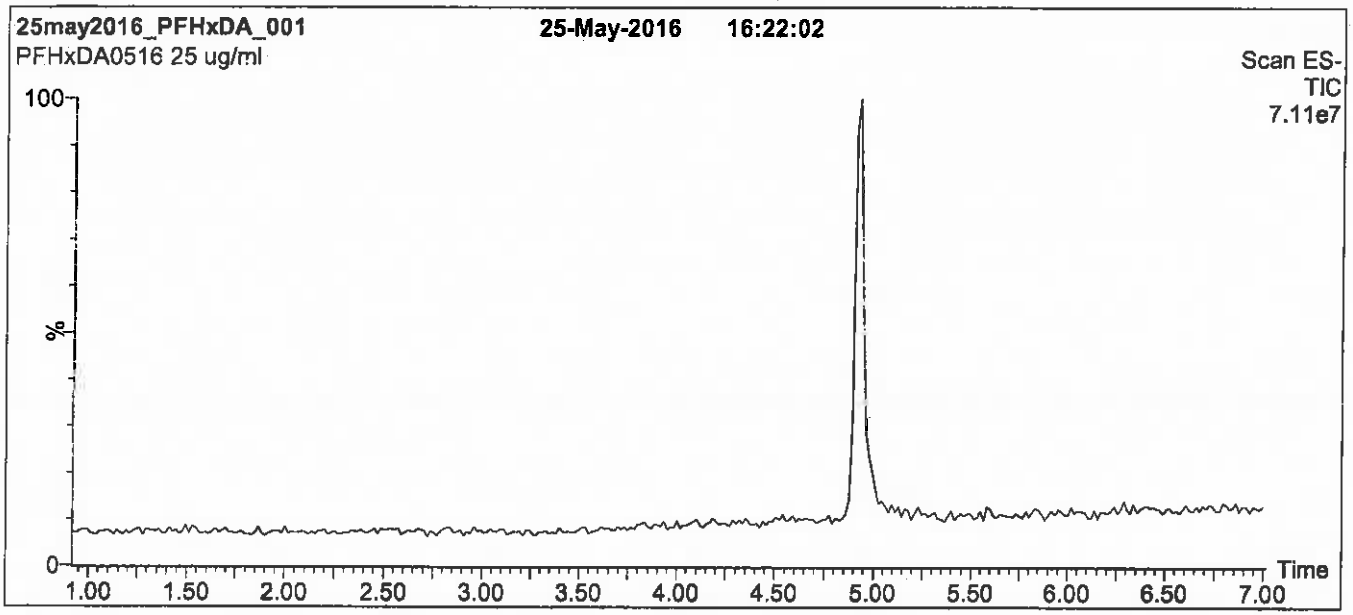
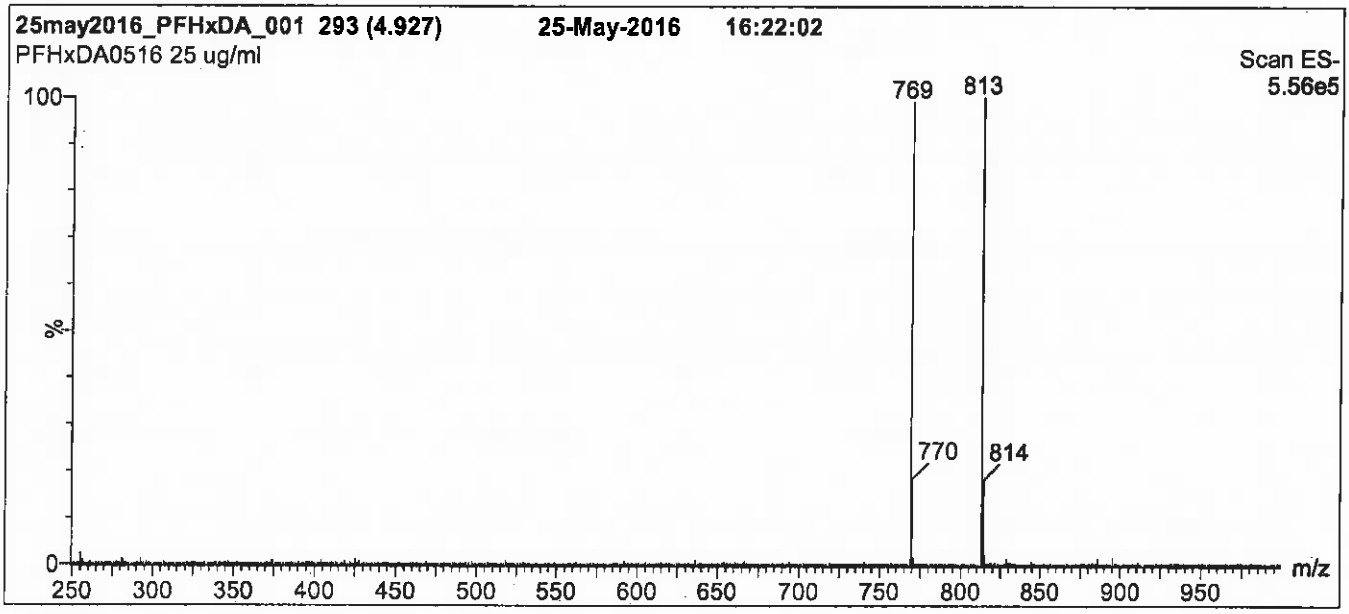
Figure 1: **PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 95% organic over 6 min and hold for 2.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

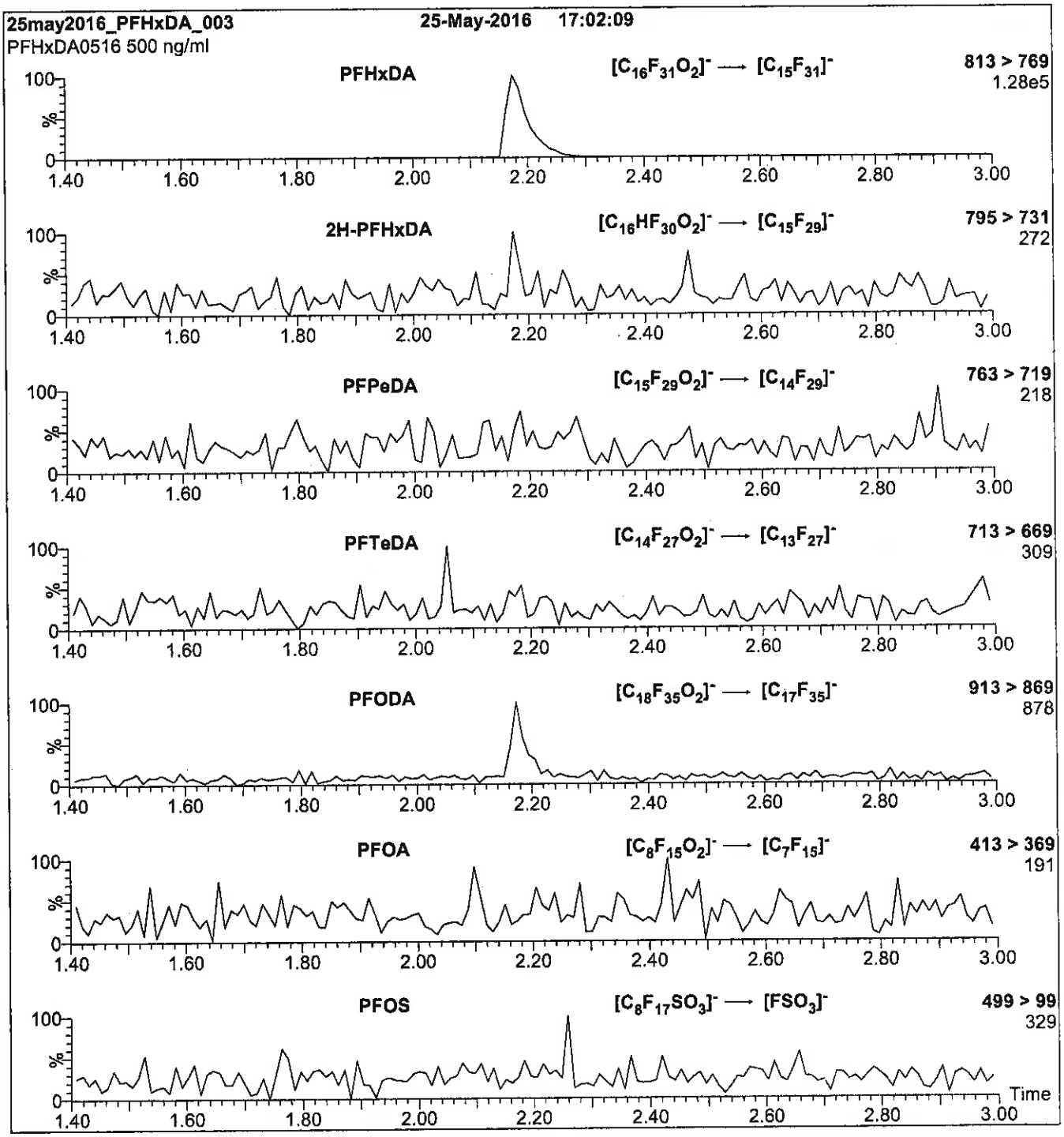
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 15

Reagent

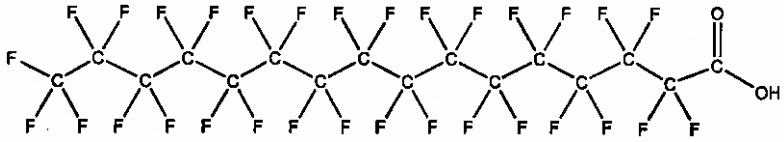
LCPFHxDA_00009

r: 9/21/17 SCJ

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHxDA	**LOT NUMBER:**	PFHxDA0717
COMPOUND:	Perfluoro-n-hexadecanoic acid		
STRUCTURE:		**CAS #:**	67905-19-5



MOLECULAR FORMULA:	$C_{16}HF_{31}O_2$	**MOLECULAR WEIGHT:**	814.13
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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Certified By: _____ **Date:** 08/04/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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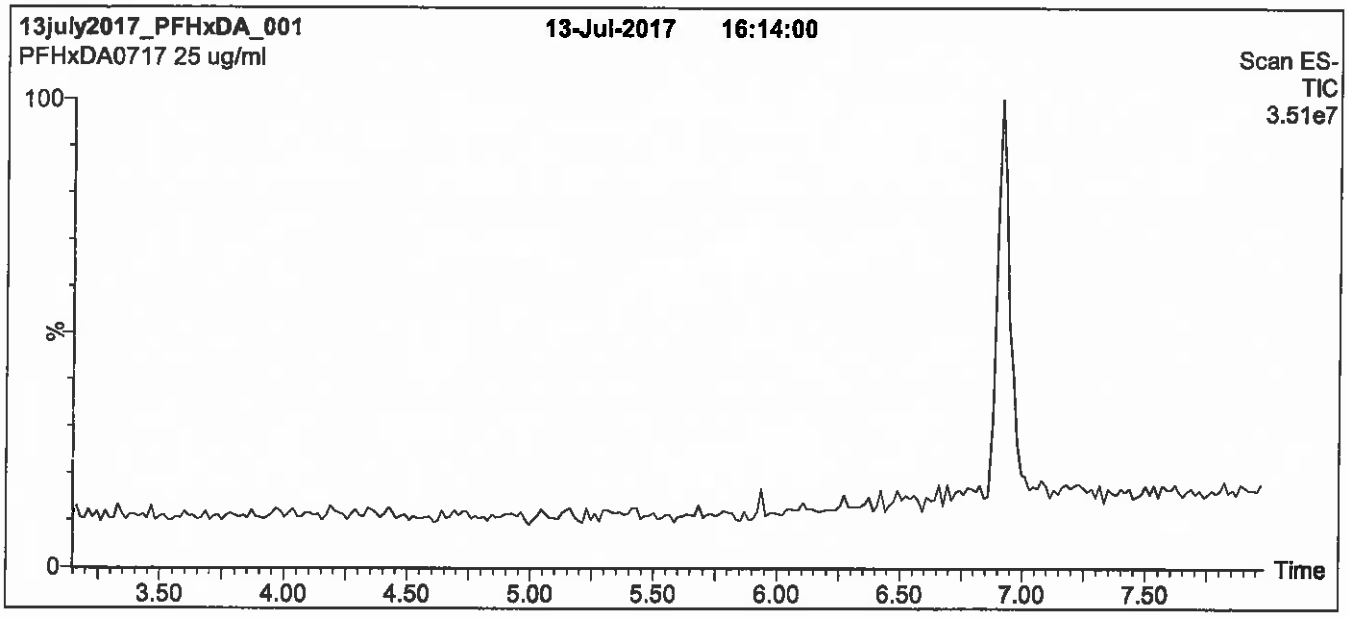
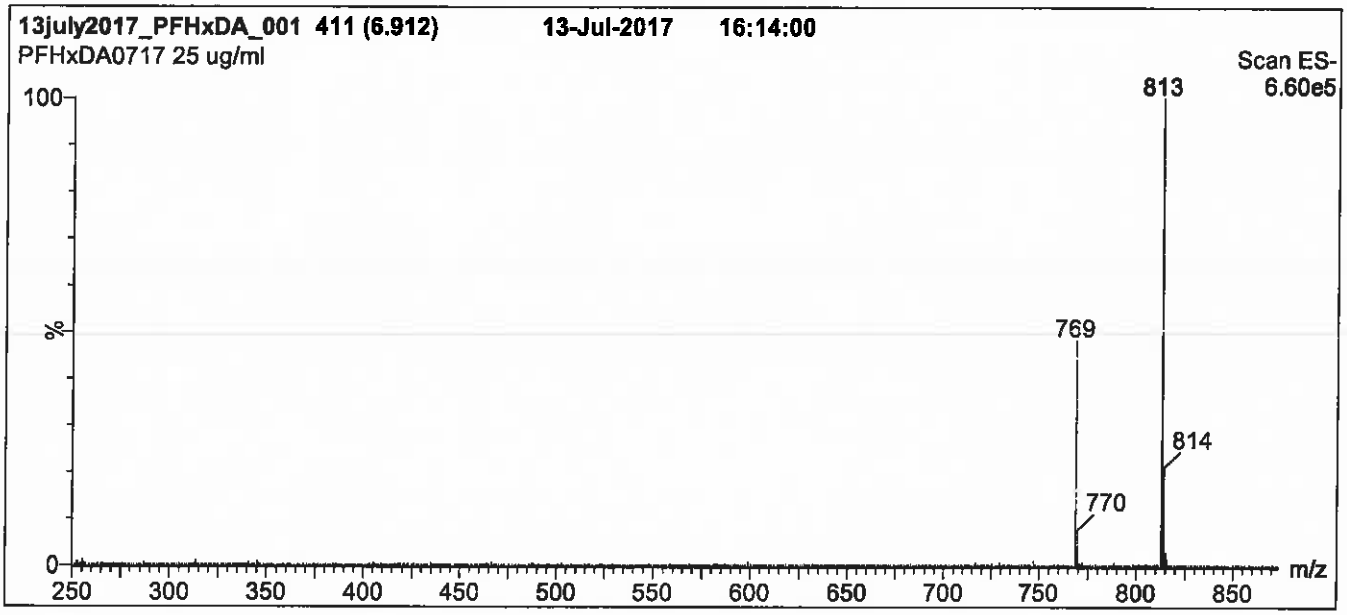
Figure 1: **PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

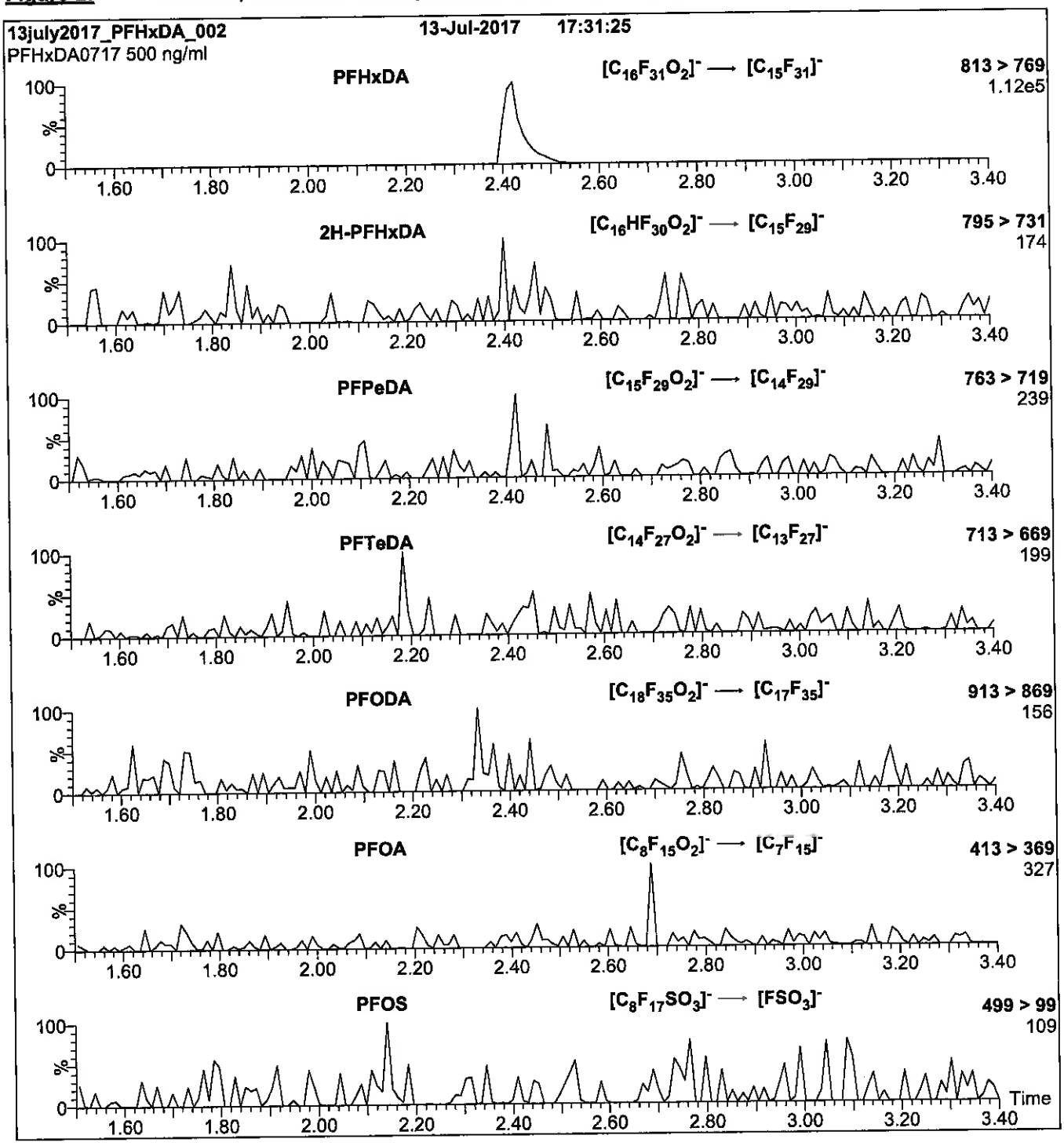
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.13e-3
Collision Energy (eV) = 15

Reagent

LCPFHxS-br_00004

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK0615
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt)
	45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	06/29/2015
LAST TESTED: (mm/dd/yyyy)	07/03/2015
EXPIRY DATE: (mm/dd/yyyy)	07/03/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2,...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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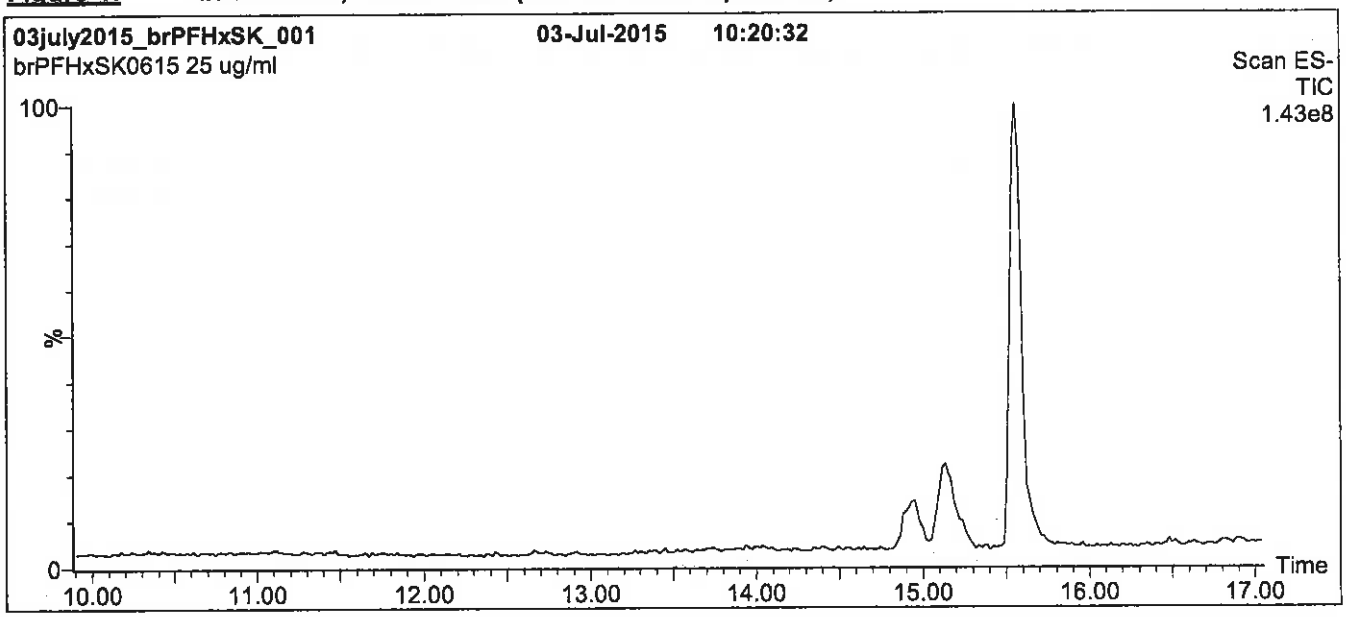
Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

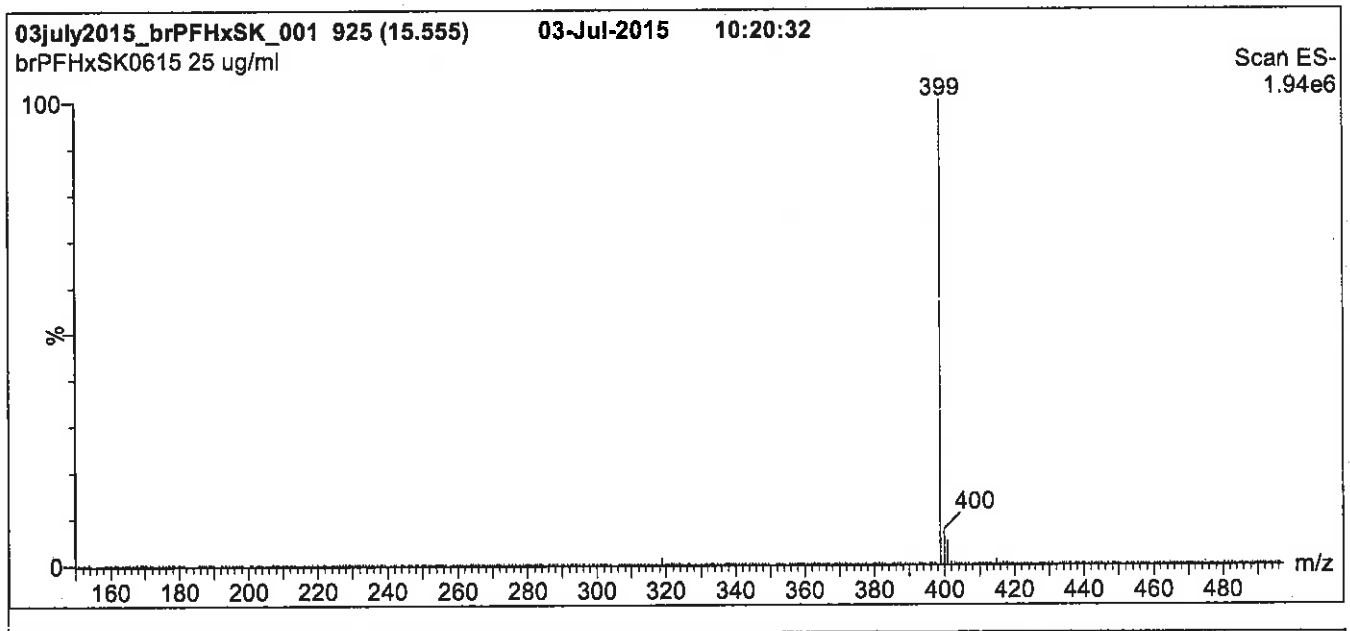
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)CF_2CF_2SO_3^-K^+$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: _____ **Date:** 09/27/2016
B.G. Chittim (mm/dd/yyyy)

Figure 1: **br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 50% organic over 14 min. Ramp to 90% organic over 3 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 20 min

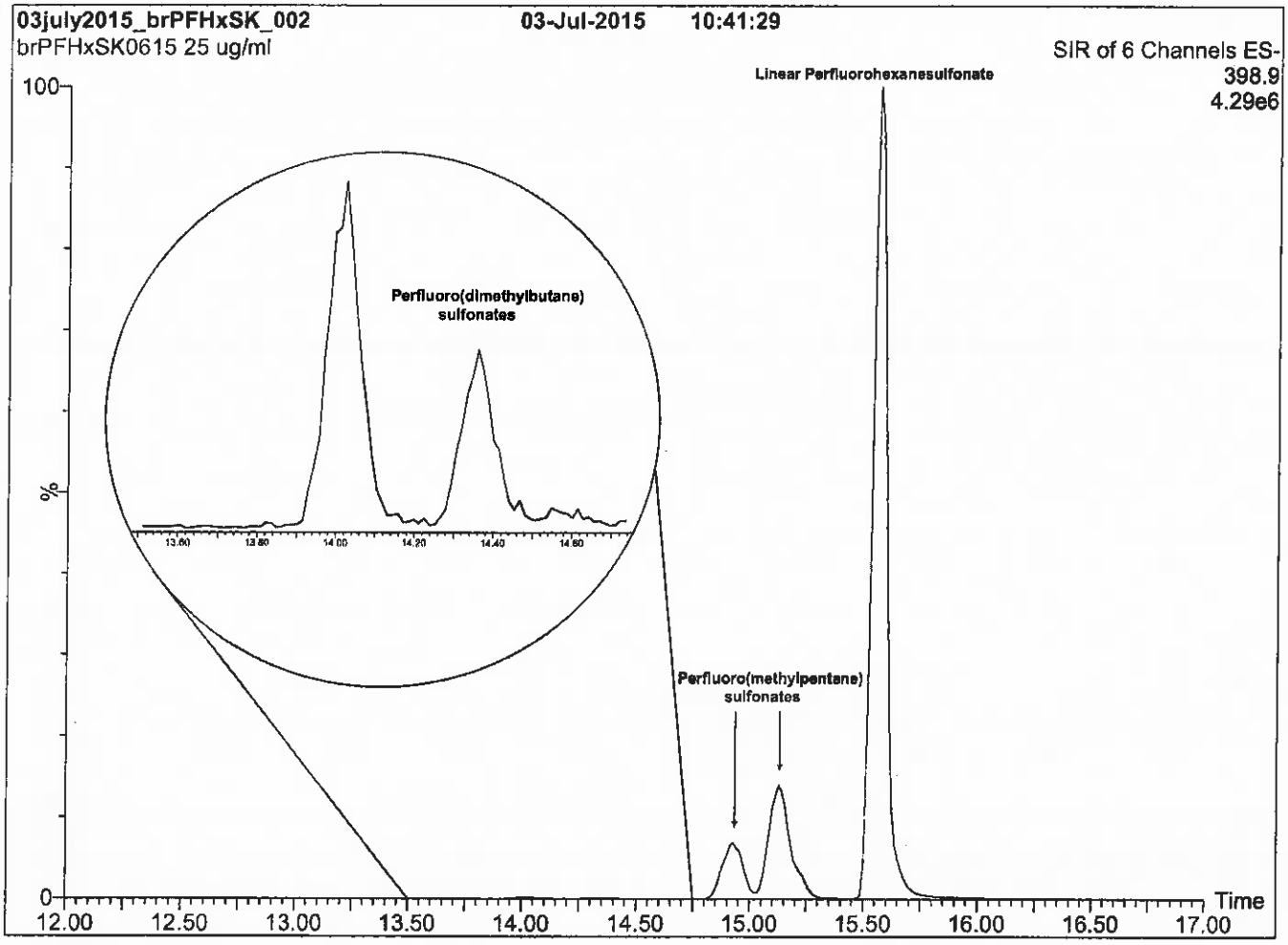
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **br-PFHxSK; LC/MS Data**



Conditions for Figure 2:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 50% organic over 14 min. Ramp to 90% organic over 3 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 20 min

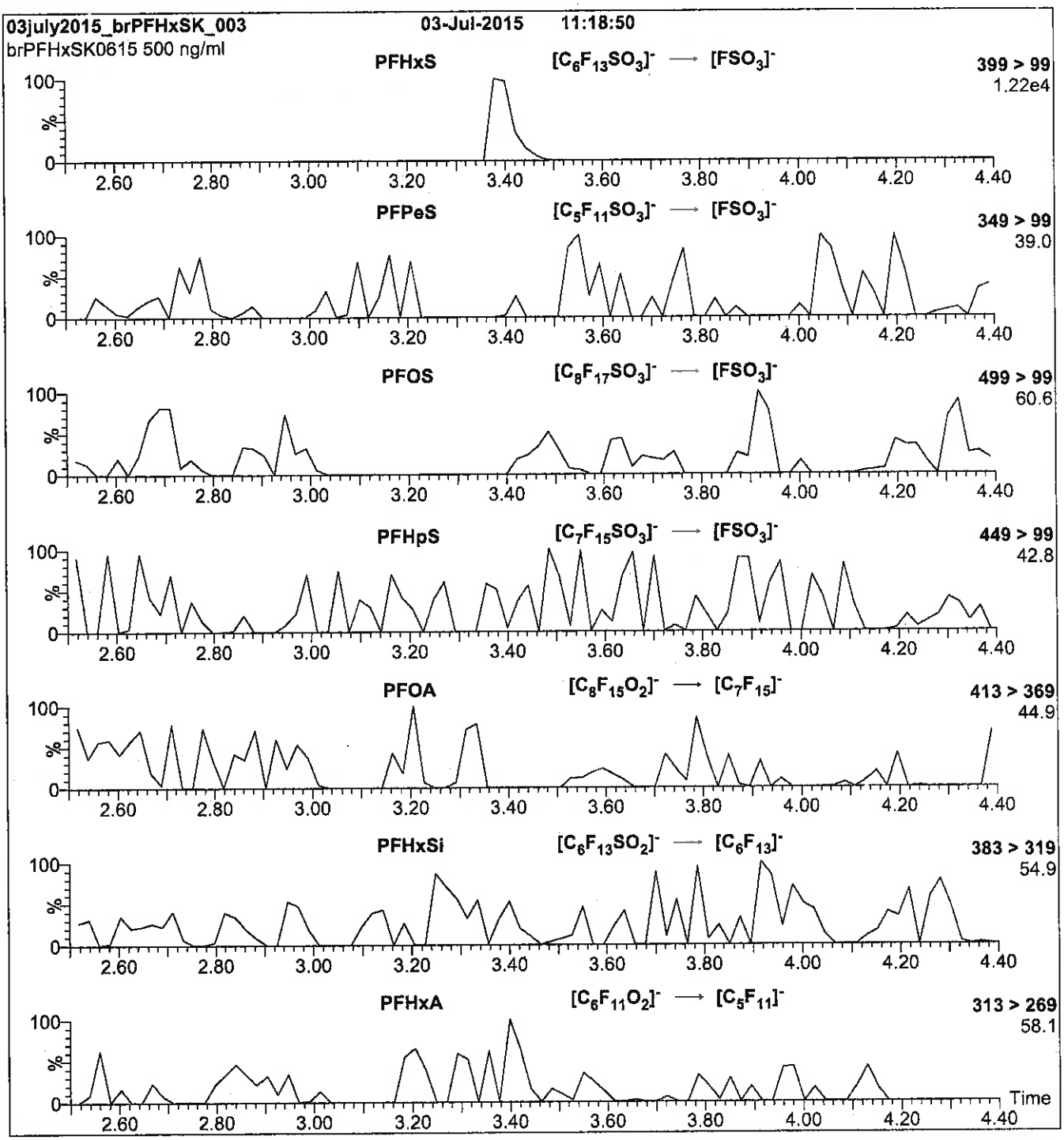
Flow: 300 µl/min

MS Parameters

Experiment: SIR (6 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 3: **br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml br-PFHxSK)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.54e-3
Collision Energy (eV) = 30

Reagent

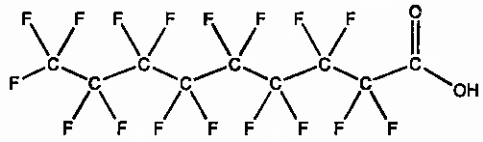
LCPFNA_00009

R: 9/21/17 SKJ

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFNA	**LOT NUMBER:**	PFNA0717
COMPOUND:	Perfluoro-n-nonanoic acid		
STRUCTURE:		**CAS #:**	375-95-1



MOLECULAR FORMULA:	$C_9HF_{17}O_2$	**MOLECULAR WEIGHT:**	464.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/20/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/20/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/24/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

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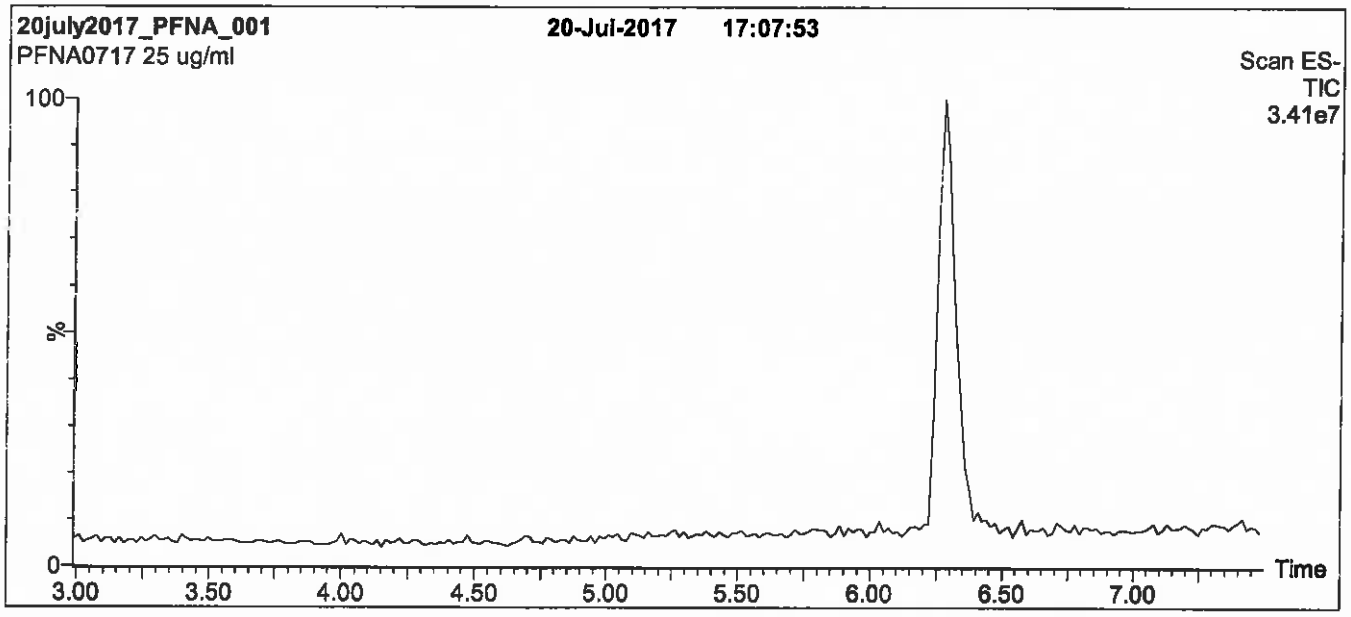
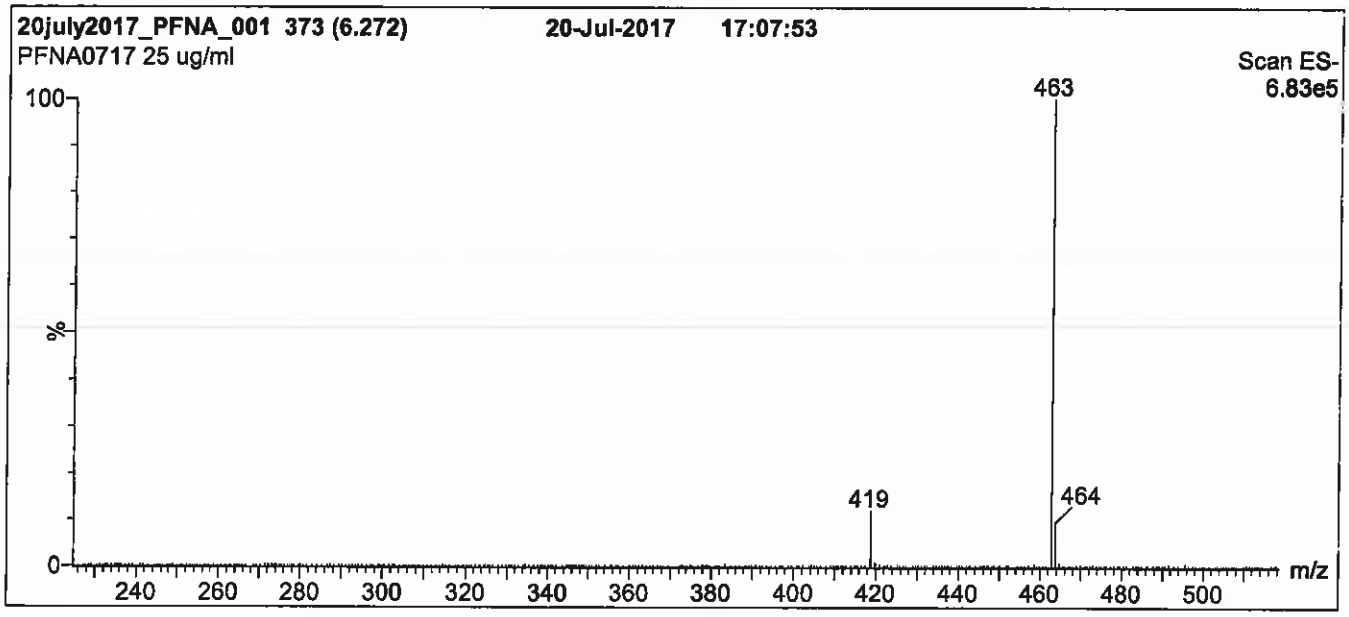
Figure 1: **PFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Hold for 1 min. Ramp to 90% organic over 7 min and hold for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

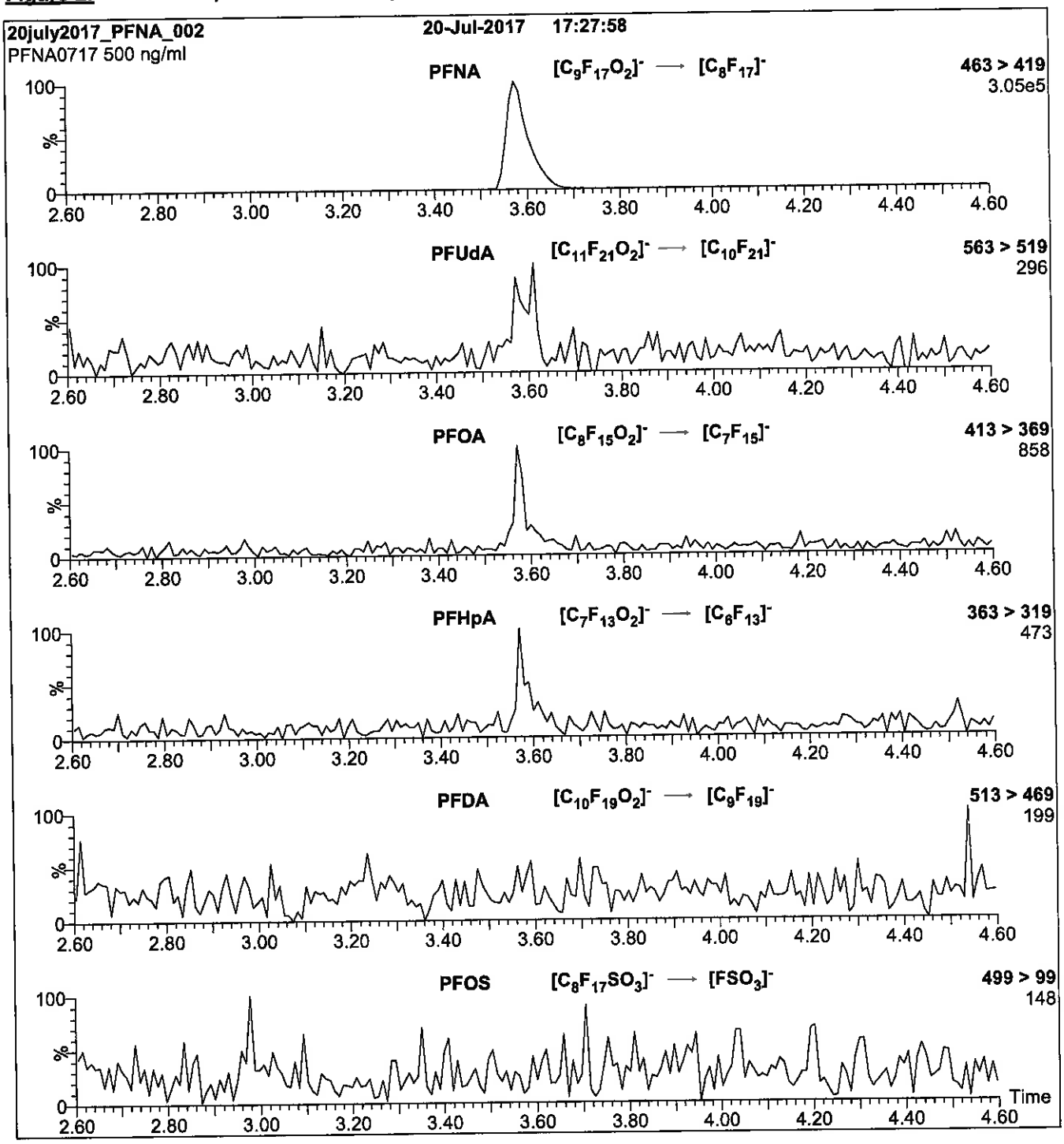
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 11

Reagent

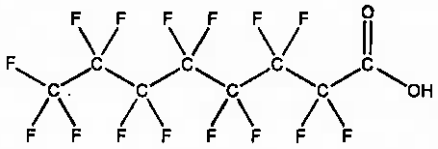
LCPFOA_00008

R: 12/21/16 SPV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFOA	**LOT NUMBER:**	PFOA0716
COMPOUND:	Perfluoro-n-octanoic acid		
STRUCTURE:		**CAS #:**	335-67-1



MOLECULAR FORMULA:	$C_8HF_{15}O_2$	**MOLECULAR WEIGHT:**	414.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/02/2016		
EXPIRY DATE: (mm/dd/yyyy)	08/02/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By: B.G. Chittim **Date:** 08/05/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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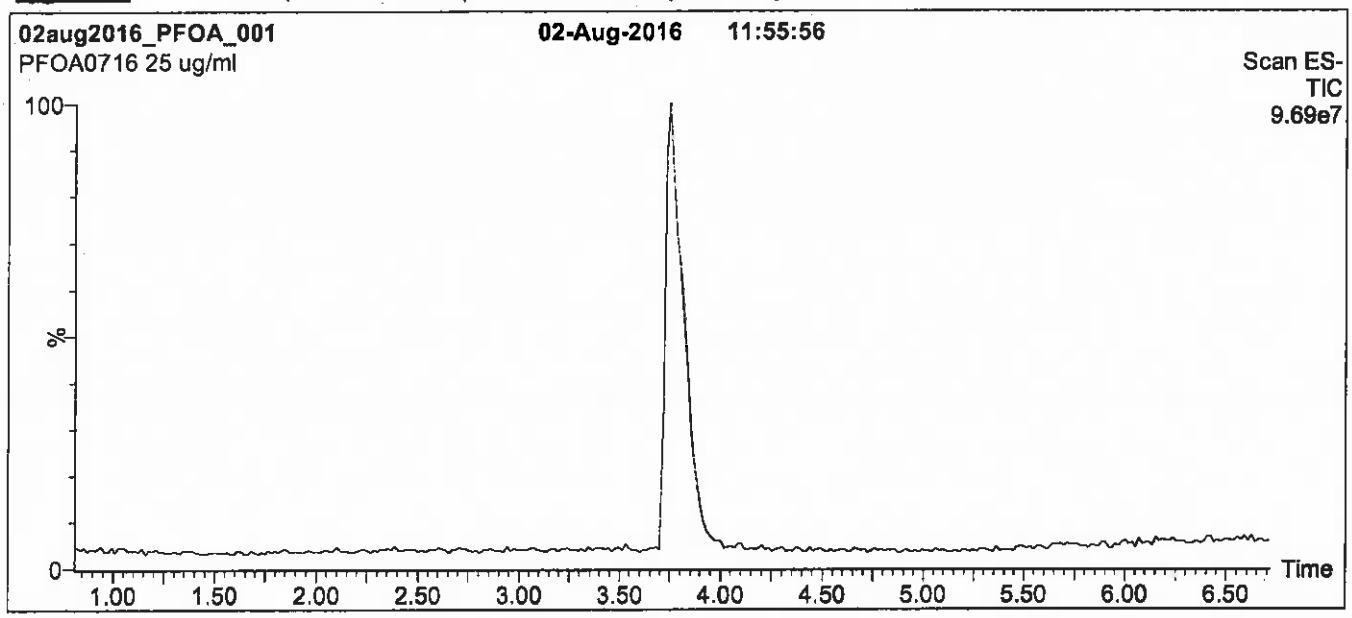
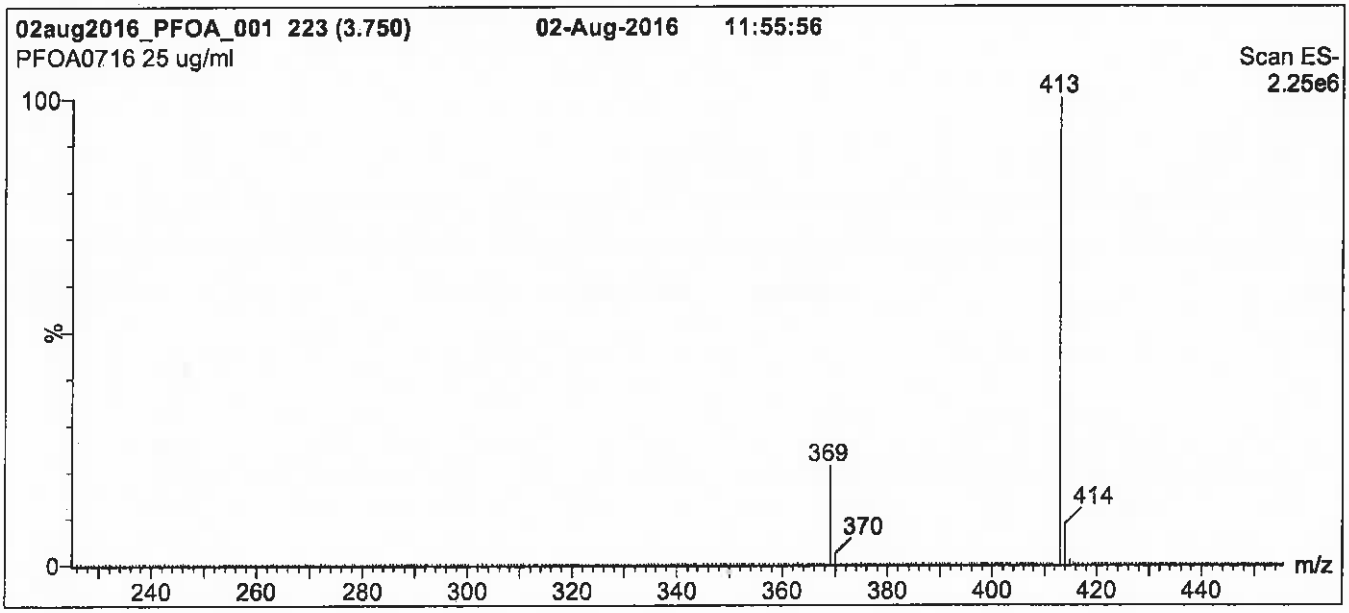
Figure 1: **PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

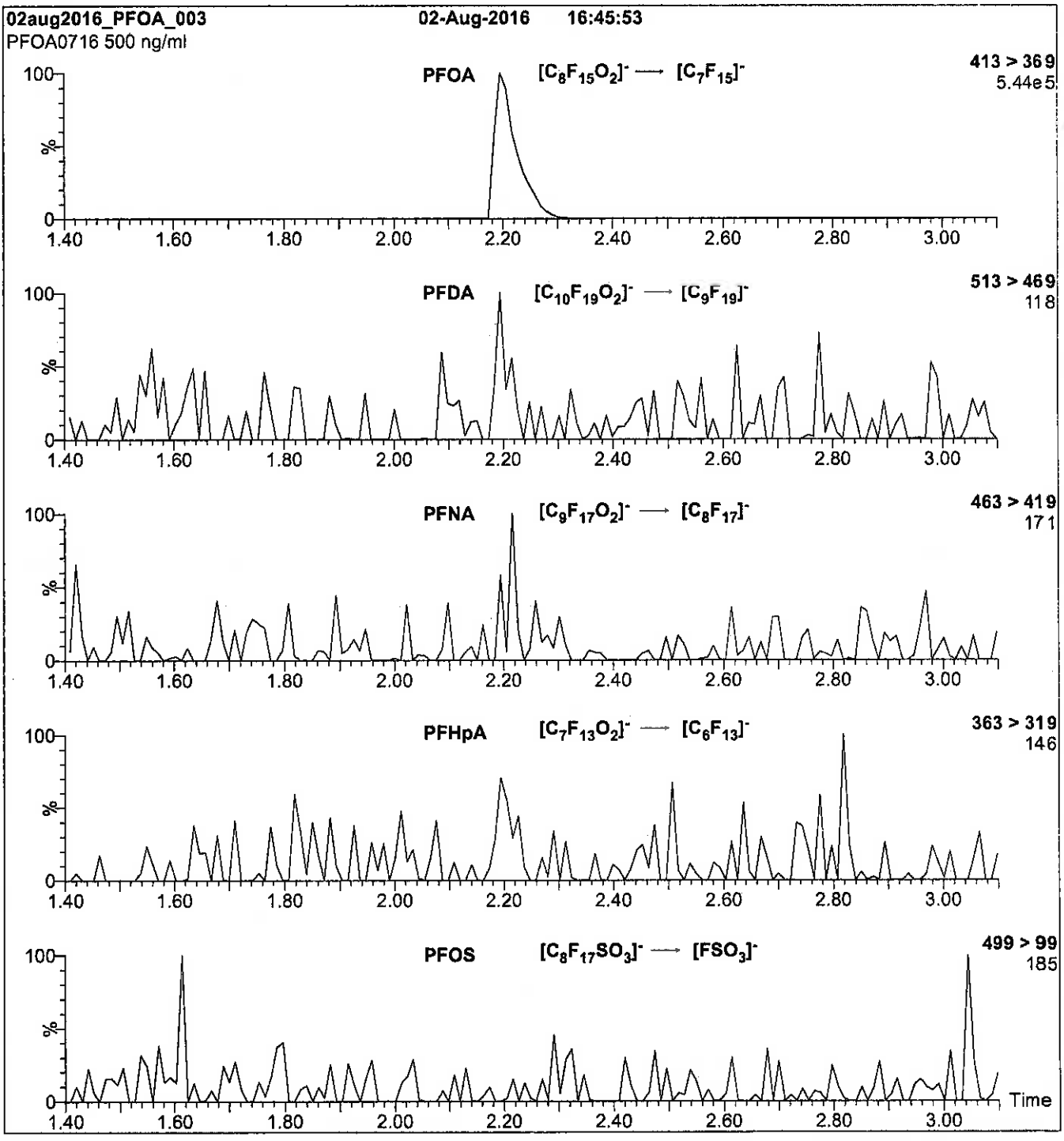
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml PFOA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 10

Reagent

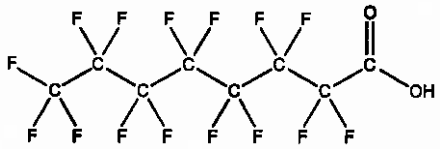
LCPFOA_00009

P: 10/2017 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFOA	**LOT NUMBER:**	PFOA0917
COMPOUND:	Perfluoro-n-octanoic acid		
STRUCTURE:		**CAS #:**	335-67-1



MOLECULAR FORMULA:	$C_8HF_{15}O_2$	**MOLECULAR WEIGHT:**	414.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/27/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/27/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/28/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

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CALA

ANAB ACCREDITED

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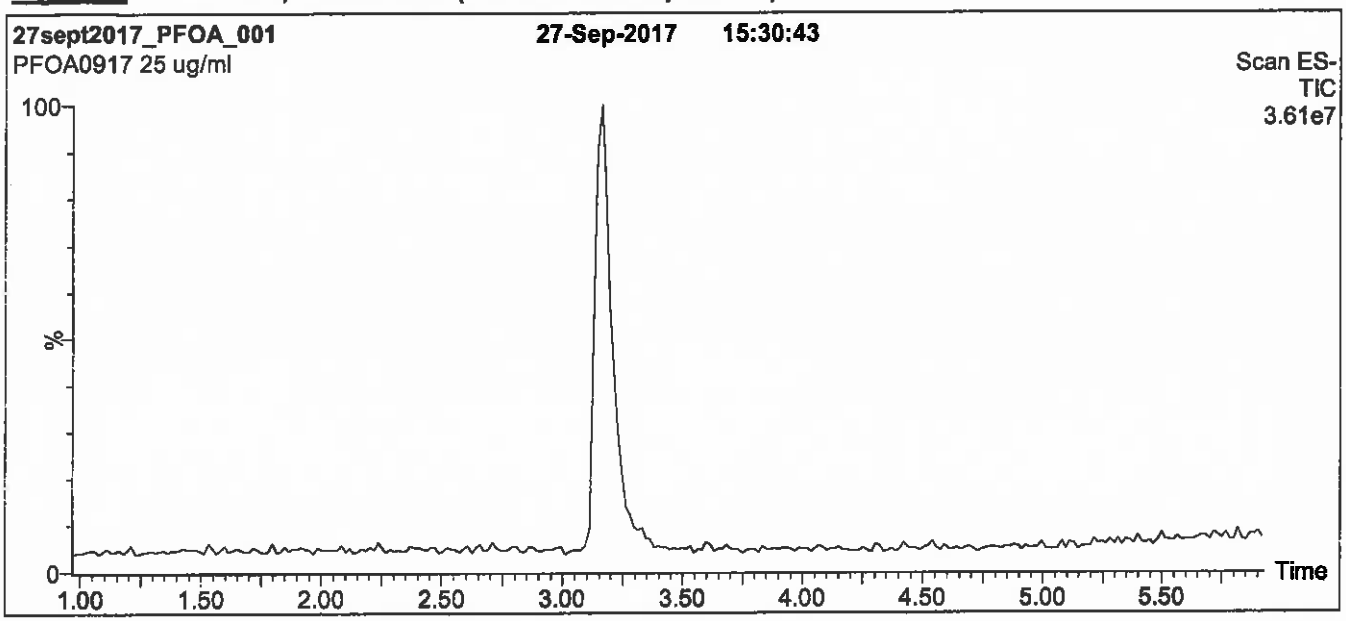
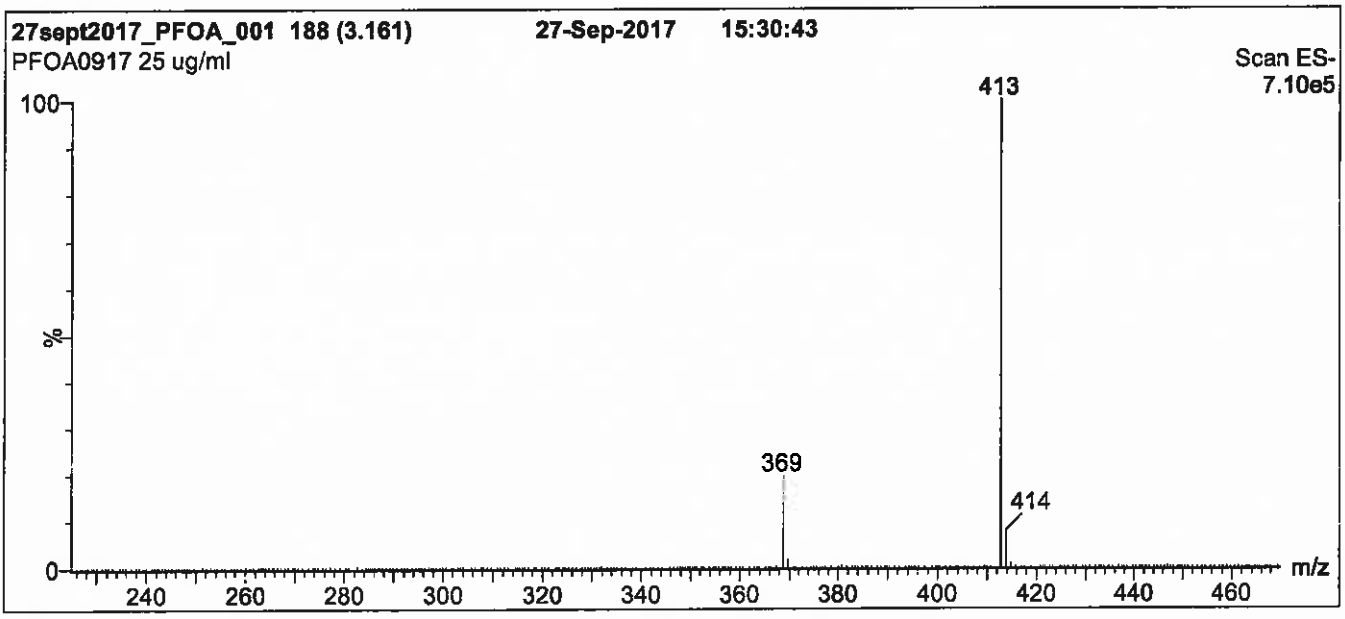




Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

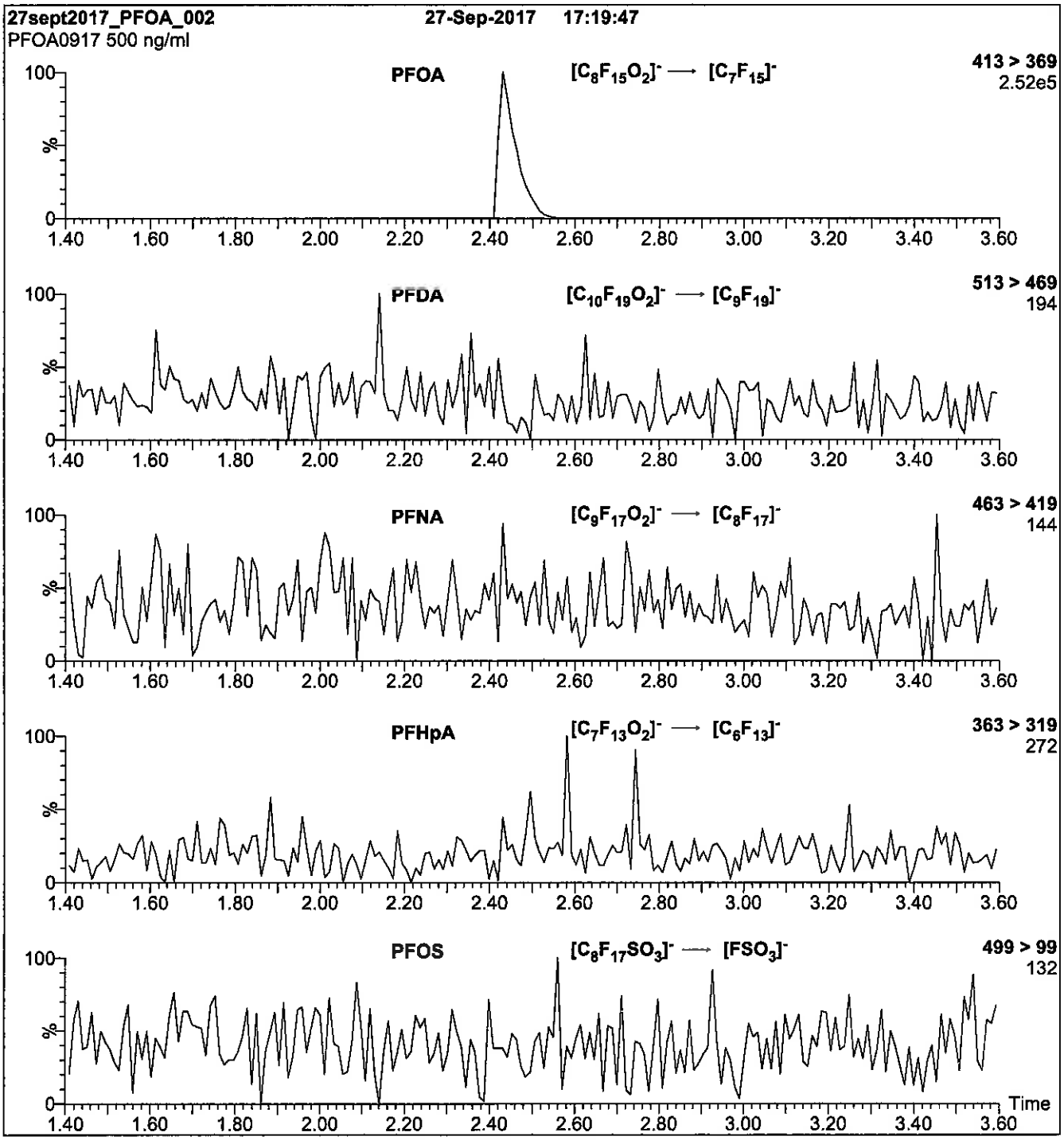
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 11

Reagent

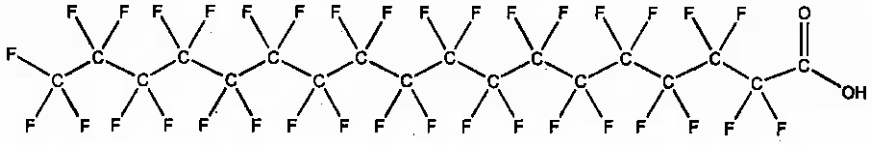
LCPFODA_00008

R: 12/20/16 SFN

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFODA	**LOT NUMBER:**	PFODA0416
COMPOUND:	Perfluoro-n-octadecanoic acid		
STRUCTURE:		**CAS #:**	16517-11-6



MOLECULAR FORMULA:	$C_{18}HF_{35}O_2$	**MOLECULAR WEIGHT:**	914.14
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	04/29/2016		
EXPIRY DATE: (mm/dd/yyyy)	04/29/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/20/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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ANAB ACCREDITED REFERENCE MATERIAL

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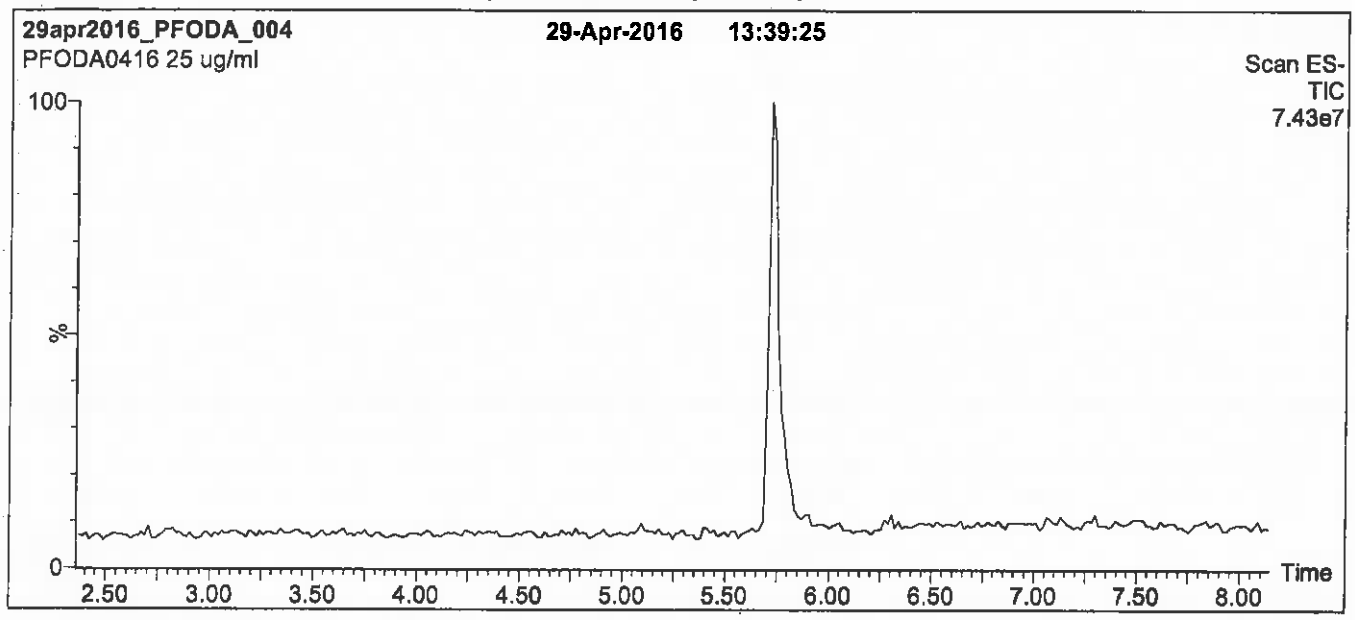
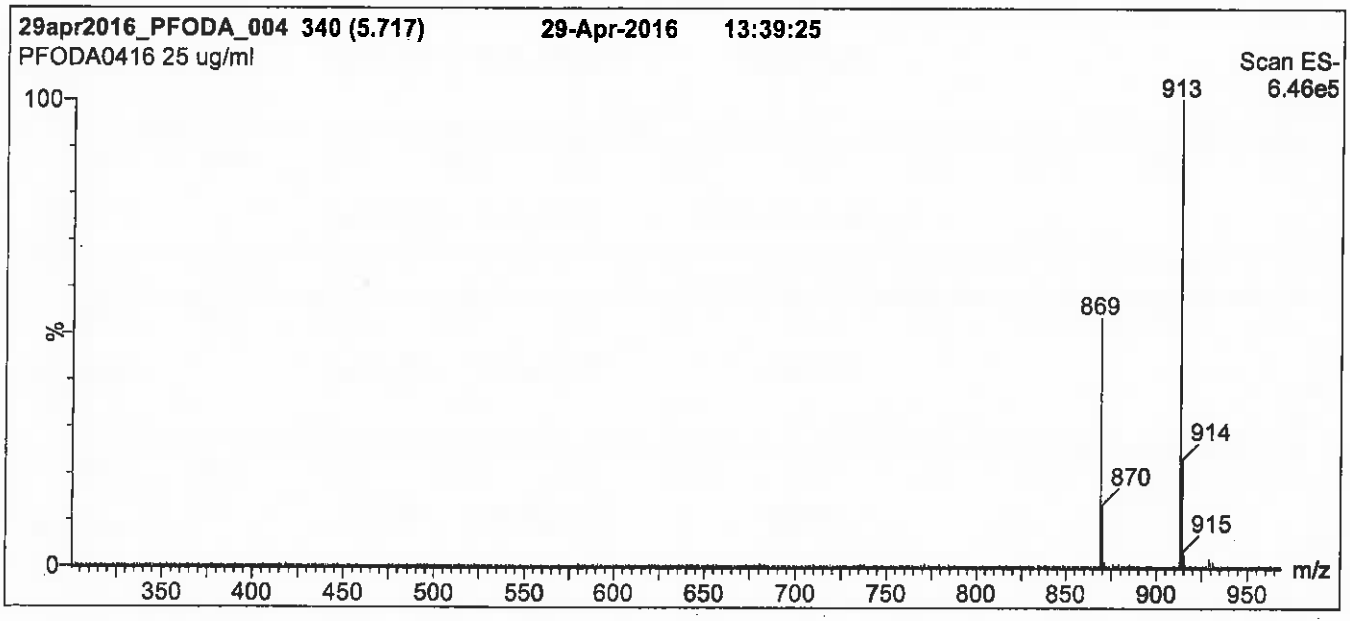




Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 95% organic over 6 min and hold for
2.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

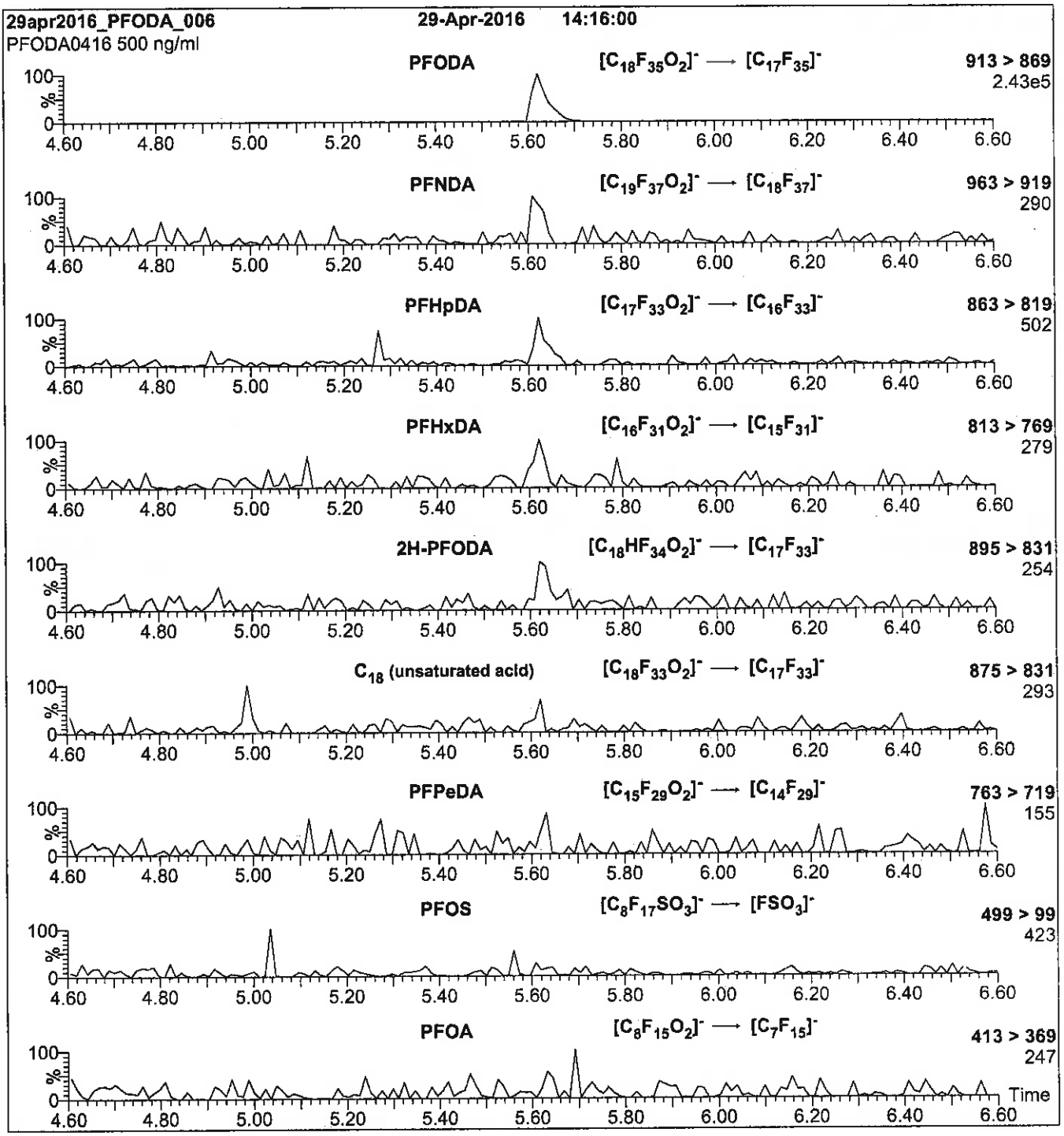
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFODA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFODA)

Mobile phase: Isocratic 90% (80:20 MeOH:ACN) / 10% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

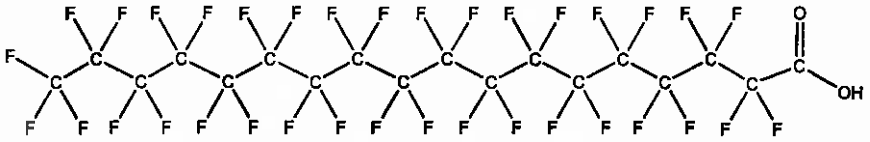
LCPFODA_00009

r: 9/2/17 SW

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFODA	**LOT NUMBER:**	PFODA0717
COMPOUND:	Perfluoro-n-octadecanoic acid		
STRUCTURE:		**CAS #:**	16517-11-6



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Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
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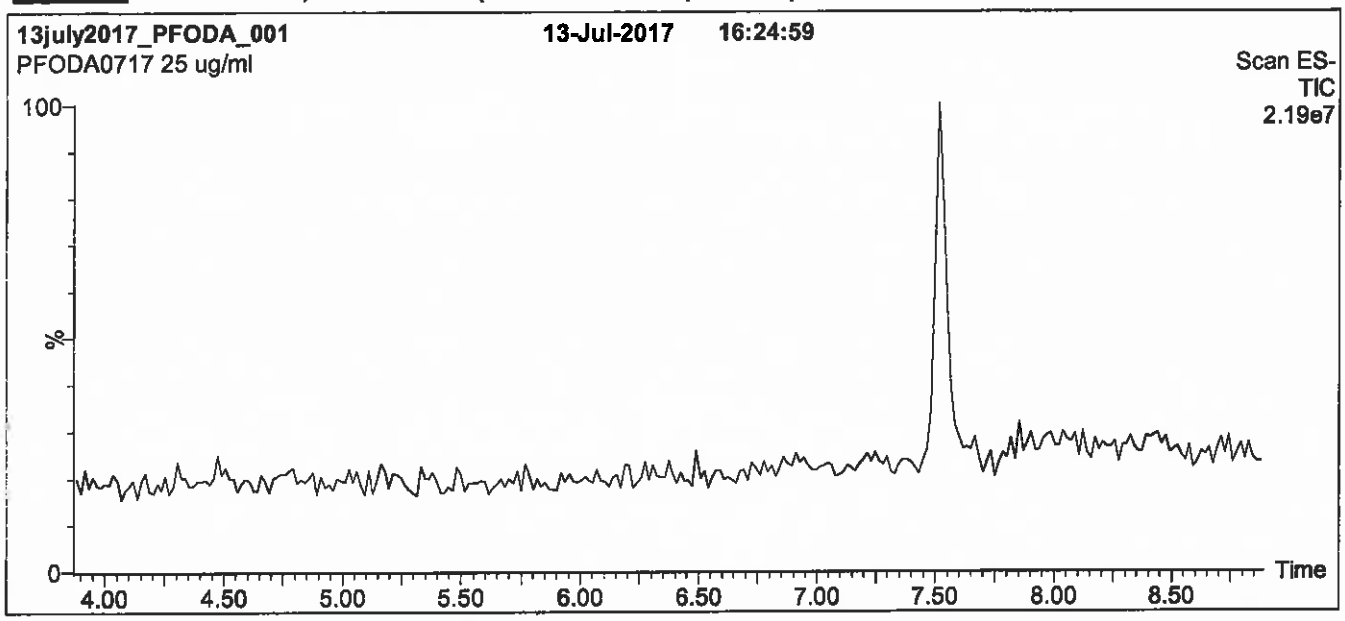
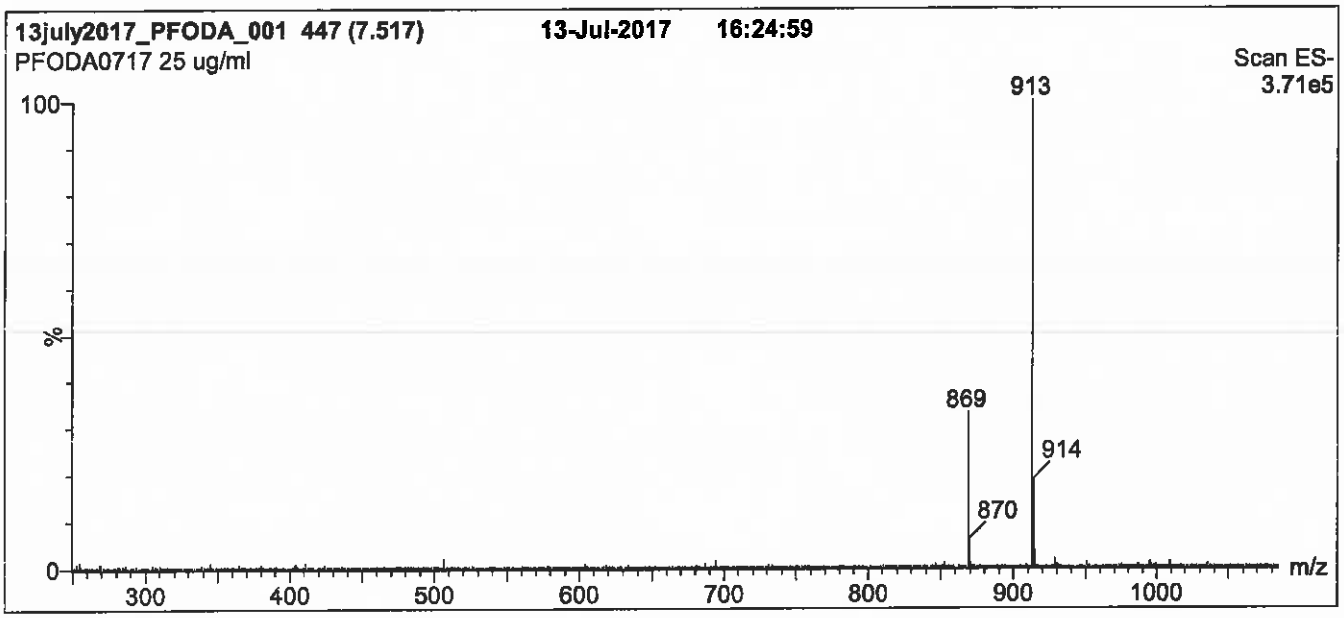
Figure 1: **PFODA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

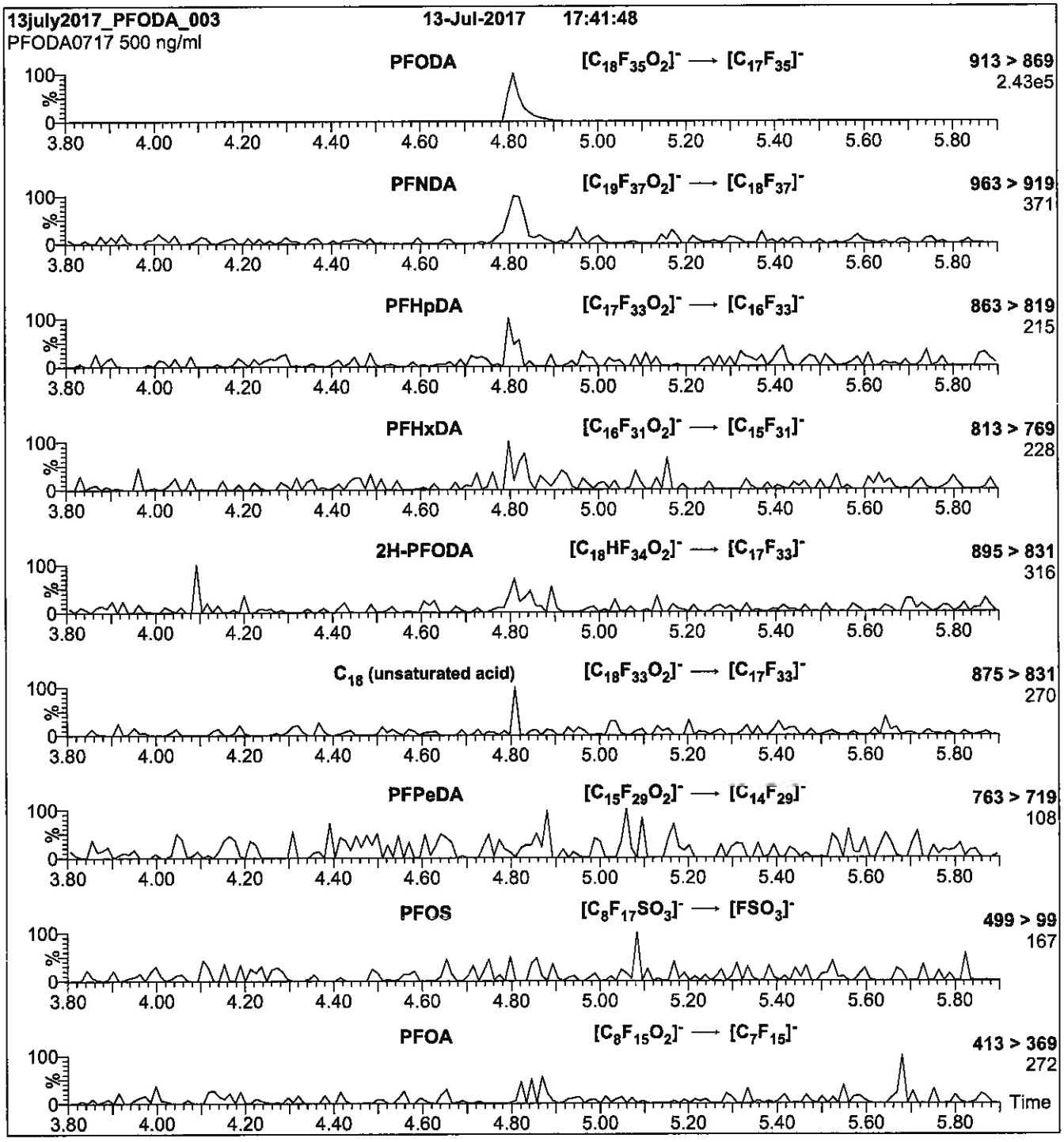
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFODA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFODA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 15

Reagent

LCPFOS-br_00004

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK1015
CONCENTRATION:	50 ± 2.5 µg/ml (total potassium salt)
	46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	10/13/2015
LAST TESTED: (mm/dd/yyyy)	10/14/2015
EXPIRY DATE: (mm/dd/yyyy)	10/14/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

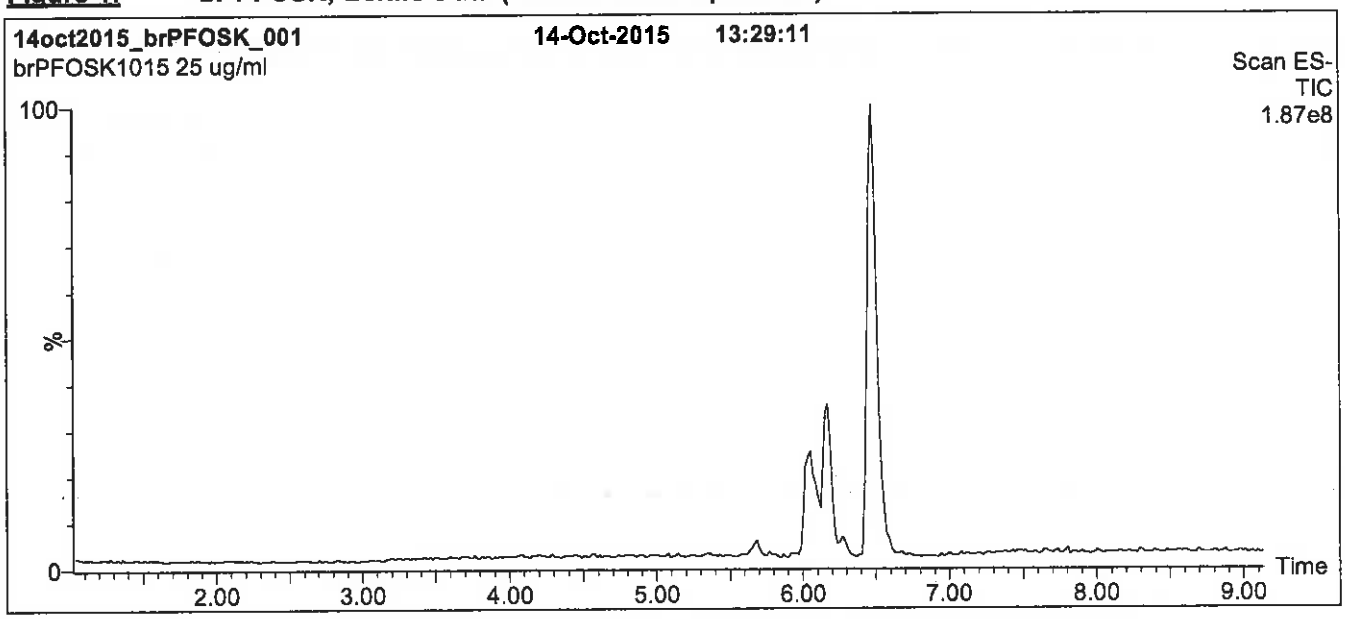
Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

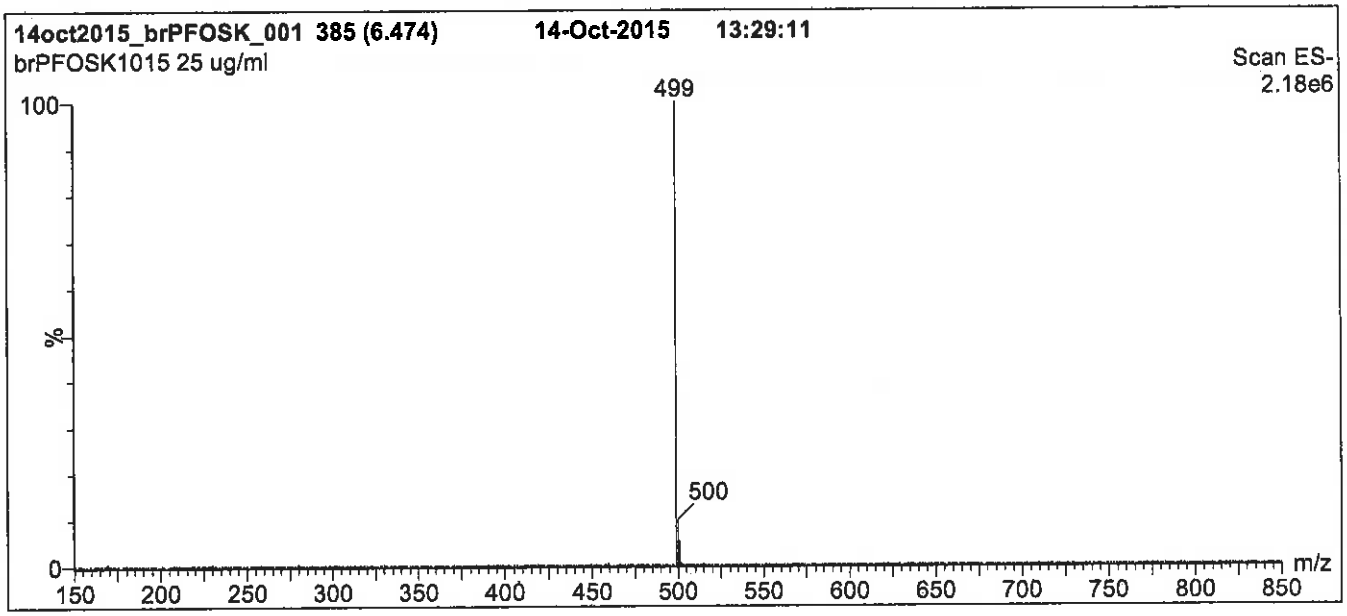
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-C(CF_3)(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2-C(CF_3)(CF_3)-CF_2CF_2CF_2SO_3^-K^+$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-CF(CF_3)-CF(CF_3)-CF_2CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-CF(CF_3)-CF_2-CF(CF_3)-CF_2CF_2SO_3^-K^+$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: _____ **Date:** 10/15/2015
B.G. Chittim (mm/dd/yyyy)

Figure 1: **br-PFOSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 12 min and hold for 2 min.
Return to initial conditions over 0.5 min.
Time: 16 min

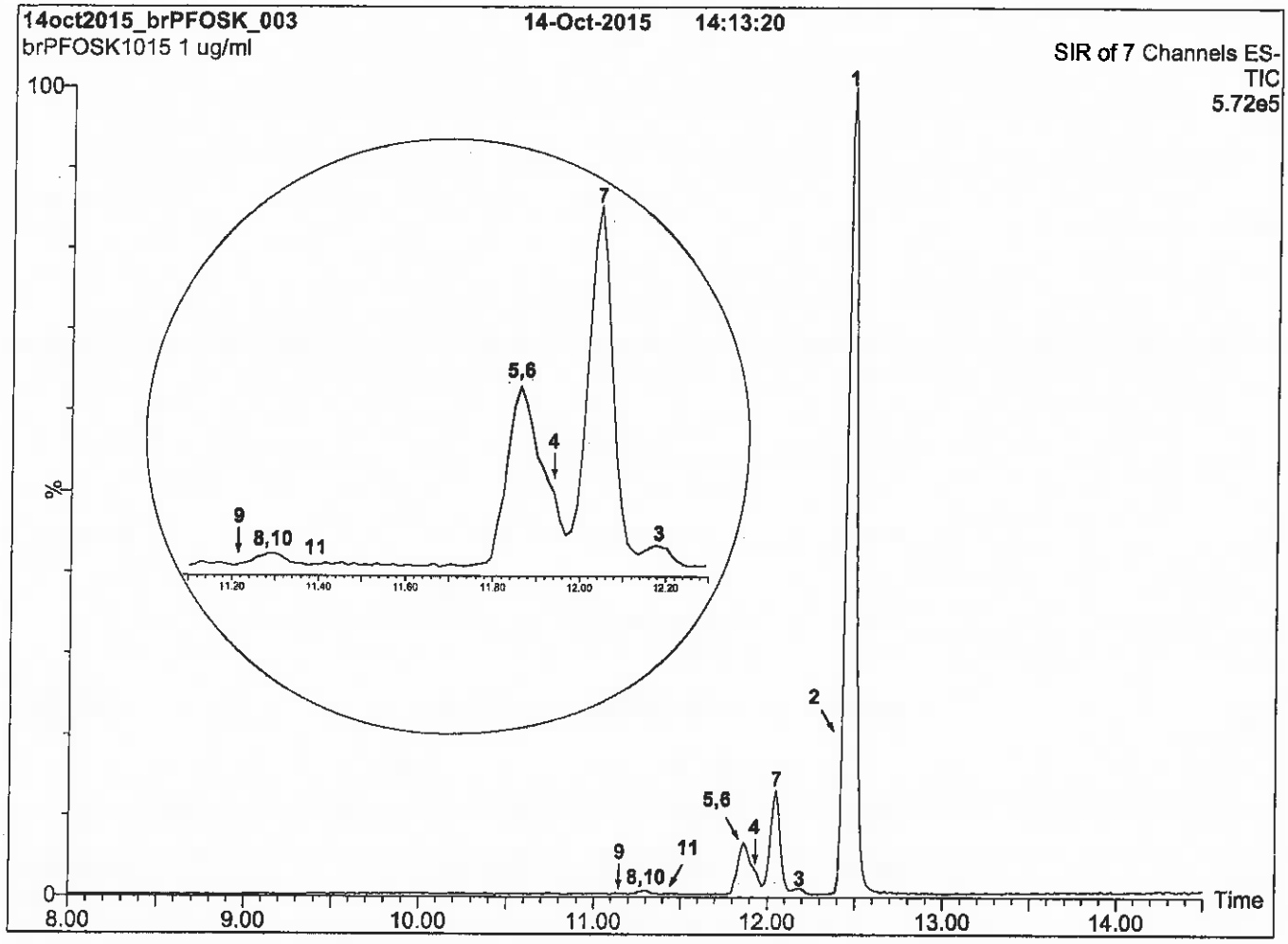
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **br-PFOSK; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18} (1.7 µm, 2.1 x 100 mm)

Injection: 1.0 µg/ml of br-PFOSK

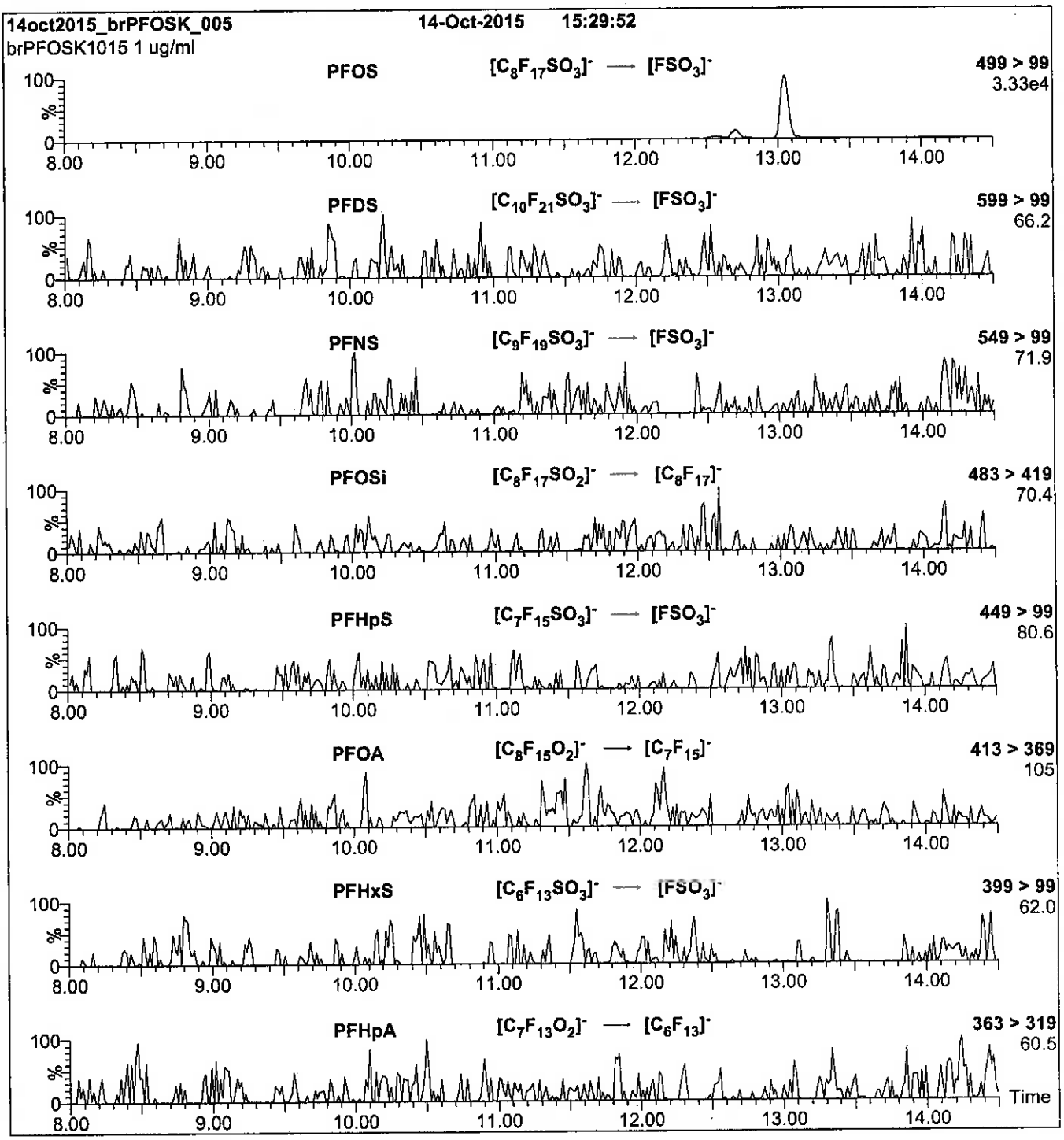
Mobile Phase: Gradient
45% (80:20 MeOH:ACN) / 55% H_2O (both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 15 min and hold for 3 min.
Return to initial conditions over 1 min.
Time: 20 min

Flow: 300 µl/min

MS Conditions:

SIR (ES^-)
Source = 110 °C
Desolvation = 325 °C
Cone Voltage = 60V

Figure 3: **br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.06e-3
Collision Energy (eV) = 11-50 (variable)

Reagent

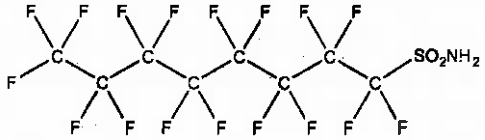
LCPFOSA_00010

12/20/16 SKI

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FOSA-I	**LOT NUMBER:**	FOSA0916I
COMPOUND:	Perfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	754-91-6



MOLECULAR FORMULA:	$C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	499.14
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/07/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

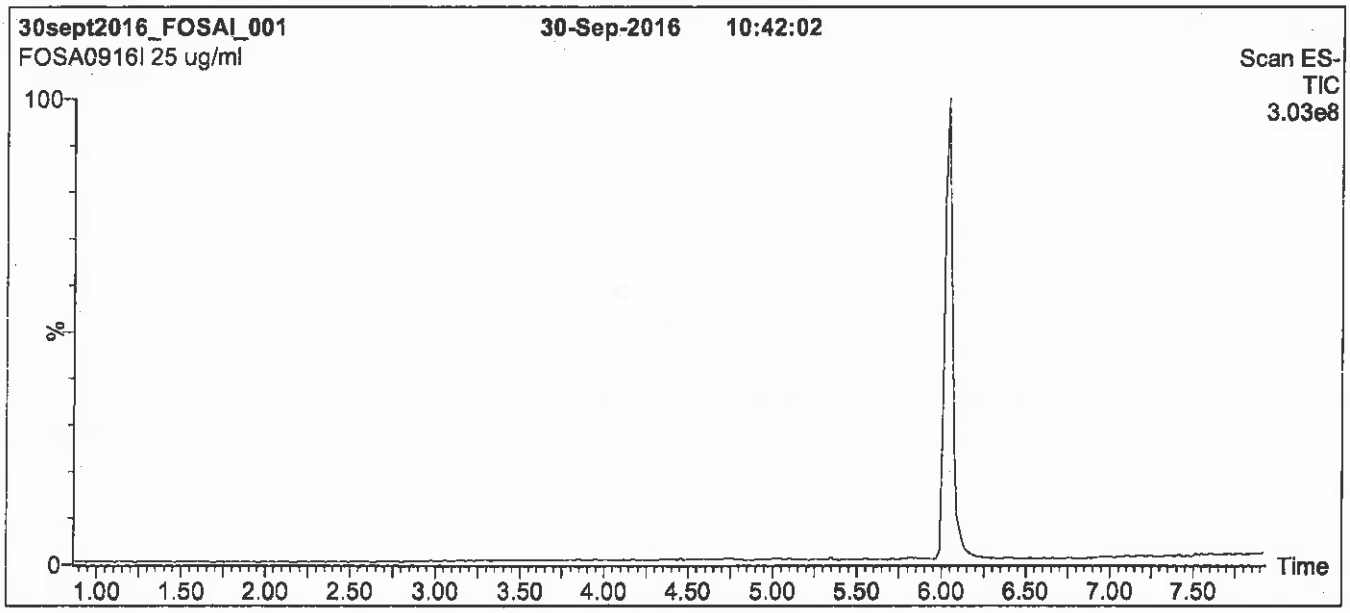
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

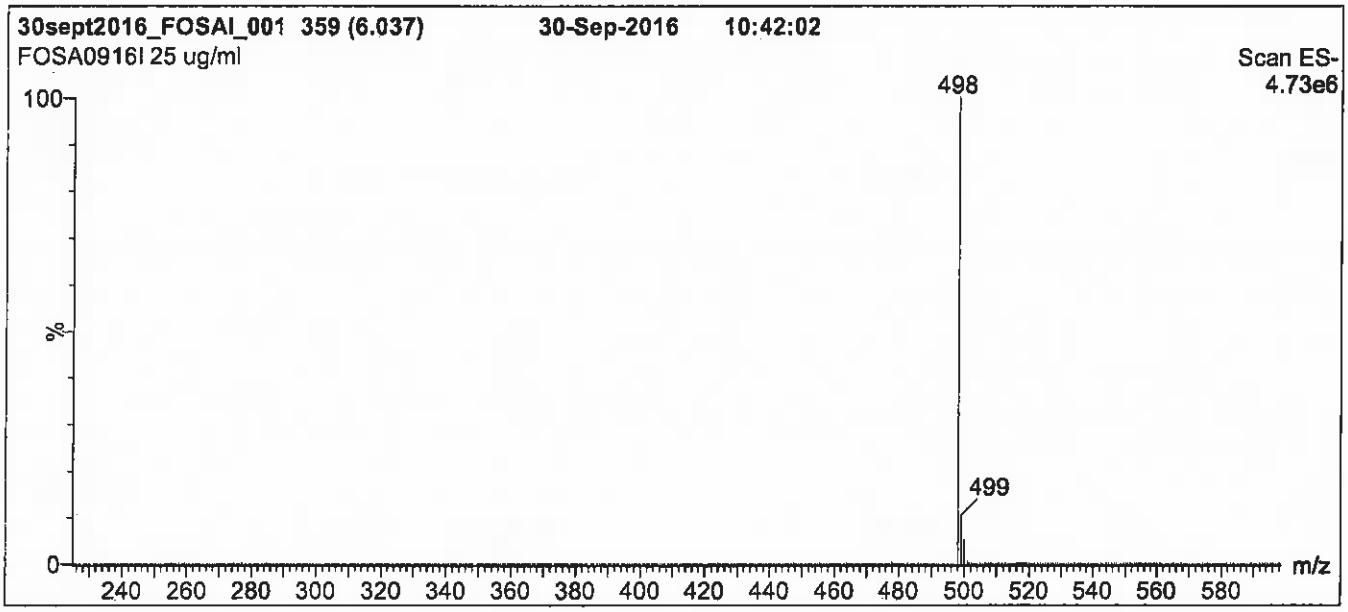
CALA

ANAB

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

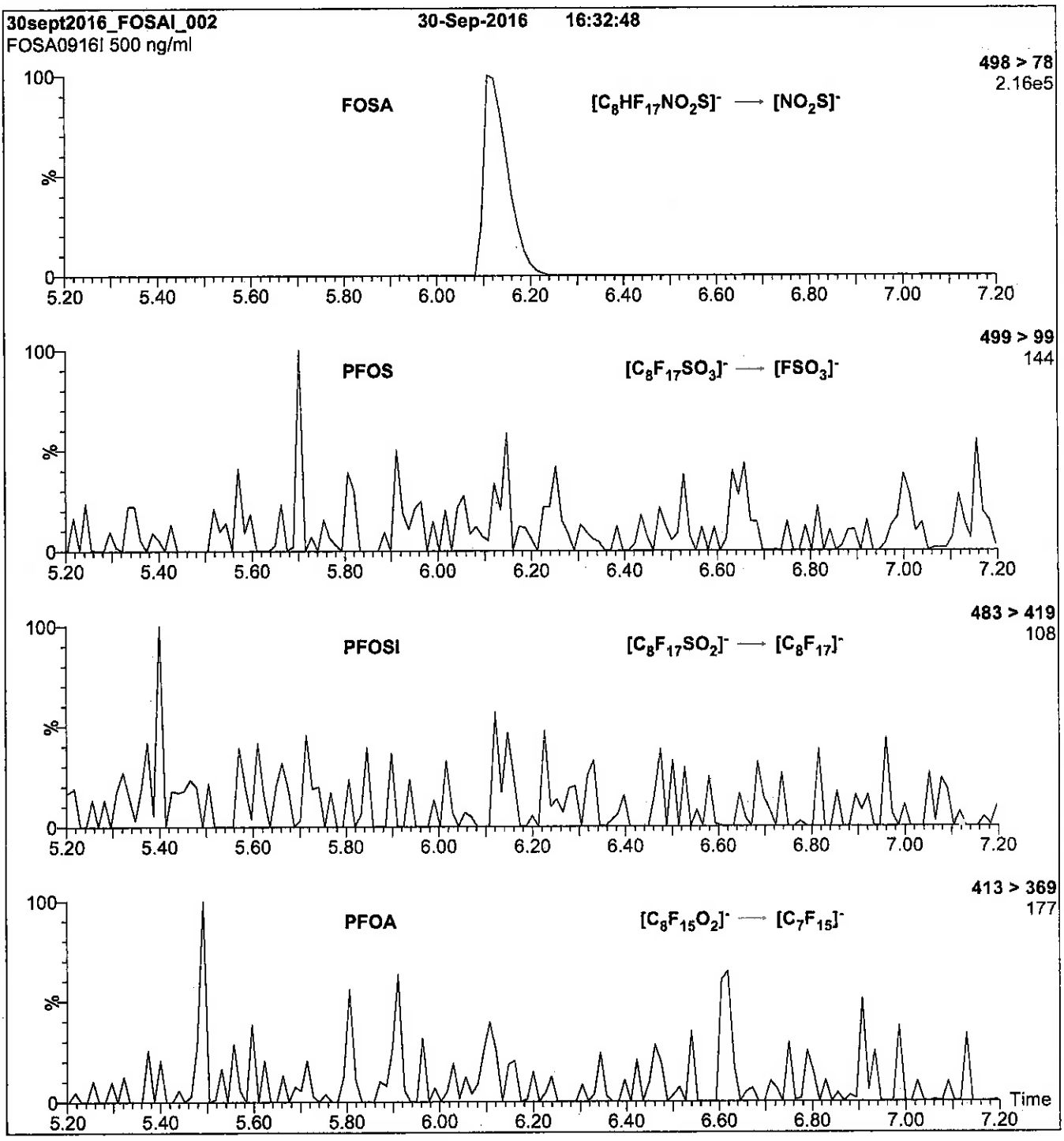
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 30

Reagent

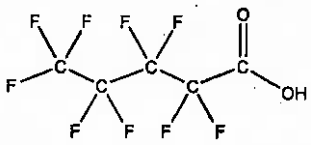
LCPFPeA_00007

r: 12/29/16 SH
s: 1/6/17 SH

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFPeA	**LOT NUMBER:**	PFPeA0516
COMPOUND:	Perfluoro-n-pentanoic acid		
STRUCTURE:		**CAS #:**	2706-90-3



MOLECULAR FORMULA:	$C_5HF_8O_2$	**MOLECULAR WEIGHT:**	264.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 06/02/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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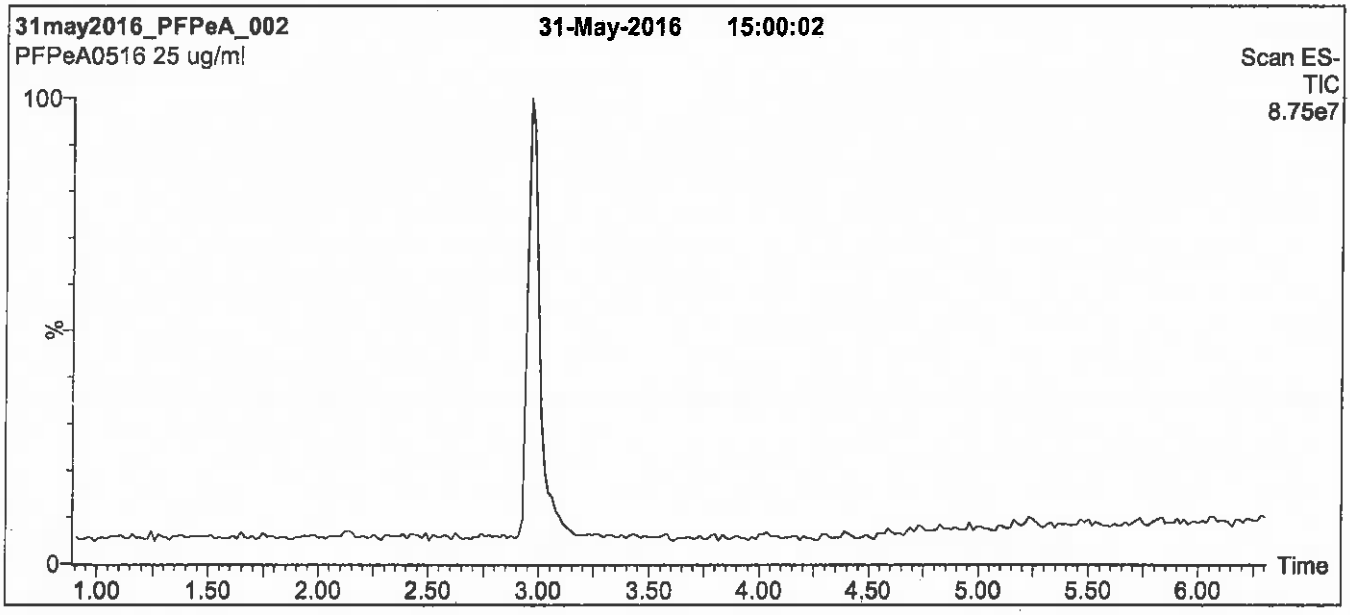
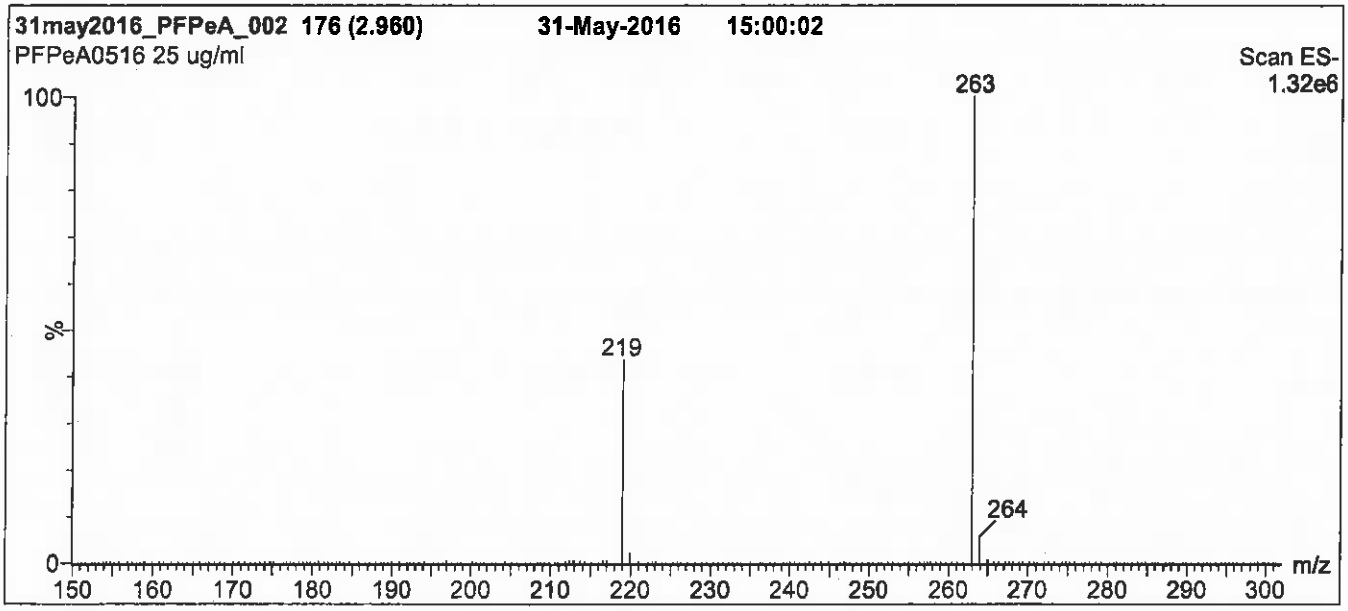
Figure 1: **PFPeA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

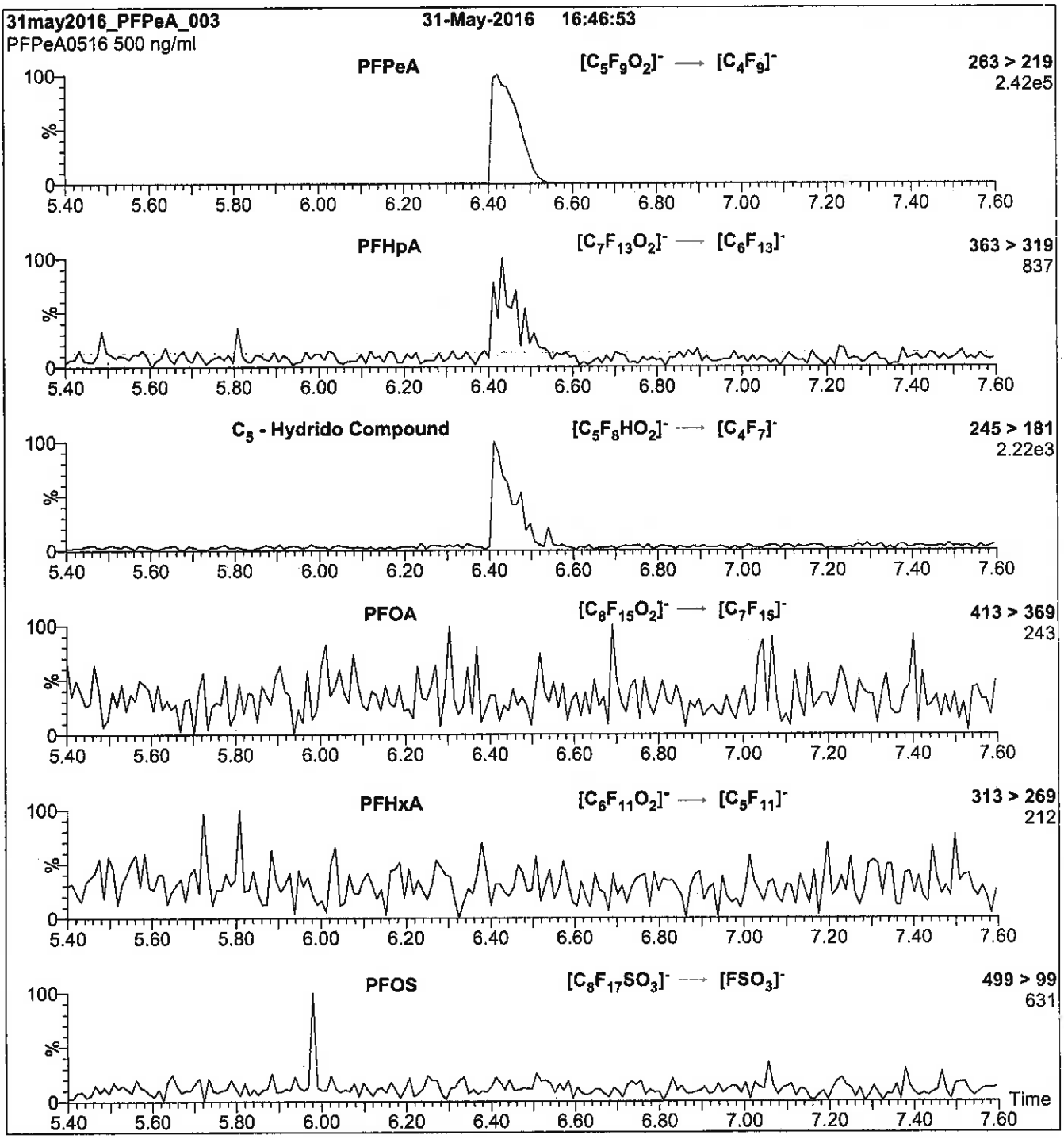
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 9

Reagent

LCPFTeDA_00006

R: SBG 9/13/16

730645
ID: LCPFTeDA_00005
Exp: 12/09/20 Prpd: SBC
PF-n-tetradecanoic acid

730659
ID: LCPFTeDA_00006
Exp: 12/09/20 Prpd: SBC
PF-n-tetradecanoic acid

WELLINGTON LABORATORIES

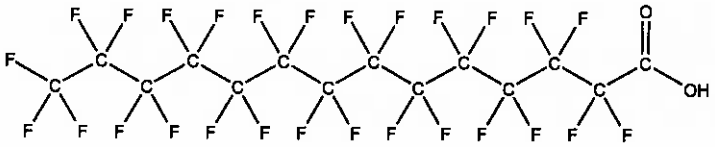
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid

LOT NUMBER: PFTeDA1215

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 714.11
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/09/2015
EXPIRY DATE: (mm/dd/yyyy) 12/09/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of PFDoA ($C_{12}HF_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{15}HF_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/09/2015 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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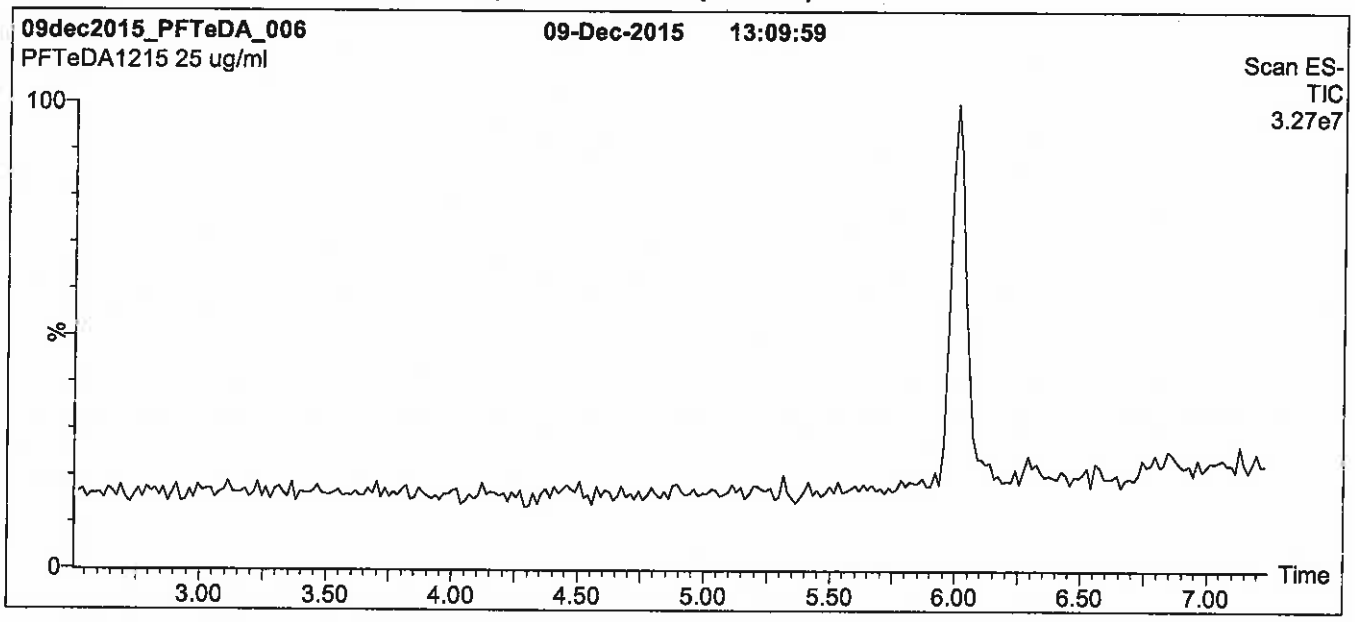
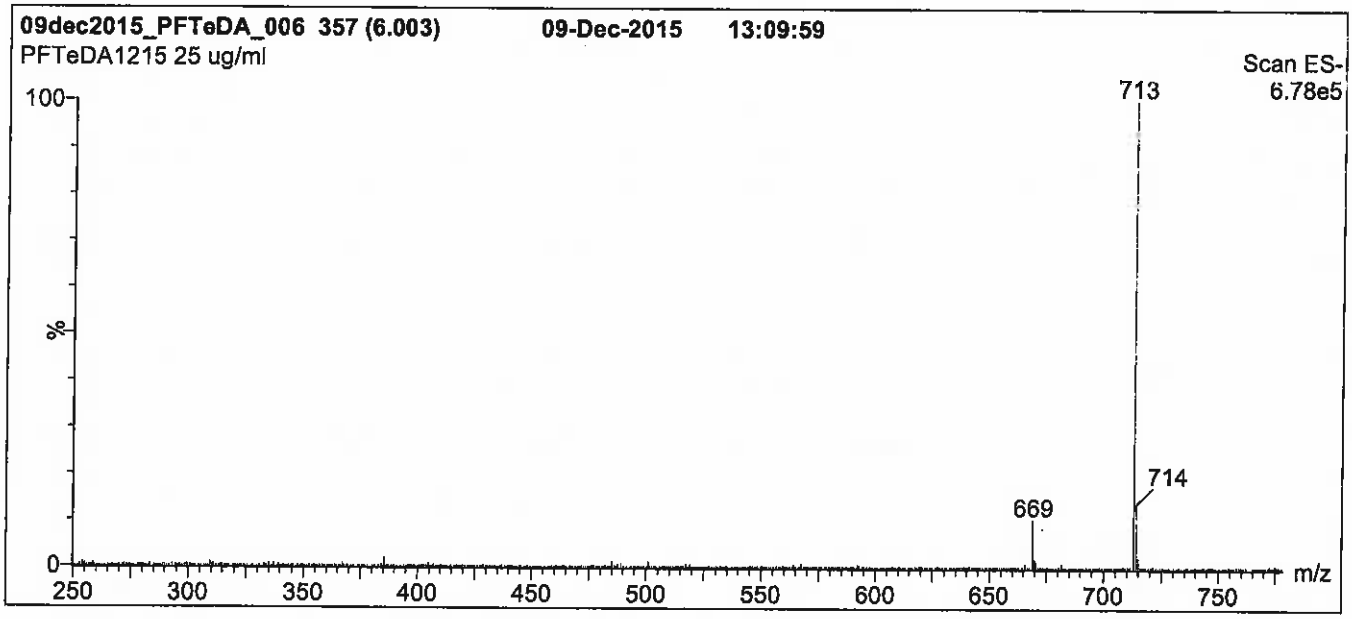




Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

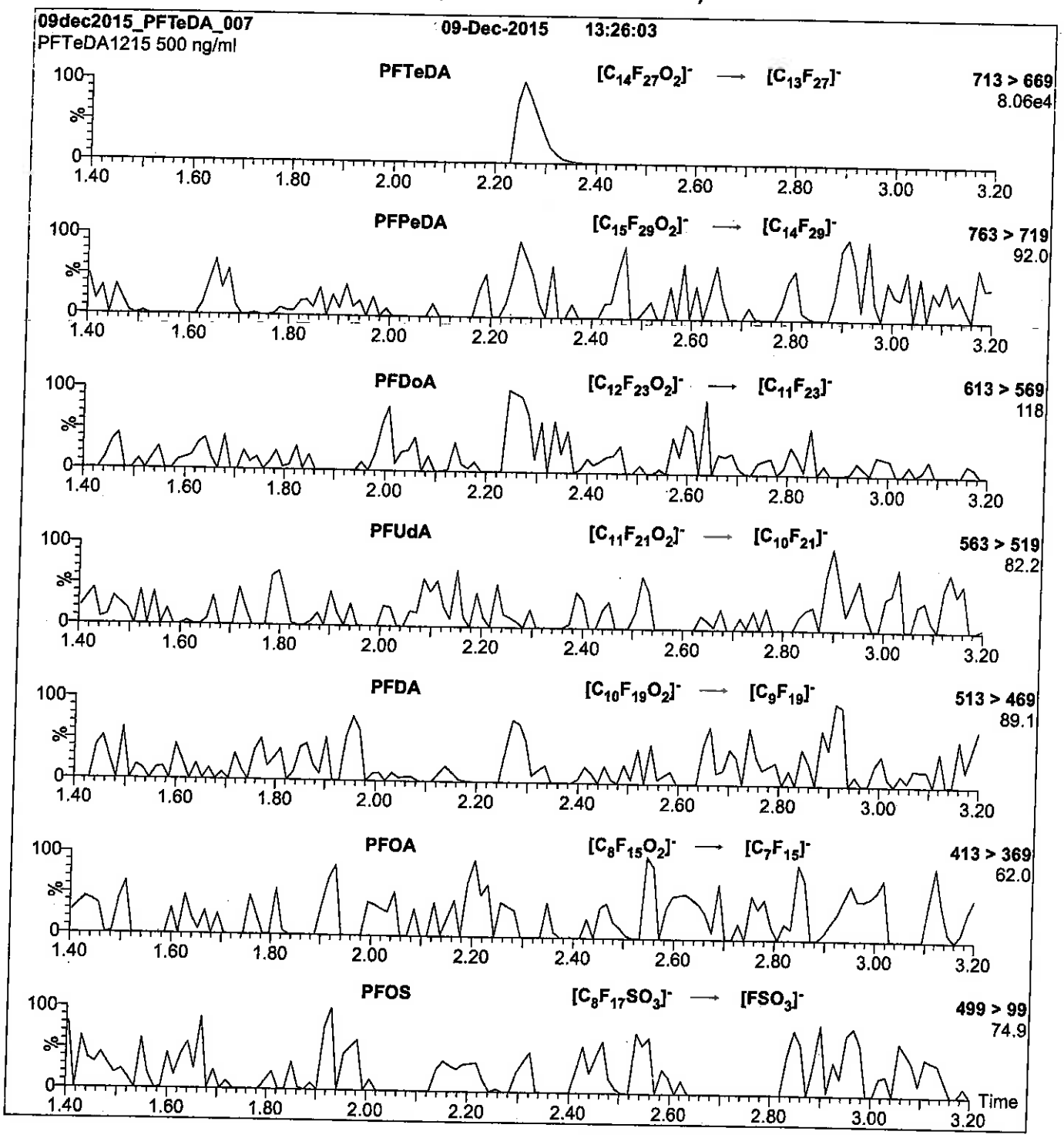
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 14

Reagent

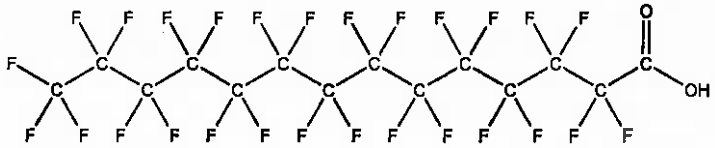
LCPFTeDA_00007

D: 12/20/16 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFTeDA	**LOT NUMBER:**	PFTeDA0916
COMPOUND:	Perfluoro-n-tetradecanoic acid		
STRUCTURE:		**CAS #:**	376-06-7



MOLECULAR FORMULA:	$C_{14}HF_{27}O_2$	**MOLECULAR WEIGHT:**	714.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of PFDoA ($C_{12}HF_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{15}HF_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/05/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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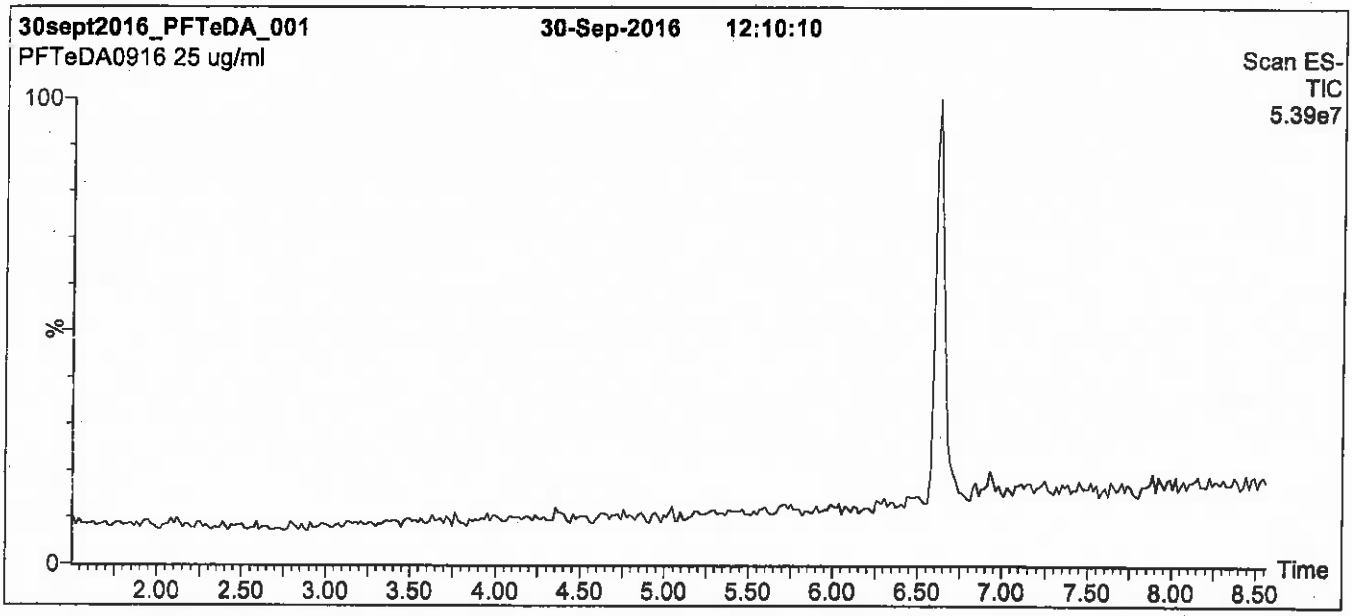

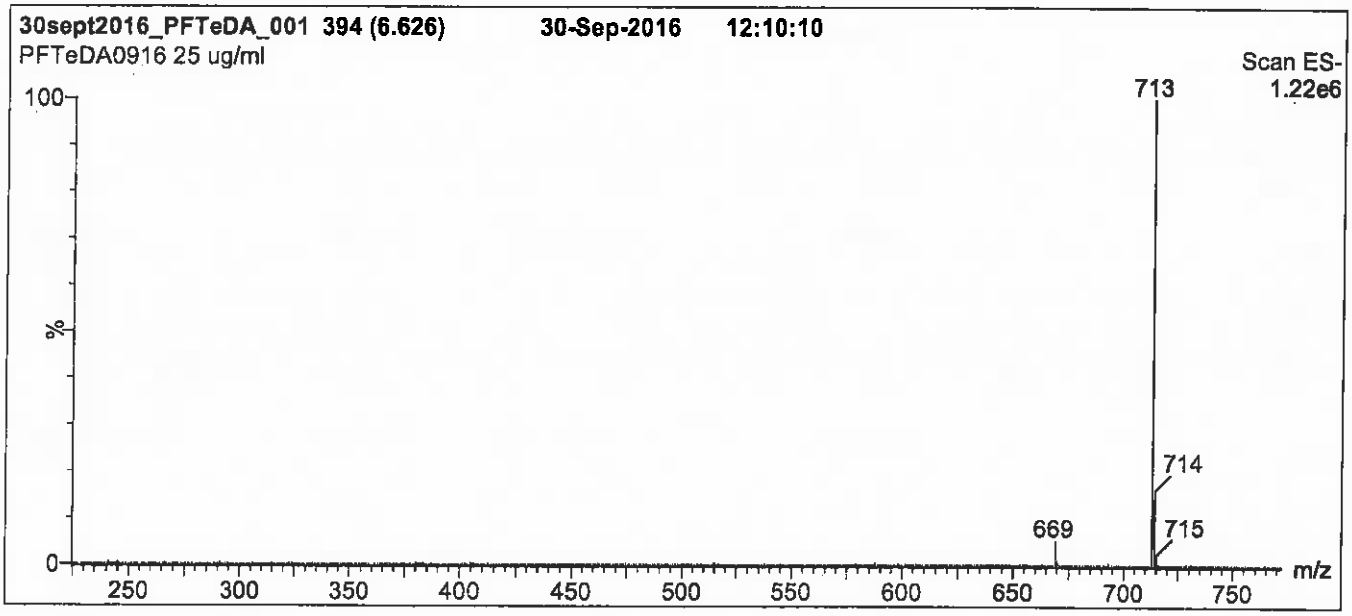

Conditions for Figure 1:

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MS: **Micromass Quattro *micro* API MS**

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Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
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Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

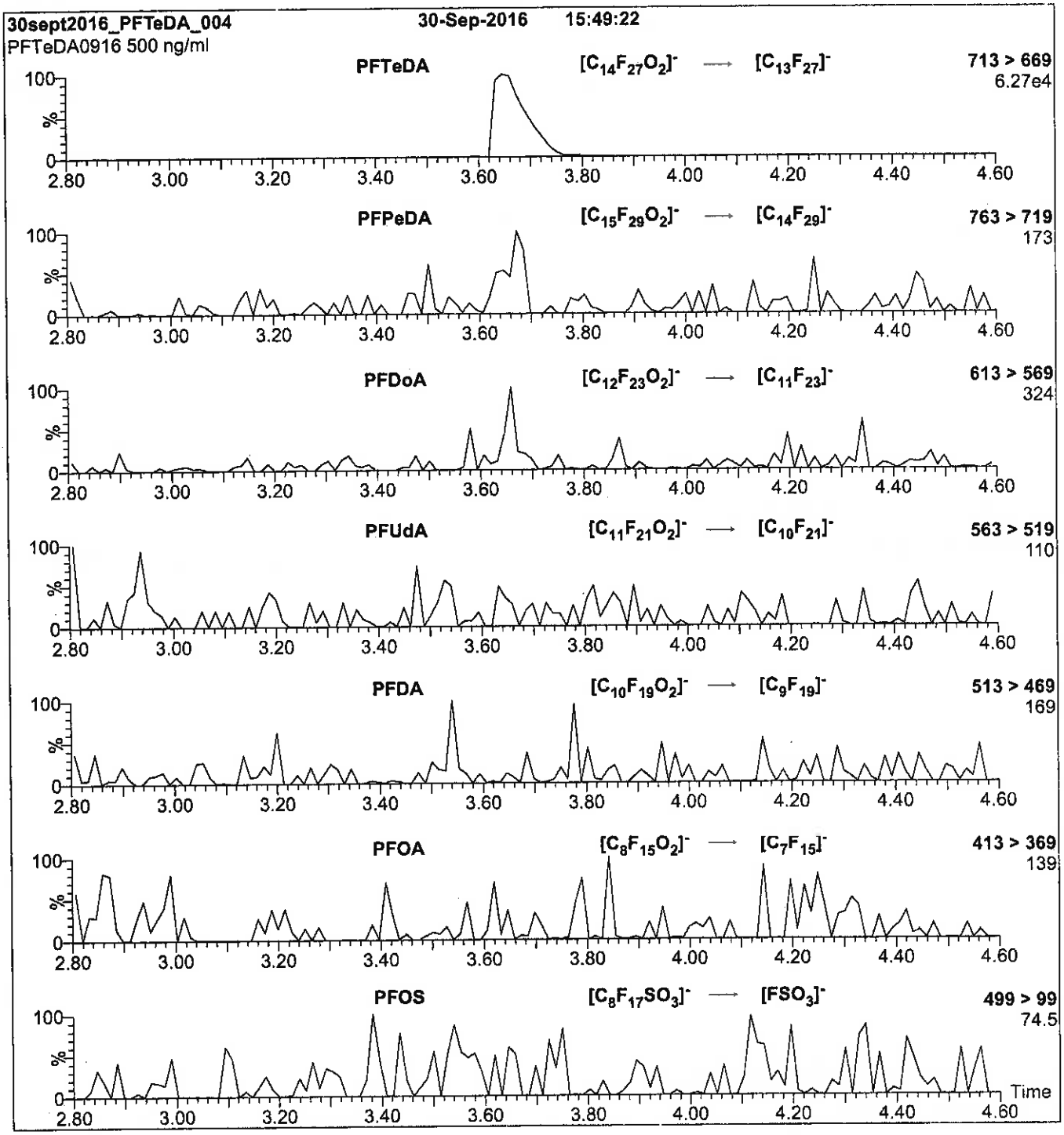
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 14

Reagent

LCPFTrDA_00006

R: SBC 9/13/16

730665
ID: LCPFTrDA_00005
Exp: 02/12/21 Prpd: SBC
PF-n-tridecanoic acid

730666
ID: LCPFTrDA_00006
Exp: 02/12/21 Prpd: SBC
PF-n-tridecanoic acid

WELLINGTON LABORATORIES

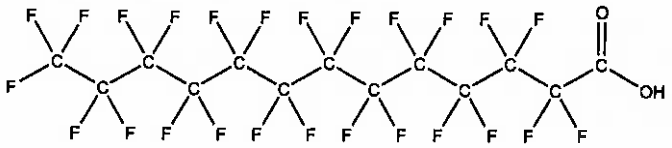
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid

LOT NUMBER: PFTrDA0216

STRUCTURE:

CAS #: 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 664.11
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/12/2016
EXPIRY DATE: (mm/dd/yyyy) 02/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDoA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/16/2016 (mm/dd/yyyy)

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CALA

ANAB ACCREDITED

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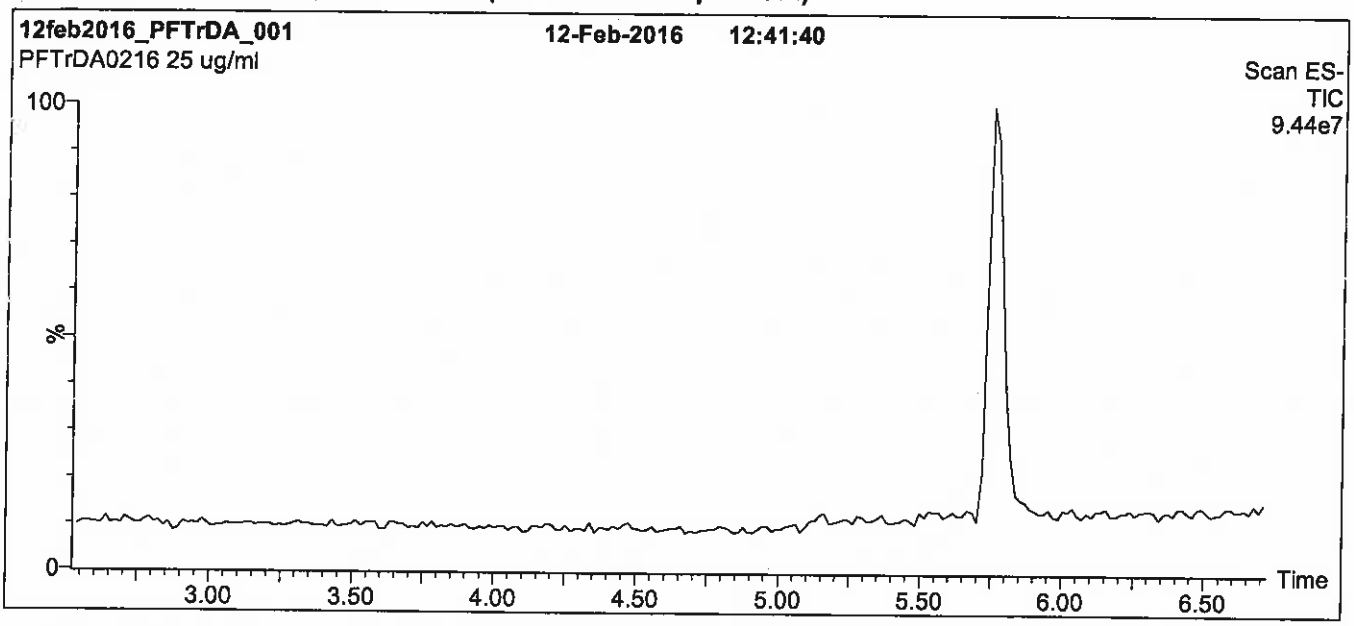
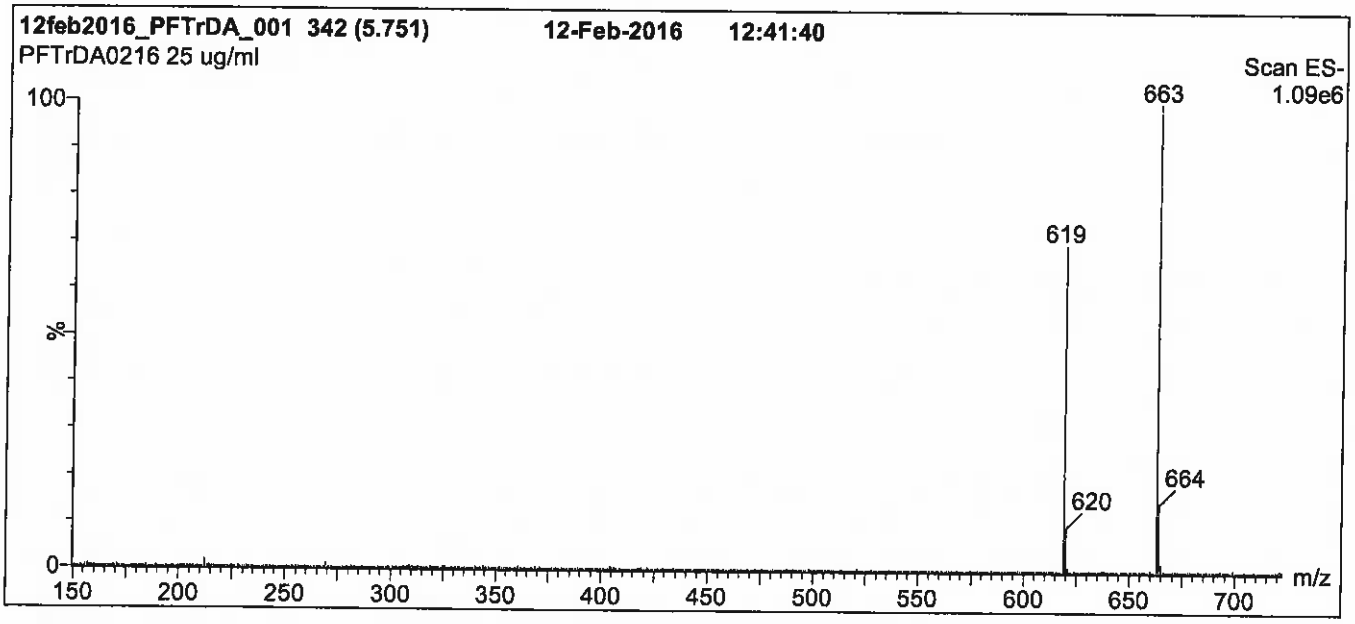
Figure 1: **PFTrDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

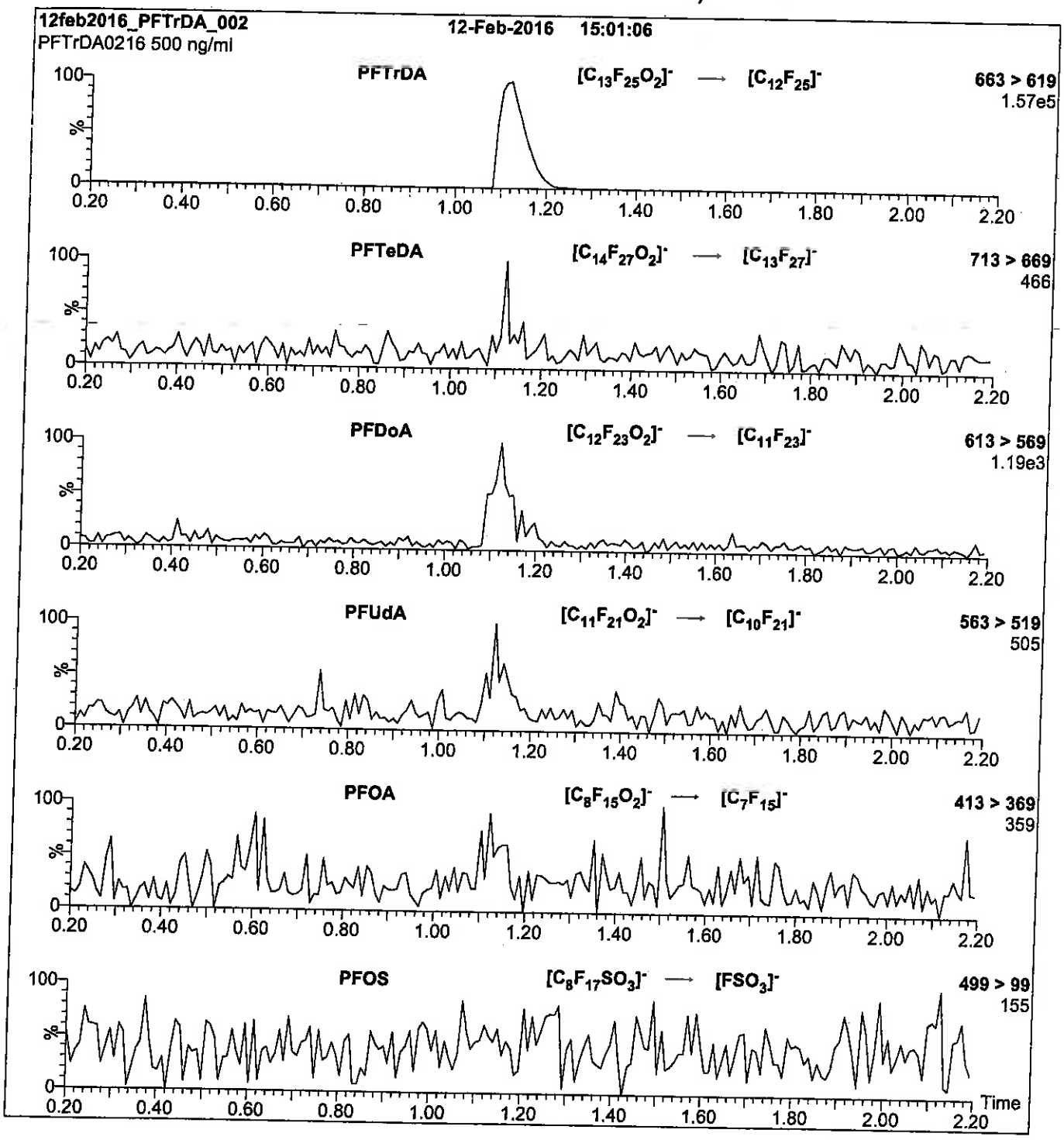
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

Figure 2: **PFTrDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 15

Reagent

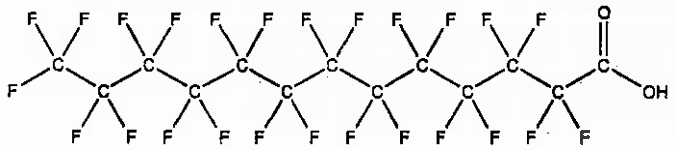
LCPFTrDA_00007

r: 12/29/16 SGJ

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFTrDA	**LOT NUMBER:**	PFTrDA0216
COMPOUND:	Perfluoro-n-tridecanoic acid		
STRUCTURE:		**CAS #:**	72629-94-8



MOLECULAR FORMULA:	$C_{13}HF_{25}O_2$	**MOLECULAR WEIGHT:**	664.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	02/12/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDoA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/16/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

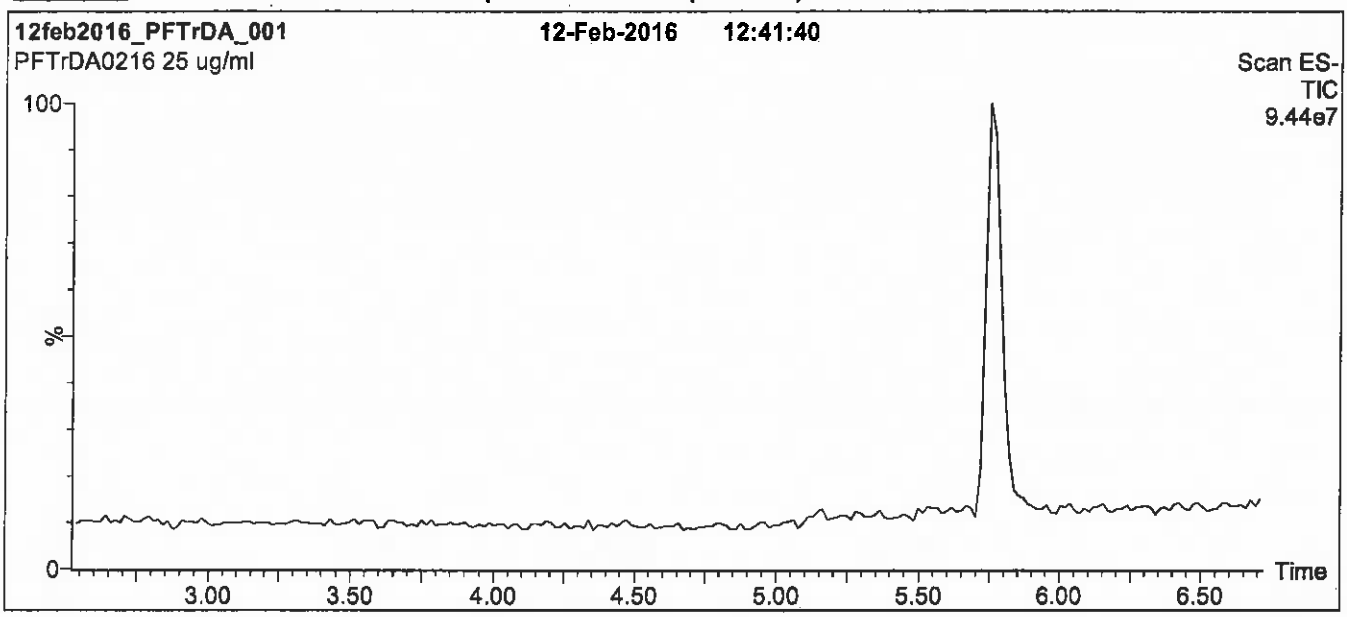
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

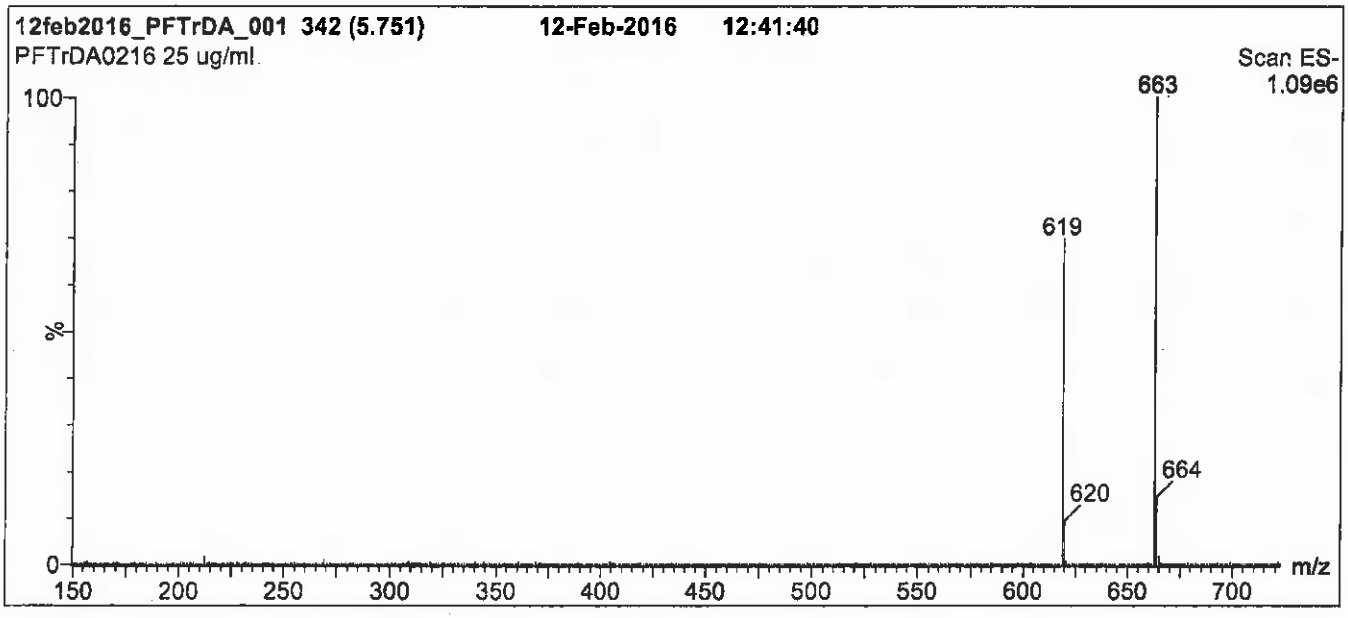
CALA

ANAB ACCREDITED

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **PFTrDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

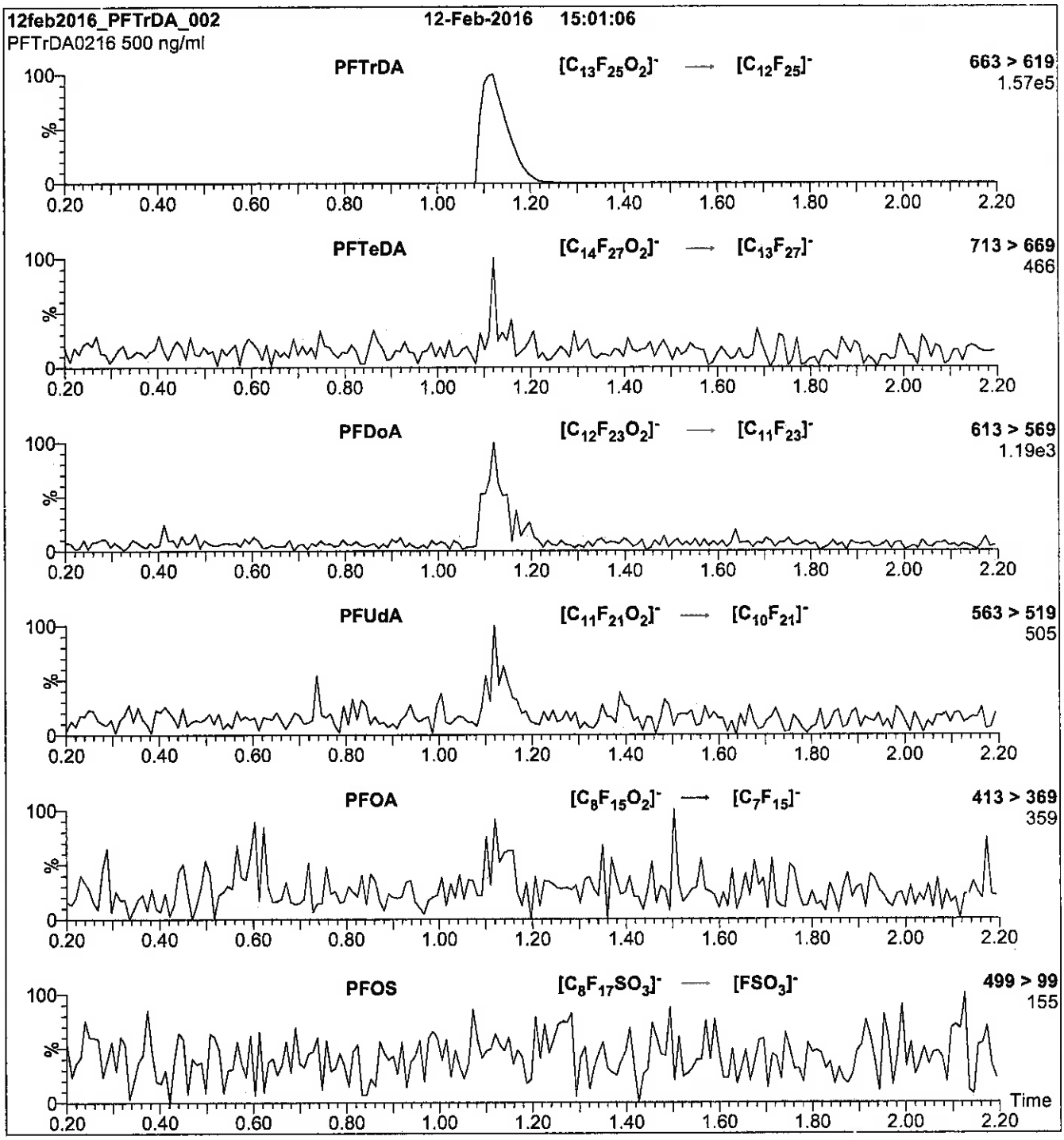
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

Figure 2: **PFTrDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 15

Reagent

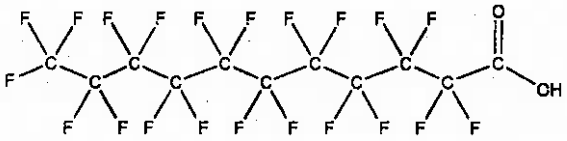
LCPFUdA_00007

r: 12/20/16 SK

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFUdA	**LOT NUMBER:**	PFUdA1016
COMPOUND:	Perfluoro-n-undecanoic acid		
STRUCTURE:		**CAS #:**	2058-94-8



MOLECULAR FORMULA:	$C_{11}HF_{21}O_2$	**MOLECULAR WEIGHT:**	564.09
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	10/18/2016		
EXPIRY DATE: (mm/dd/yyyy)	10/18/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/19/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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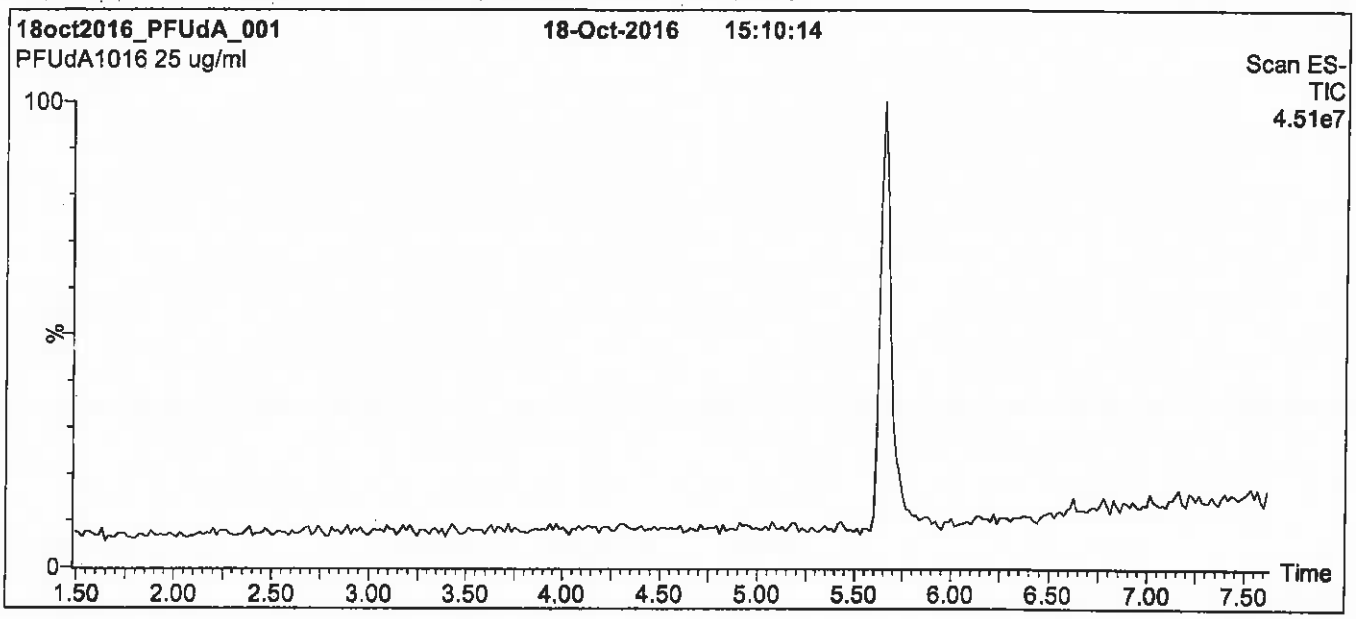
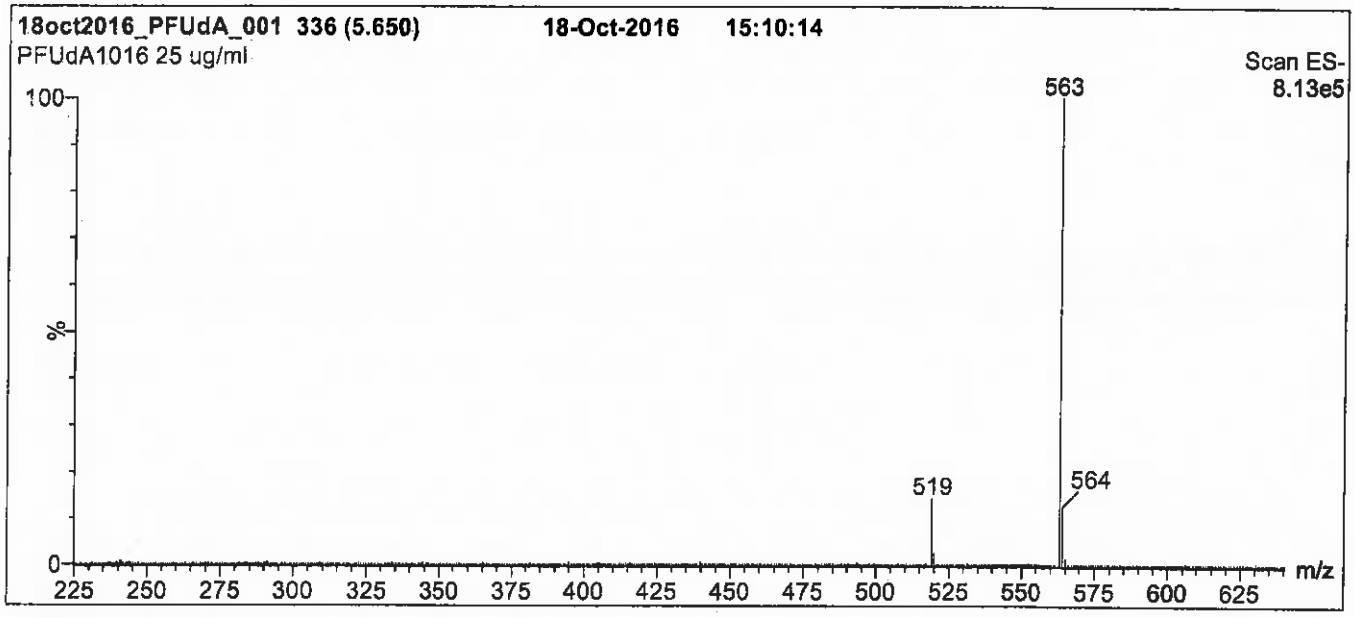
Figure 1: **PFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

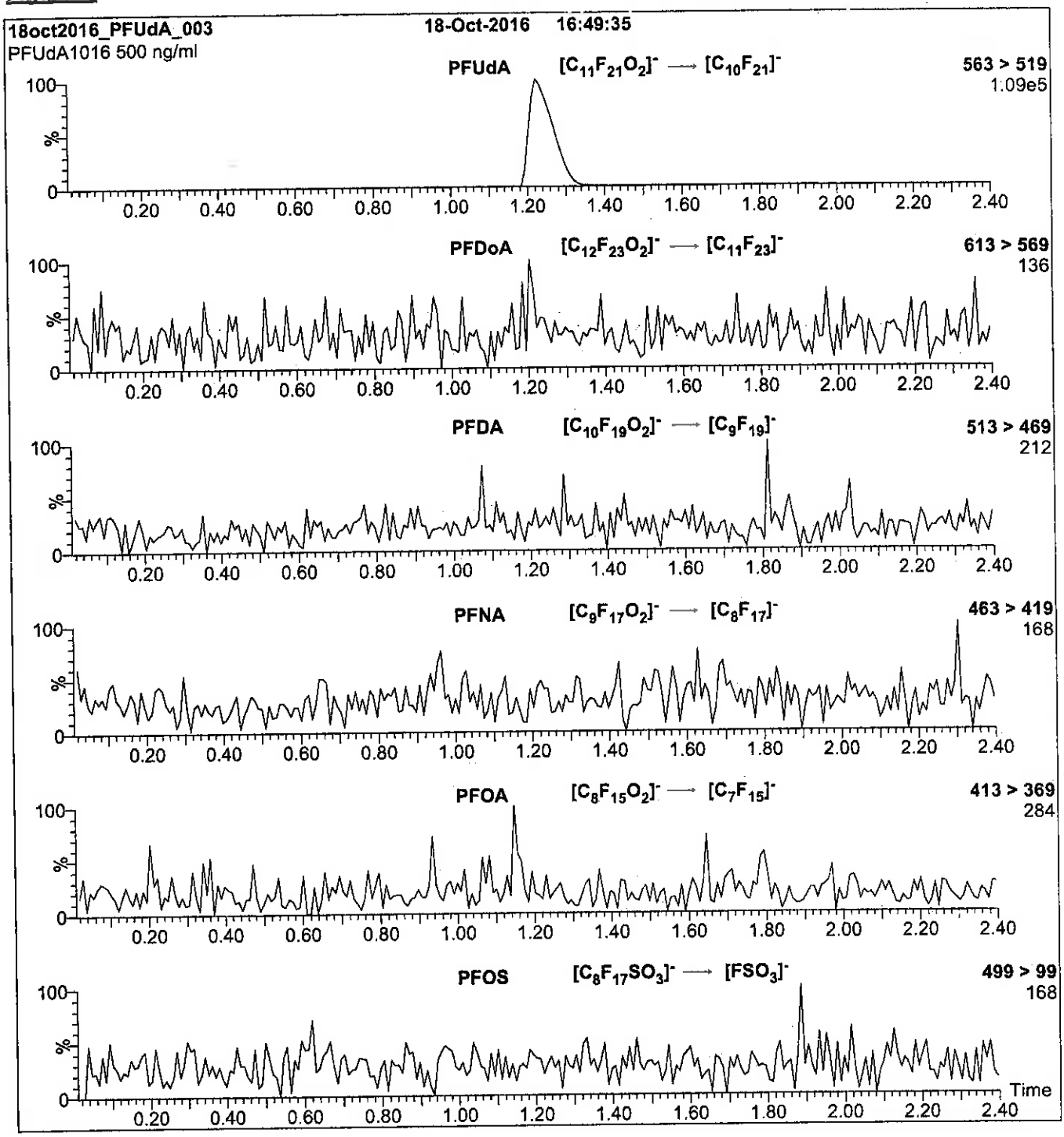
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 11

Method PFC DOD

Fluorinated Hydrocarbons (LC/MS) by Method PFAS_DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	PFOA #	PFNA #
TP-PFC-026-TPI	320-35682-1	120	124	116	115	116	116	96	119
TP-PFC-026-TPI DL	320-35682-1 DL	102	101	101	100	103	97	97	101
TP-PFC-026-MID-CARBON	320-35682-2	109	99	102	105	103	99	106	106
TP-PFC-026-TPE	320-35682-3	105	101	102	101	106	98	97	93
TP-PFC-026-TPE-D	320-35682-4	101	99	96	102	100	103	100	101
	MB 320-207074/1-A	103 M	96	96	101	101	100	99	95
	LCS 320-207074/2-A	107 M	101	106	102	104	106	104	103
	LCSD 320-207074/3-A	108	103	97	108	106	103	102	106

	QC LIMITS
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3-PFBS	25-150
PFHxA = 13C2 PFHxA	25-150
PFHpA = 13C4-PFHpA	25-150
PFHxS = 18O2 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFNA = 13C5 PFNA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFOS #	PFOSA #	PFDA #	PFUnA #	PFDoA #	PFTDA #	
TP-PFC-026-TPI	320-35682-1	116	112	128	118	115	134	
TP-PFC-026-TPI DL	320-35682-1 DL	93	86	85	74	52	8	Q
TP-PFC-026-MID-CARBON	320-35682-2	98	97	110	104	103	111	
TP-PFC-026-TPE	320-35682-3	96	94	103	94	92	102	
TP-PFC-026-TPE-D	320-35682-4	96	94	107	103	101	106	
	MB 320-207074/1-A	96	89	107	103	94	108	
	LCS 320-207074/2-A	103	97	109	103	99	113	
	LCSD 320-207074/3-A	103	95	113	109	104	111	

	QC LIMITS
PFOS = 13C4 PFOS	25-150
PFOSA = 13C8 FOSA	25-150
PFDA = 13C2 PFDA	25-150
PFUnA = 13C2 PFUnA	25-150
PFDoA = 13C2 PFDoA	25-150
PFTDA = 13C2-PFTeDA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	PFOA #	PFOS #
TP-PFC-026-TPE RE	320-35682-3 RE	59	62	58	60	61	59	60	56
TP-PFC-026-TPE-D RE	320-35682-4 RE	58	61	59	60	62	59	59	54
	MB 320-208463/1-A	70 M	74	70	71	74	72	70	67
	LCS 320-208463/2-A	74 M	76	66	73	73	71	73	69
	LCSD 320-208463/3-A	56 M	61	54	58	58	58	57	57

	QC LIMITS
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3-PFBS	25-150
PFHxA = 13C2 PFHxA	25-150
PFHpA = 13C4-PFHpA	25-150
PFHxS = 18O2 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOSA #	PFDA #	PFUnA #	PFDoA #	PFTDA #
TP-PFC-026-TPE RE	320-35682-3 RE	58	58	57	58	55	67
TP-PFC-026-TPE-D RE	320-35682-4 RE	59	57	59	58	54	70
	MB 320-208463/1-A	70	66	72	72	62	77
	LCS 320-208463/2-A	73	66	71	71	65	82
	LCSD 320-208463/3-A	57	55	58	58	48	71

	QC LIMITS
PFNA = 13C5 PFNA	25-150
PFOSA = 13C8 FOSA	25-150
PFDA = 13C2 PFDA	25-150
PFUnA = 13C2 PFUnA	25-150
PFDoA = 13C2 PFDoA	25-150
PFTDA = 13C2-PFTeDA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.07LLAA_038.d

Lab ID: LCS 320-207074/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	41.3	103	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	41.7	104	83-108	
Perfluorohexanoic acid (PFHxA)	40.0	39.4	98	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	40.1	100	80-113	
Perfluorooctanoic acid (PFOA)	40.0	40.3	101	80-107	
Perfluorononanoic acid (PFNA)	40.0	41.2	103	83-113	
Perfluorodecanoic acid (PFDA)	40.0	42.1	105	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	39.9	100	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	41.8	105	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	43.9	110	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	42.5	106	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	37.8	107	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.9	93	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.2	108	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	37.6	101	82-112	
Perfluorodecanesulfonic acid (PFDS)	38.6	39.1	101	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	40.1	100	85-114	
13C8 FOSA	100	97.4	97	25-150	
13C4 PFBA	100	107	107	25-150	M
13C2 PFHxA	100	102	102	25-150	
13C4 PFOA	100	104	104	25-150	
13C5 PFNA	100	103	103	25-150	
13C2 PFDA	100	109	109	25-150	
13C2 PFUnA	100	103	103	25-150	
13C2 PFDoA	100	99.0	99	25-150	
18O2 PFHxS	94.6	101	106	25-150	
13C4 PFOS	95.6	98.4	103	25-150	
13C2-PFTeDA	100	113	113	25-150	
13C4-PFHpA	100	104	104	25-150	
13C5 PFPeA	100	101	101	25-150	
13C3-PFBS	93.0	98.8	106	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.16LLA_010.d

Lab ID: LCS 320-208463/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	40.2	100	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	37.7	94	83-108	M
Perfluorohexanoic acid (PFHxA)	40.0	38.5	96	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	38.4	96	80-113	
Perfluorooctanoic acid (PFOA)	40.0	39.7	99	80-107	
Perfluorononanoic acid (PFNA)	40.0	37.6	94	83-113	
Perfluorodecanoic acid (PFDA)	40.0	40.3	101	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	35.7	89	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	41.2	103	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	44.1	110	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	41.3	103	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0	113	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9	96	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	40.9	107	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	37.8	102	82-112	M
Perfluorodecanesulfonic acid (PFDS)	38.6	39.5	102	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	41.1	103	85-114	
13C8 FOSA	100	66.0	66	25-150	
13C4 PFBA	100	73.6	74	25-150	M
13C2 PFHxA	100	73.4	73	25-150	
13C4 PFOA	100	72.6	73	25-150	
13C5 PFNA	100	72.9	73	25-150	
13C2 PFDA	100	71.3	71	25-150	
13C2 PFUnA	100	71.3	71	25-150	
13C2 PFDoA	100	65.0	65	25-150	
18O2 PFHxS	94.6	67.3	71	25-150	
13C4 PFOS	95.6	65.9	69	25-150	
13C2-PFTeDA	100	81.6	82	25-150	
13C4-PFHpA	100	73.1	73	25-150	
13C5 PFPeA	100	75.5	76	25-150	
13C3-PFBS	93.0	61.4	66	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.07LLAA_039.d

Lab ID: LCSD 320-207074/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	40.5	101	2	30	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	38.6	96	8	30	83-108	
Perfluorohexanoic acid (PFHxA)	40.0	39.0	98	1	30	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	41.0	103	2	30	80-113	
Perfluorooctanoic acid (PFOA)	40.0	41.8	104	4	30	80-107	
Perfluorononanoic acid (PFNA)	40.0	40.1	100	3	30	83-113	
Perfluorodecanoic acid (PFDA)	40.0	40.1	100	5	30	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	37.7	94	6	30	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	38.3	96	9	30	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	40.9	102	7	30	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	44.4	111	5	30	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	40.7	115	7	30	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.8	98	5	30	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.1	103	5	30	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	38.1	103	1	30	82-112	
Perfluorodecanesulfonic acid (PFDS)	38.6	38.1	99	3	30	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	41.5	104	4	30	85-114	
13C8 FOSA	100	94.6	95			25-150	
13C4 PFBA	100	108	108			25-150	
13C2 PFHxA	100	108	108			25-150	
13C4 PFOA	100	102	102			25-150	
13C5 PFNA	100	106	106			25-150	
13C2 PFDA	100	113	113			25-150	
13C2 PFUnA	100	109	109			25-150	
13C2 PFDoA	100	104	104			25-150	
18O2 PFHxS	94.6	97.8	103			25-150	
13C4 PFOS	95.6	98.9	103			25-150	
13C2-PFTeDA	100	111	111			25-150	
13C4-PFHpA	100	106	106			25-150	
13C5 PFPeA	100	103	103			25-150	
13C3-PFBS	93.0	89.8	97			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.16LLA_011.d

Lab ID: LCSD 320-208463/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	37.8	95	6	30	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	35.2	88	7	30	83-108	M
Perfluorohexanoic acid (PFHxA)	40.0	36.2	90	6	30	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	38.3	96	0	30	80-113	
Perfluorooctanoic acid (PFOA)	40.0	37.8	95	5	30	80-107	
Perfluorononanoic acid (PFNA)	40.0	36.8	92	2	30	83-113	
Perfluorodecanoic acid (PFDA)	40.0	38.1	95	6	30	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	32.3	81	10	30	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	41.3	103	0	30	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	46.3	116	5	30	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	39.3	98	5	30	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	36.2	102	10	30	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.6	89	7	30	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.2	98	9	30	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	34.4	93	10	30	82-112	M
Perfluorodecanesulfonic acid (PFDS)	38.6	35.9	93	10	30	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	37.2	93	10	30	85-114	
13C8 FOSA	100	54.8	55			25-150	
13C4 PFBA	100	56.2	56			25-150	M
13C2 PFHxA	100	58.3	58			25-150	
13C4 PFOA	100	56.9	57			25-150	
13C5 PFNA	100	57.2	57			25-150	
13C2 PFDA	100	58.2	58			25-150	
13C2 PFUnA	100	58.4	58			25-150	
13C2 PFDoA	100	48.5	48			25-150	
18O2 PFHxS	94.6	55.3	58			25-150	
13C4 PFOS	95.6	54.4	57			25-150	
13C2-PFTeDA	100	71.0	71			25-150	
13C4-PFHpA	100	57.7	58			25-150	
13C5 PFPeA	100	60.6	61			25-150	
13C3-PFBS	93.0	50.2	54			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab File ID: 2018.02.07LLAA_037.d Lab Sample ID: MB 320-207074/1-A

Matrix: Water Date Extracted: 02/06/2018 08:50

Instrument ID: A8_N Date Analyzed: 02/07/2018 13:17

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-207074/2-A	2018.02.07LLAA_038.d	02/07/2018 13:25
	LCSD 320-207074/3-A	2018.02.07LLAA_039.d	02/07/2018 13:33
TP-PFC-026-TPI	320-35682-1	2018.02.07LLAA_050.d	02/07/2018 14:59
TP-PFC-026-MID-CARBON	320-35682-2	2018.02.07LLAA_051.d	02/07/2018 15:07
TP-PFC-026-TPE	320-35682-3	2018.02.07LLAA_052.d	02/07/2018 15:15
TP-PFC-026-TPE-D	320-35682-4	2018.02.07LLAA_053.d	02/07/2018 15:23
TP-PFC-026-TPI DL	320-35682-1 DL	2018.02.08LLAAX_055.d	02/08/2018 23:12

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab File ID: 2018.02.16LLA_009.d Lab Sample ID: MB 320-208463/1-A

Matrix: Water Date Extracted: 02/14/2018 19:07

Instrument ID: A8_N Date Analyzed: 02/16/2018 16:12

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-208463/2-A	2018.02.16LLA_010.d	02/16/2018 16:20
	LCSD 320-208463/3-A	2018.02.16LLA_011.d	02/16/2018 16:28
TP-PFC-026-TPE RE	320-35682-3 RE	2018.02.16LLA_012.d	02/16/2018 16:35
TP-PFC-026-TPE-D RE	320-35682-4 RE	2018.02.16LLA_013.d	02/16/2018 16:43

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI | Lab Sample ID: 320-35682-1

Matrix: Water | Lab File ID: 2018.02.07LLAA_050.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:45

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 02/07/2018 14:59

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	69	M	1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	190		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	340		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	71		1.9	1.4	0.59
335-67-1	*Perfluorooctanoic acid (PFOA)*	*1400*	*M E*	*1.9*	1.4	*0.52*
375-95-1	Perfluorononanoic acid (PFNA)	2.6		1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	0.81	J	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	51		1.9	0.96	0.44
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*370*	*E*	*1.9*	0.96	*0.37*
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	7.0		1.9	0.96	0.36
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	340		3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	2.9	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI | Lab Sample ID: 320-35682-1

Matrix: Water | Lab File ID: 2018.02.07LLAA_050.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:45

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 02/07/2018 14:59

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	112		25-150
STL00992	13C4 PFBA	120		25-150
STL00993	13C2 PFHxA	115		25-150
STL00990	13C4 PFOA	96		25-150
STL00995	13C5 PFNA	119		25-150
STL00996	13C2 PFDA	128		25-150
STL00997	13C2 PFUnA	118		25-150
STL00998	13C2 PFDoA	115		25-150
STL00994	18O2 PFHxS	116		25-150
STL00991	13C4 PFOS	116		25-150
STL02116	13C2-PFTeDA	134		25-150
STL01892	13C4-PFHpA	116		25-150
STL01893	13C5 PFPeA	124		25-150
STL02337	13C3-PFBS	116		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_050.d
Lims ID: 320-35682-C-1-A
Client ID: TP-PFC-026-TPI
Sample Type: Client
Inject. Date: 07-Feb-2018 14:59:39 ALS Bottle#: 42 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35682-c-1-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:43:00 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:12:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.419	1.412	0.007	0.540	6845720	3.00		120	27709	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.419	1.412	0.007	1.000	4625419	1.78			393	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.670	1.660	0.010	1.000	10068404	4.94			2965	
D 3 13C5-PFPeA										
267.90 > 223.00	1.670	1.660	0.010	0.635	4285629	3.10		124	26540	
D 47 13C3-PFBS										
301.90 > 83.00	1.707	1.695	0.012	0.649	83208	2.69		116	1823	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.707	1.695	0.012	1.000	3673865	1.34			4504	
298.90 > 99.00	1.707	1.695	0.012	1.000	1557904		2.36(1.25-3.74)		4252	
D 7 13C2 PFHxA										
315.00 > 270.00	1.955	1.930	0.025	0.743	4282005	2.87		115	38605	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.944	1.940	0.004	0.995	15571835	8.79			21675	
313.00 > 119.00	1.955	1.940	0.015	1.000	1313750		11.85(5.03-15.10)		13788	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.279	2.262	0.017	1.000	3188802	1.83			3693	
363.00 > 169.00	2.279	2.262	0.017	1.000	1282222		2.49(1.13-3.40)		6883	
D 9 13C4-PFHpA										
367.00 > 322.00	2.279	2.262	0.017	0.866	4182230	2.89		116	29838	
D 11 18O2 PFHxS										
403.00 > 84.00	2.292	2.275	0.017	0.871	4893310	2.74		116	46451	
8 Perfluorohexanesulfonic acid										E
399.00 > 80.00	2.292	2.275	0.017	1.000	22452167	9.54			26628	E
399.00 > 99.00	2.292	2.275	0.017	1.000	7444372		3.02(1.50-4.49)		18656	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.631	2.606	0.025	1.000	3392651	2.39		95.8	26879	
* 62 13C2-PFOA										
415.00 > 370.00	2.631	2.606	0.025		3944103	2.50			33518	
15 Perfluorooctanoic acid										EM
413.00 > 369.00	2.631	2.606	0.025	1.000	56296570	36.4			13097	EM
413.00 > 169.00	2.631	2.606	0.025	1.000	39671567		1.42(0.84-2.52)		19027	M
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.638	2.613	0.025	1.000	338097	0.1814			131	
449.00 > 99.00	2.638	2.613	0.025	1.000	109253		3.09(1.94-5.82)		266	
D 18 13C4 PFOS										
503.00 > 80.00	3.001	2.976	0.025	1.141	3271313	2.78		116	16906	
D 19 13C5 PFNA										
468.00 > 423.00	2.993	2.976	0.017	1.138	3433113	2.98		119	37710	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.993	2.976	0.017	0.997	13357527	8.84			11942	
499.00 > 99.00	2.993	2.976	0.017	0.997	3043122		4.39(2.31-6.93)		11719	
20 Perfluorononanoic acid										
463.00 > 419.00	3.001	2.976	0.025	1.003	95136	0.0681			89.5	
463.00 > 169.00	3.001	2.976	0.025	1.003	20518		4.64(1.90-5.69)		74.5	
D 21 13C8 FOSA										
506.00 > 78.00	3.348	3.331	0.017	1.273	4546650	2.80		112	22460	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.216	3.331	-0.115	0.961	10189	0.005657			48.0	
D 23 13C2 PFDA										
515.00 > 470.00	3.355	3.331	0.024	1.275	3167253	3.19		128	33332	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.355	3.331	0.024	1.000	27075	0.0209			69.6	
513.00 > 169.00	3.355	3.331	0.024	1.000	3870		7.00(2.36-7.09)		45.7	
D 30 13C2 PFUnA										
565.00 > 520.00	3.671	3.655	0.016	1.396	2269683	2.95		118	31102	
D 36 13C2 PFDoA										
615.00 > 570.00	3.973	3.952	0.020	1.510	2258292	2.88		115	19859	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.461	4.443	0.018	1.696	3237826	3.34		134	19537	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

Report Date: 08-Feb-2018 16:43:06 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_050.d

Injection Date: 07-Feb-2018 14:59:39 Instrument ID: A8_N

Lims ID: 320-35682-C-1-A Lab Sample ID: 320-35682-1

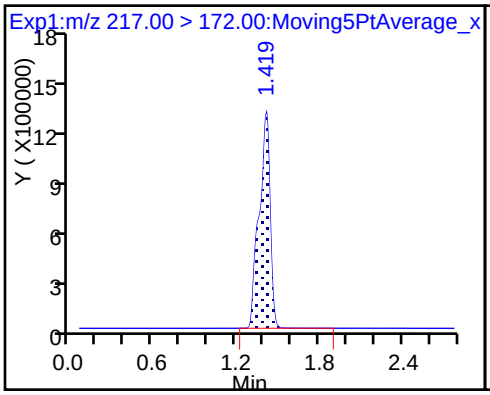
Client ID: TP-PFC-026-TPI

Operator ID: SACINSTLCMS01 ALS Bottle#: 42 Worklist Smp#: 15

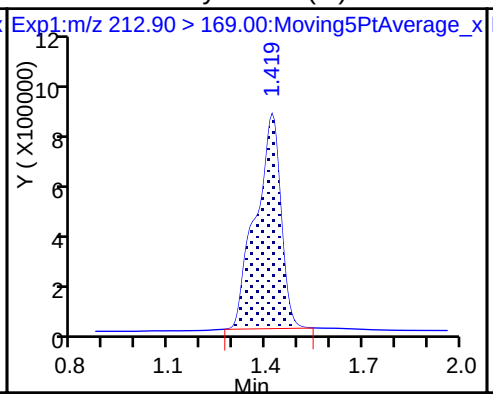
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

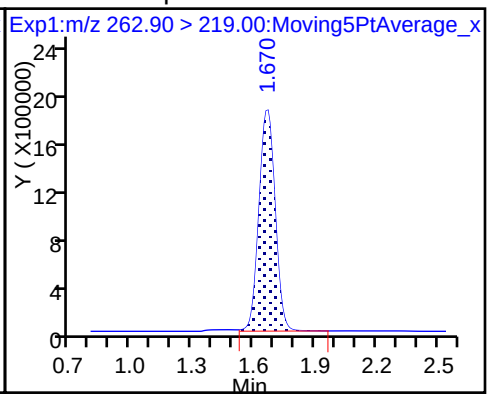
D 1 13C4 PFBA



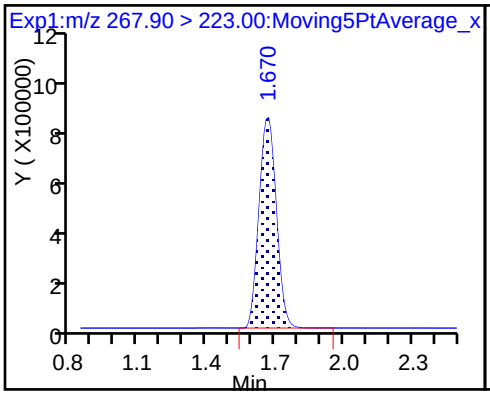
2 Perfluorobutyric acid (M)



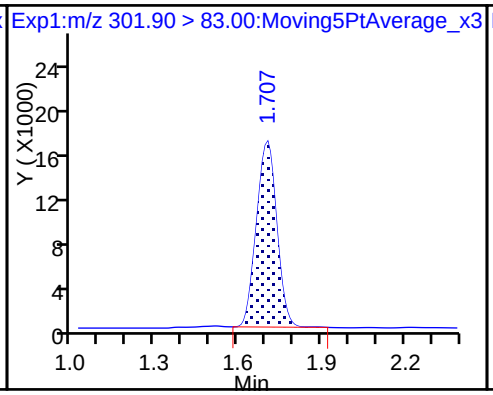
4 Perfluoropentanoic acid



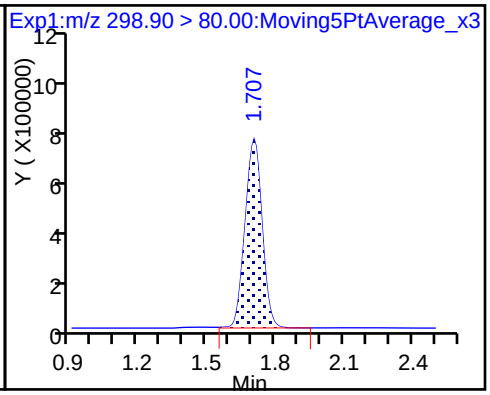
D 3 13C5-PFPeA



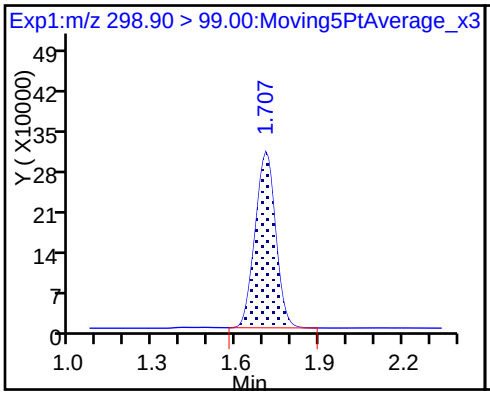
D 47 13C3-PFBS



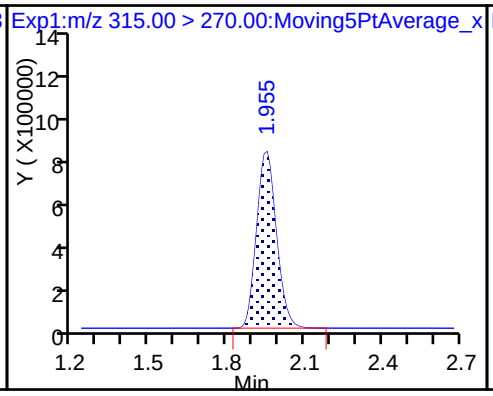
5 Perfluorobutanesulfonic acid



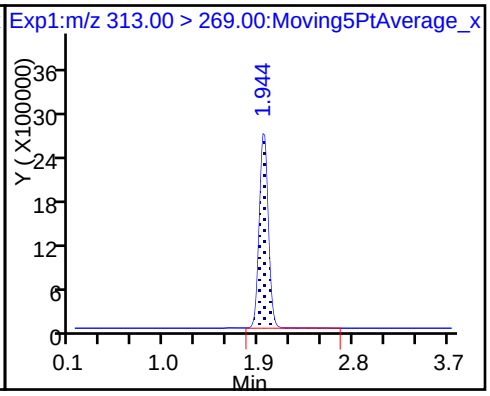
5 Perfluorobutanesulfonic acid



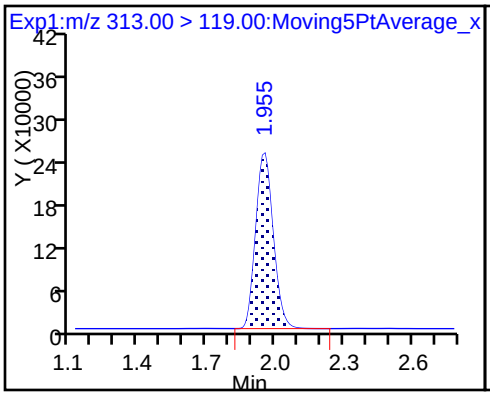
D 7 13C2 PFHxA



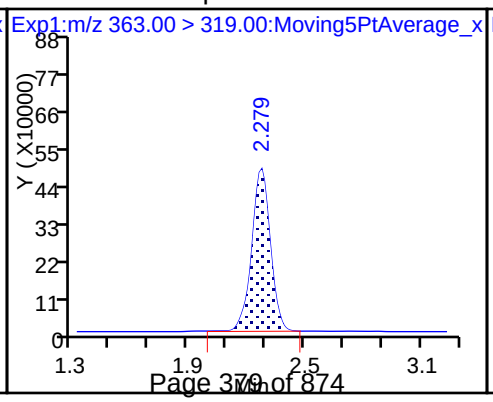
6 Perfluorohexanoic acid



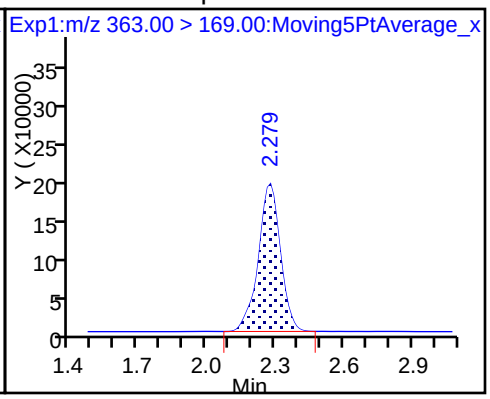
6 Perfluorohexanoic acid



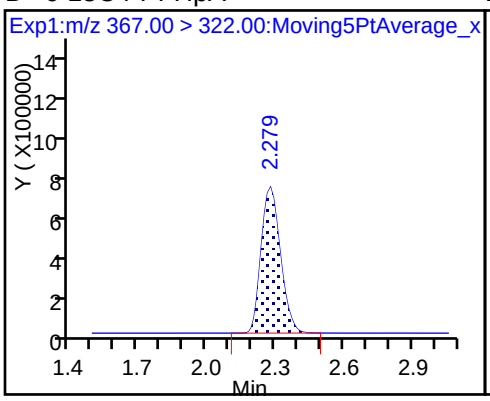
10 Perfluoroheptanoic acid



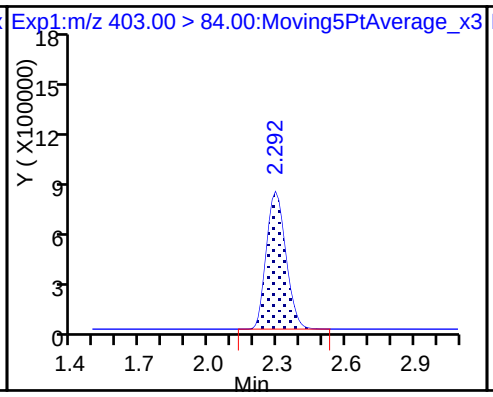
10 Perfluoroheptanoic acid



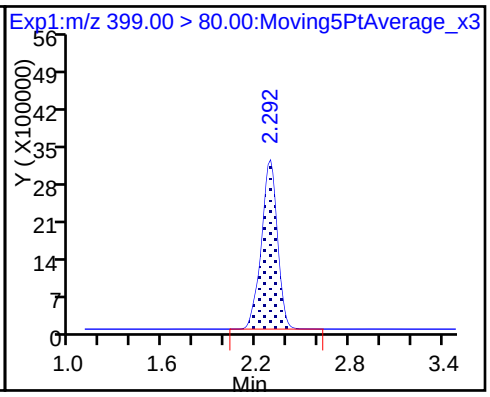
D 9 13C4-PFHpA



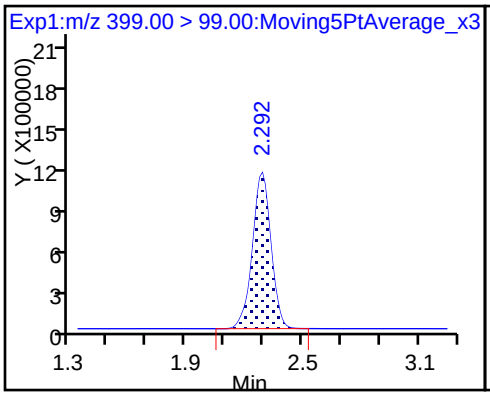
D 11 18O2 PFHxS



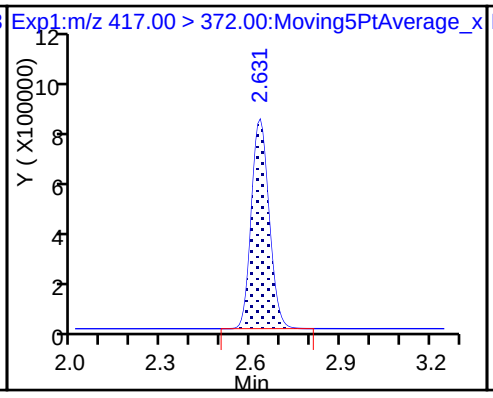
8 Perfluorohexanesulfonic acid



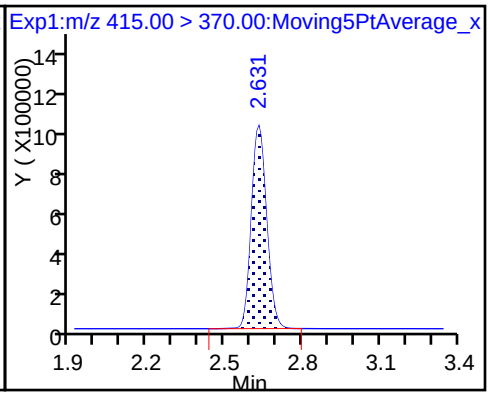
8 Perfluorohexanesulfonic acid



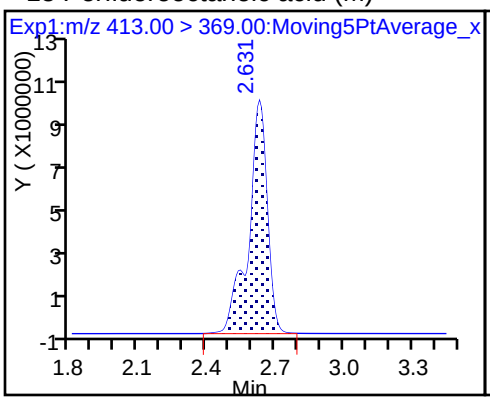
D 14 13C4 PFOA



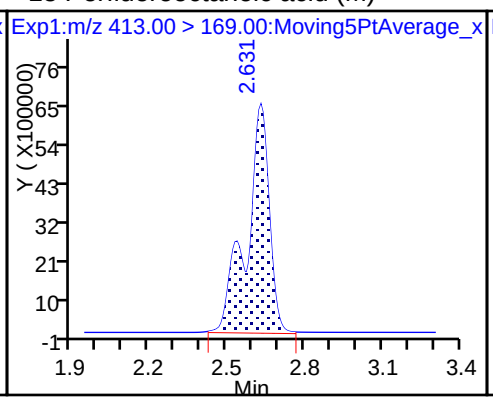
* 62 13C2-PFOA



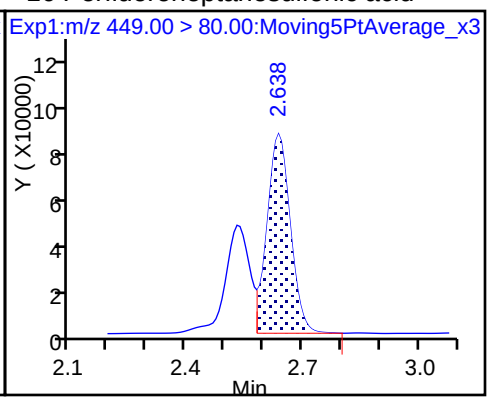
15 Perfluorooctanoic acid (M)



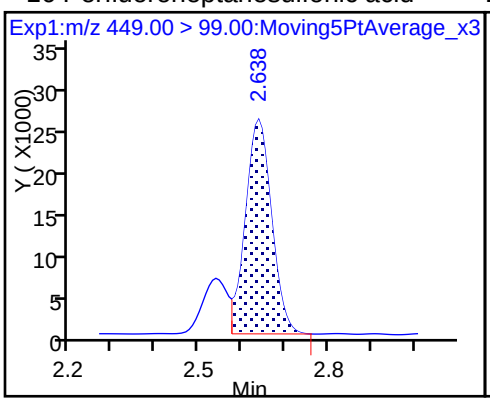
15 Perfluorooctanoic acid (M)



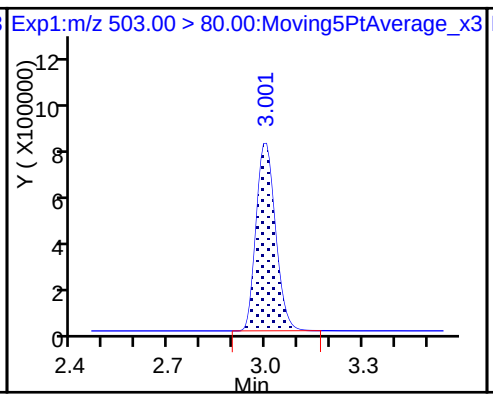
16 Perfluoroheptanesulfonic acid



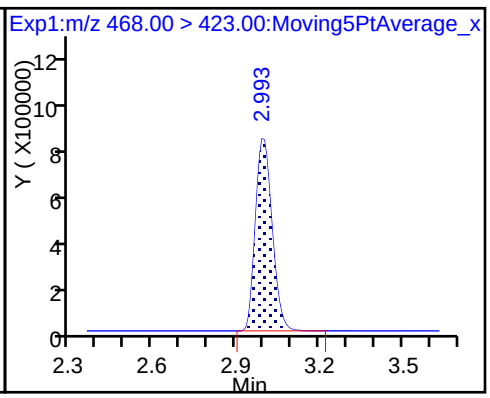
16 Perfluoroheptanesulfonic acid



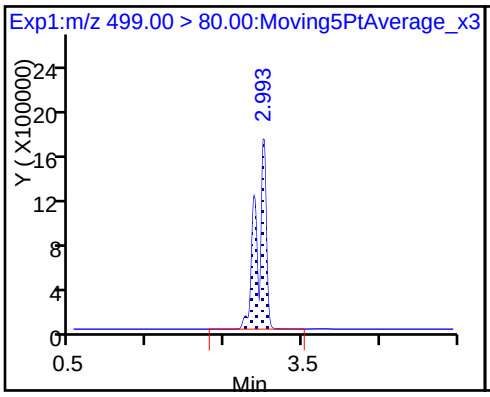
D 18 13C4 PFOS



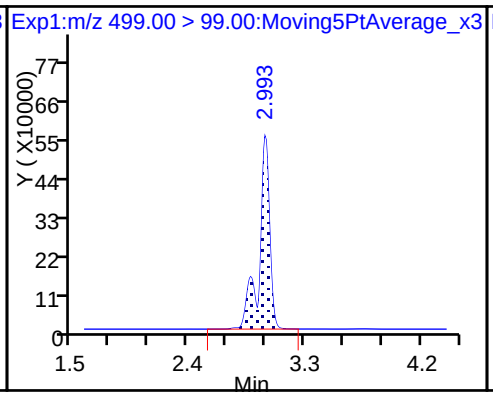
D 19 13C5 PFNA



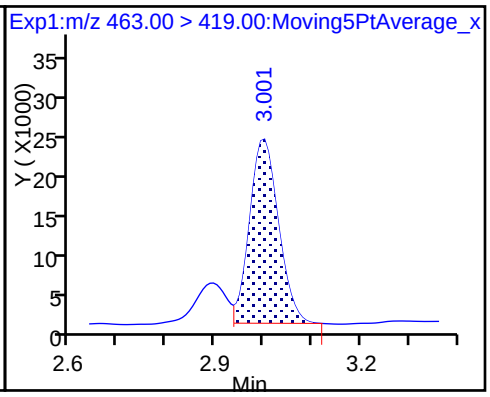
17 Perfluorooctane sulfonic acid



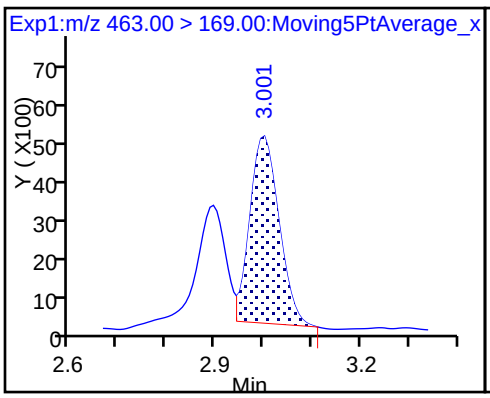
17 Perfluorooctane sulfonic acid



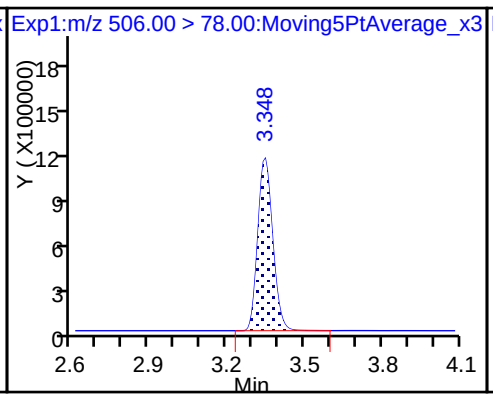
20 Perfluorononanoic acid



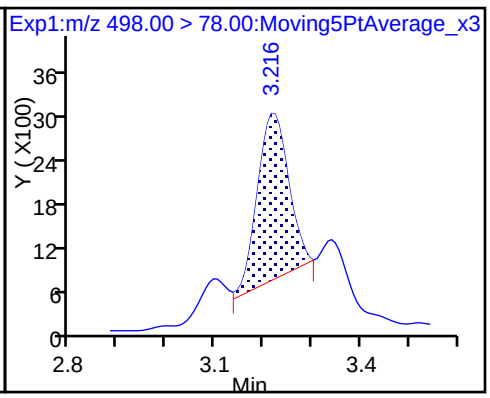
20 Perfluorononanoic acid



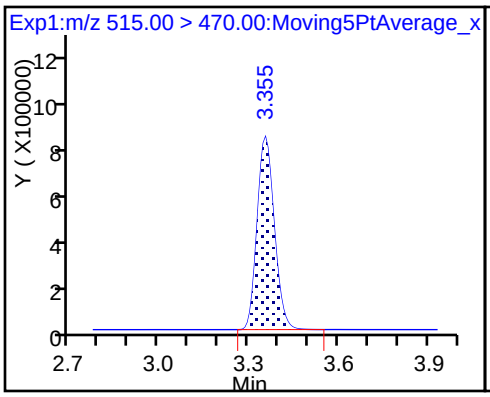
D 21 13C8 FOSA



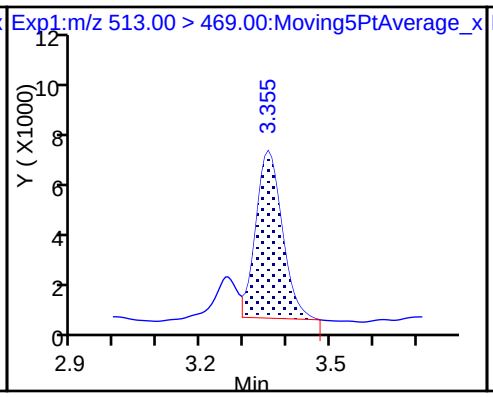
22 Perfluorooctane Sulfonamide



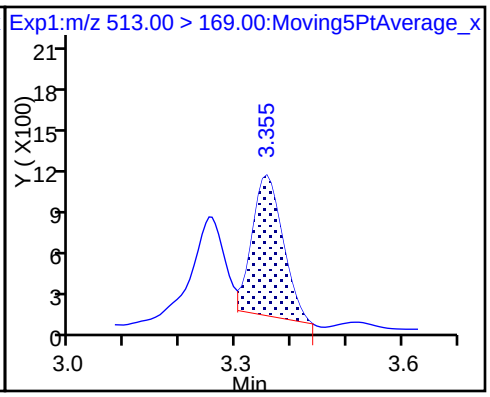
D 23 13C2 PFDA



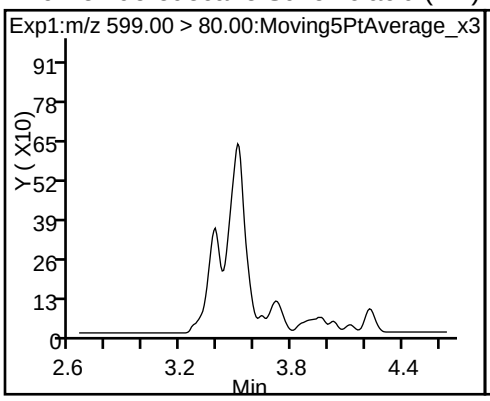
24 Perfluorodecanoic acid



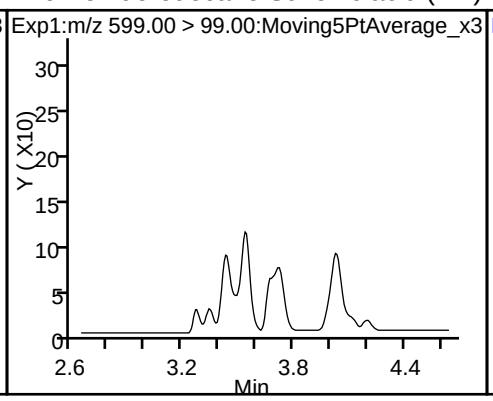
24 Perfluorodecanoic acid



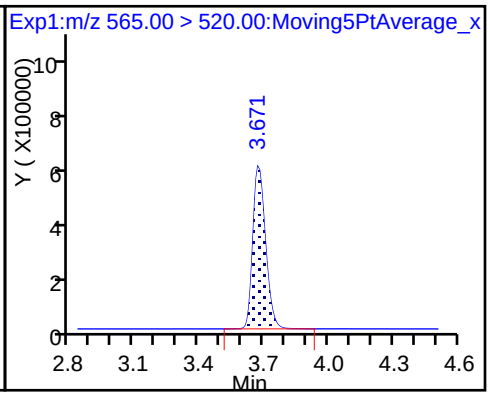
29 Perfluorodecane Sulfonic acid (ND)



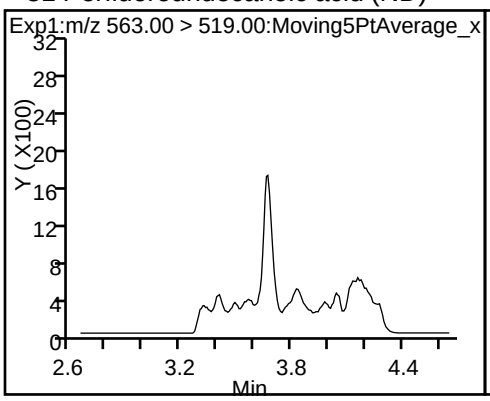
29 Perfluorodecane Sulfonic acid (ND)



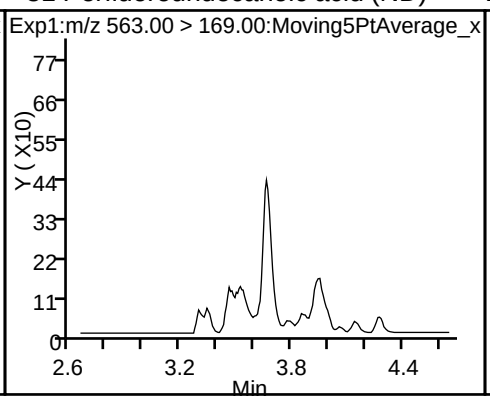
D 30 13C2 PFUnA



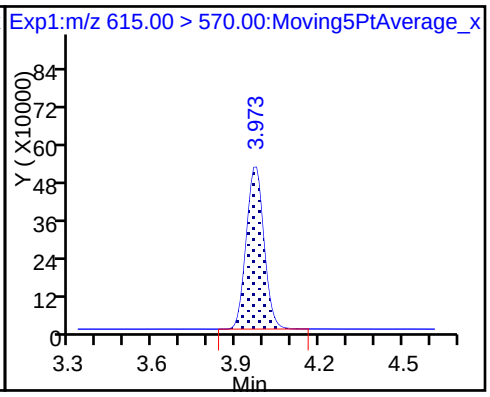
31 Perfluoroundecanoic acid (ND)



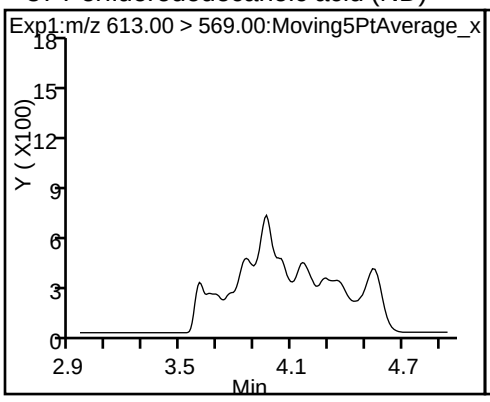
31 Perfluoroundecanoic acid (ND)



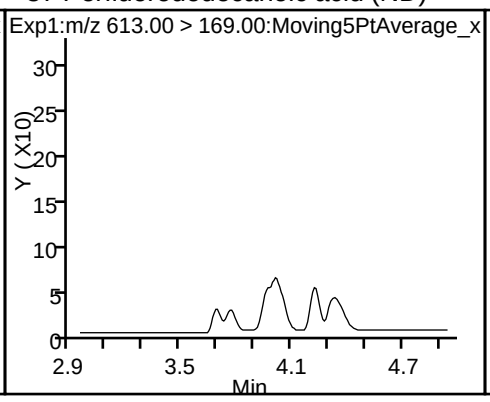
D 36 13C2 PFDoA



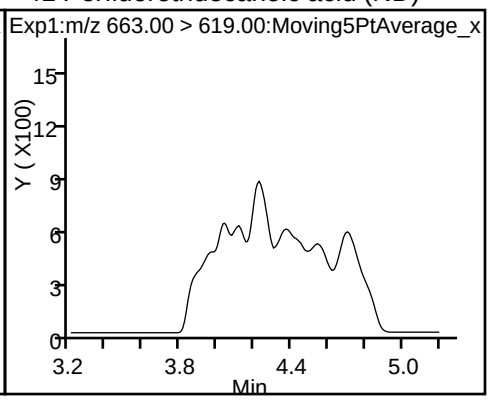
37 Perfluorododecanoic acid (ND)



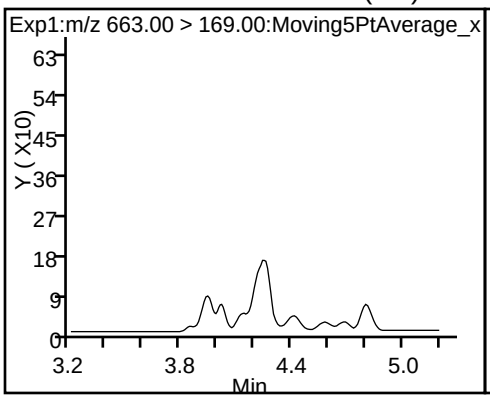
37 Perfluorododecanoic acid (ND)



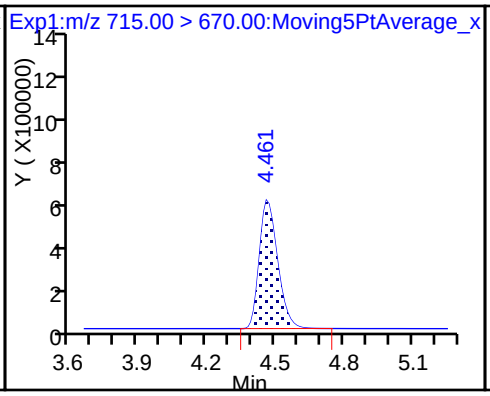
41 Perfluorotridecanoic acid (ND)



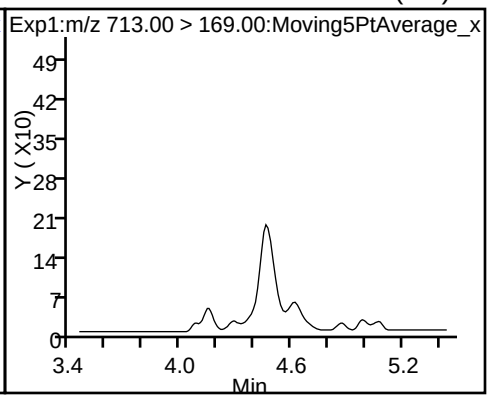
41 Perfluorotridecanoic acid (ND)



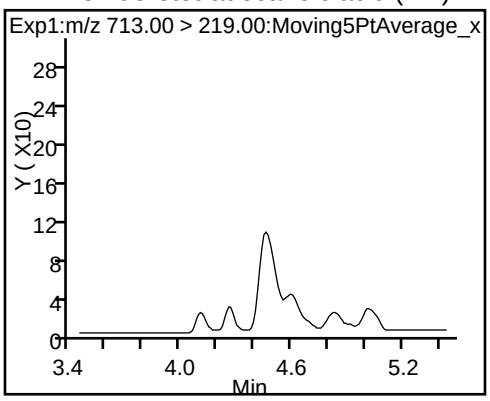
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

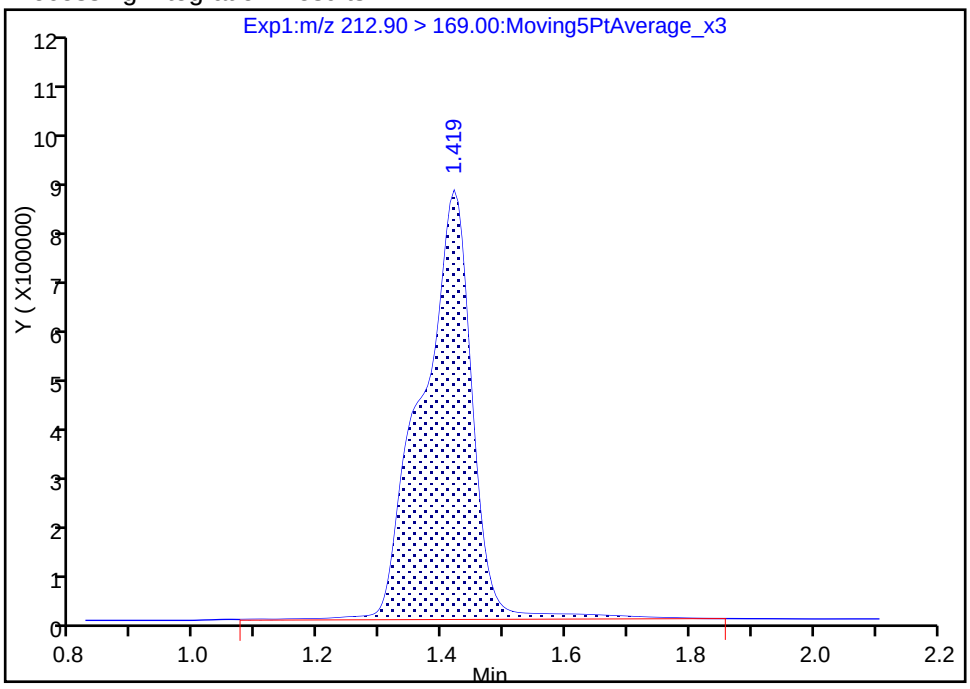
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_050.d				
Injection Date:	07-Feb-2018 14:59:39	Instrument ID:	A8_N		
Lims ID:	320-35682-C-1-A	Lab Sample ID:	320-35682-1		
Client ID:	TP-PFC-026-TPI				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

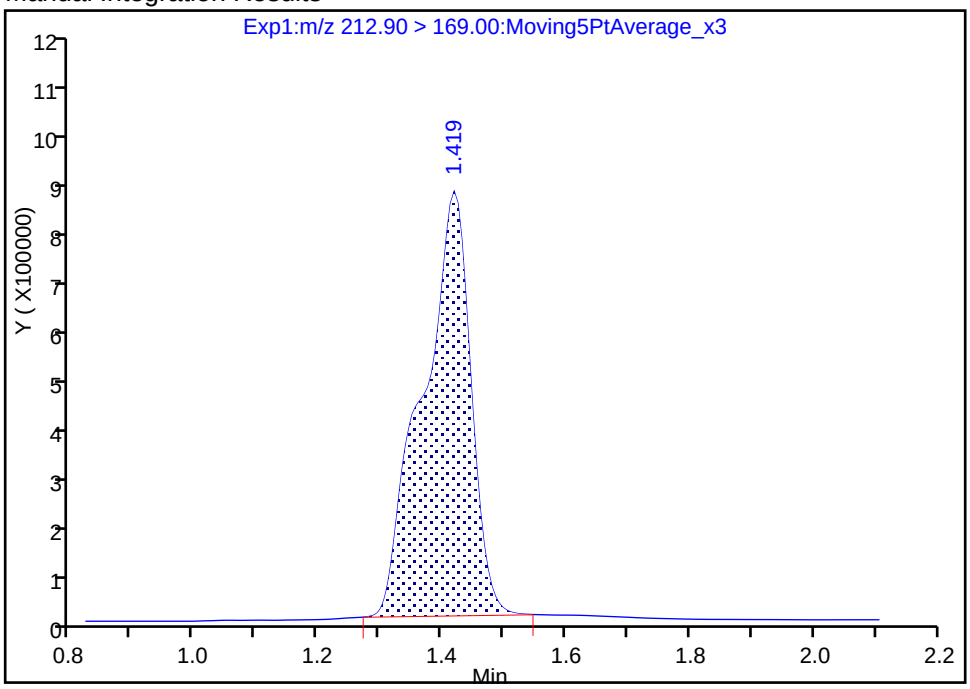
Processing Integration Results

RT: 1.42
Area: 4900663
Amount: 1.888726
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 4625419
Amount: 1.782647
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:11:14

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

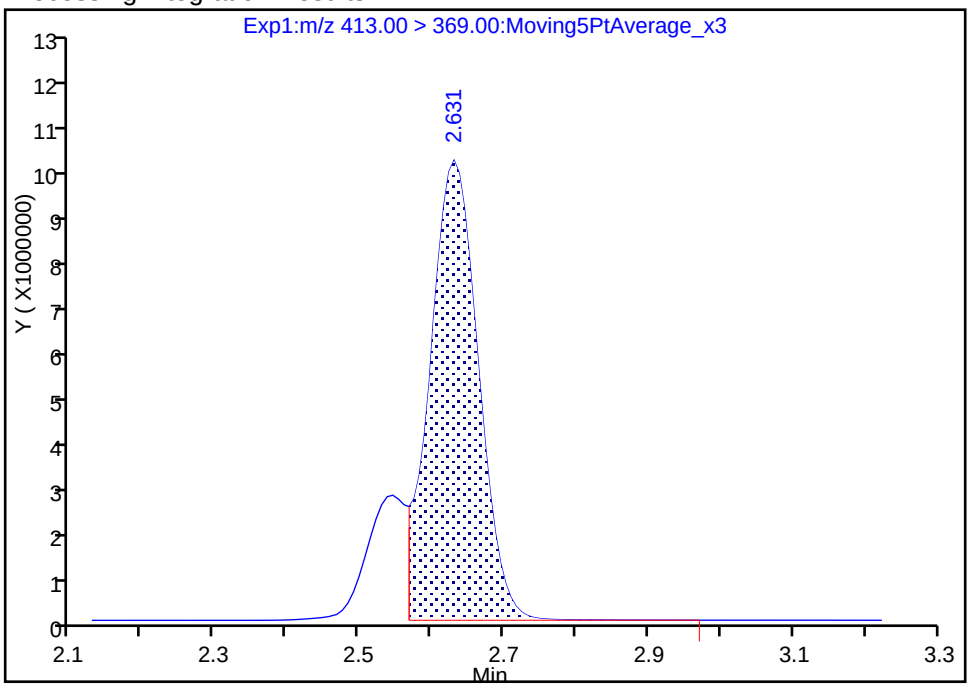
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_050.d				
Injection Date:	07-Feb-2018 14:59:39	Instrument ID:	A8_N		
Lims ID:	320-35682-C-1-A	Lab Sample ID:	320-35682-1		
Client ID:	TP-PFC-026-TPI				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

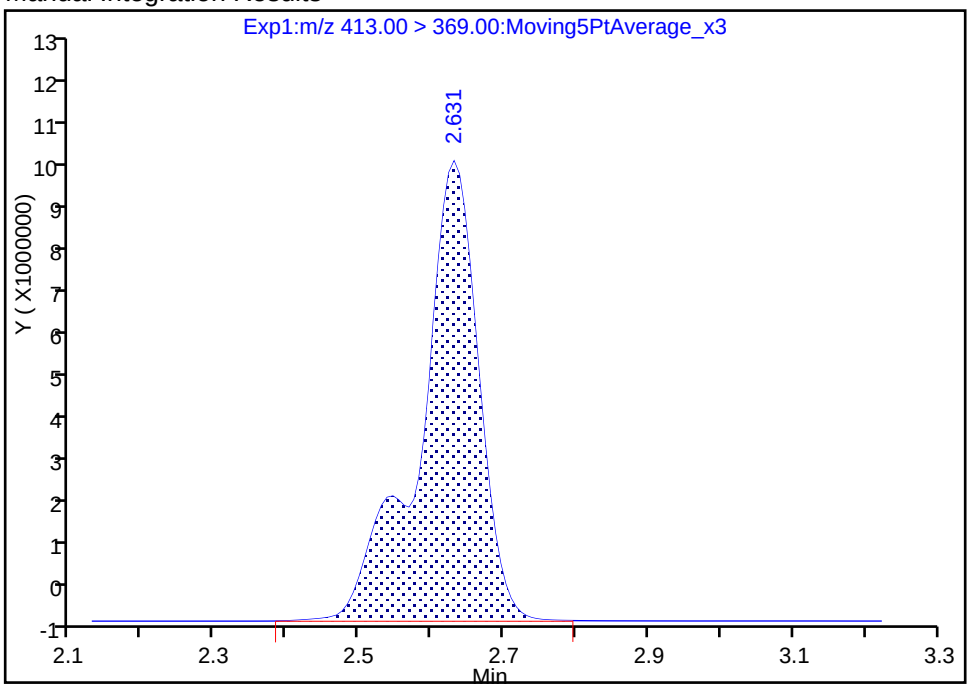
Processing Integration Results

RT: 2.63
Area: 46023871
Amount: 29.774138
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 56296570
Amount: 36.419837
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:11:47

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

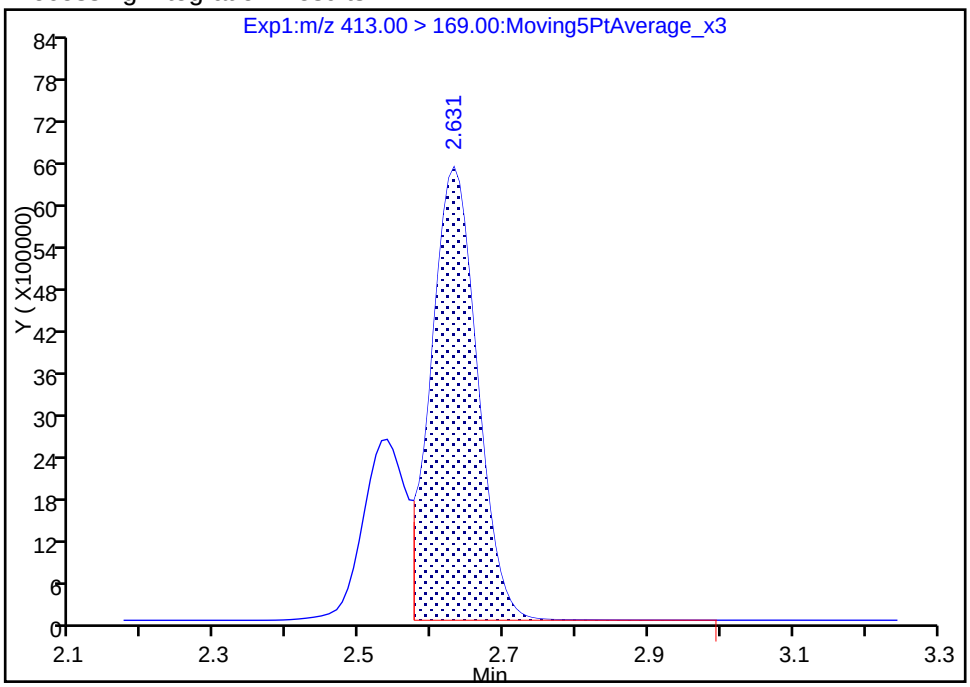
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_050.d				
Injection Date:	07-Feb-2018 14:59:39	Instrument ID:	A8_N		
Lims ID:	320-35682-C-1-A	Lab Sample ID:	320-35682-1		
Client ID:	TP-PFC-026-TPI				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

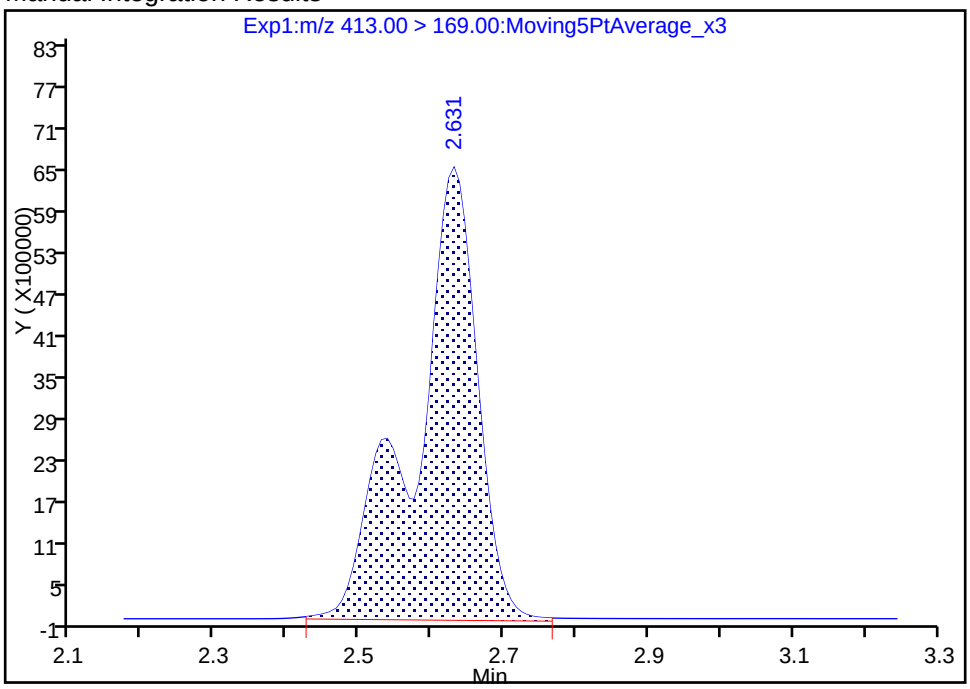
Processing Integration Results

RT: 2.63
Area: 28539224
Amount: 29.774138
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 39671567
Amount: 36.419837
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:11:53
Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI DL | Lab Sample ID: 320-35682-1 DL

Matrix: Water | Lab File ID: 2018.02.08LLAAX_055.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:45

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 02/08/2018 23:12

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207696 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	*Perfluorobutanoic acid (PFBA)*	*69*	*D*	*19*	14	*5.7*
2706-90-3	*Perfluoropentanoic acid (PFPeA)*	*190*	*D*	*19*	9.6	*4.1*
307-24-4	*Perfluorohexanoic acid (PFHxA)*	*340*	*D*	*19*	9.6	*4.5*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*66*	*D*	*19*	14	*5.9*
335-67-1	Perfluorooctanoic acid (PFOA)	1800	D M	19	14	5.2
375-95-1	*Perfluorononanoic acid (PFNA)*	*14*	*U*	*19*	14	*5.0*
335-76-2	*Perfluorodecanoic acid (PFDA)*	*9.6*	*U*	*19*	9.6	*4.6*
2058-94-8	*Perfluoroundecanoic acid (PFUnA)*	*14*	*U*	*19*	14	*6.9*
307-55-1	*Perfluorododecanoic acid (PFDoA)*	*14*	*U*	*19*	14	*5.0*
72629-94-8	*Perfluorotridecanoic Acid (PFTriA)*	*29*	*U*	*38*	29	*7.3*
376-06-7	*Perfluorotetradecanoic acid (PFTeA)*	*29*	*U*	*38*	29	*8.0*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*47*	*D*	*19*	9.6	*4.4*
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	410	D	19	9.6	3.7
375-92-8	*Perfluoroheptanesulfonic Acid (PFHpS)*	*8.8*	*J D*	*19*	9.6	*3.6*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*330*	*D*	*38*	29	*11*
335-77-3	*Perfluorodecanesulfonic acid (PFDS)*	*14*	*U*	*19*	14	*5.4*
754-91-6	*Perfluorooctane Sulfonamide (FOSA)*	*29*	*U*	*38*	29	*13*

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI DL Lab Sample ID: 320-35682-1 DL

Matrix: Water Lab File ID: 2018.02.08LLAAX_055.d

Analysis Method: 537 (modified) Date Collected: 02/01/2018 09:45

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) Date Analyzed: 02/08/2018 23:12

Con. Extract Vol.: 10.00(mL) Dilution Factor: 10

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207696 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	86		25-150
STL00992	13C4 PFBA	102		25-150
STL00993	13C2 PFHxA	100		25-150
STL00990	13C4 PFOA	97		25-150
STL00995	13C5 PFNA	101		25-150
STL00996	13C2 PFDA	85		25-150
STL00997	13C2 PFUnA	74		25-150
STL00998	13C2 PFDoA	52		25-150
STL00994	18O2 PFHxS	97		25-150
STL00991	13C4 PFOS	93		25-150
STL02116	13C2-PFTeDA	8	Q	25-150
STL01892	13C4-PFHpA	103		25-150
STL01893	13C5 PFPeA	101		25-150
STL02337	13C3-PFBS	101		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_055.d
Lims ID: 320-35682-C-1-A
Client ID: TP-PFC-026-TPI
Sample Type: Client
Inject. Date: 08-Feb-2018 23:12:05 ALS Bottle#: 49 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 10.0000
Sample Info: 320-35682-c-1-a 10X
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 09-Feb-2018 16:13:41 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 16:09:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.418	1.412	0.006	0.541	745469	0.2562		102	4644	
2 Perfluorobutyric acid										
212.90 > 169.00	1.418	1.412	0.006	1.000	504670	0.1786			151	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.669	1.660	0.009	1.000	1037853	0.4872			746	
D 3 13C5-PFPeA										
267.90 > 223.00	1.669	1.660	0.009	0.637	447870	0.2536		101	6171	
D 47 13C3-PFBS										
301.90 > 83.00	1.704	1.695	0.009	0.650	9275	0.2349		101	322	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.704	1.695	0.009	1.000	375009	0.1223			2595	
298.90 > 99.00	1.704	1.695	0.009	1.000	166863		2.25(1.25-3.74)		1937	
D 7 13C2 PFHxA										
315.00 > 270.00	1.951	1.930	0.021	0.744	477849	0.2505		100	8420	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.951	1.940	0.011	1.000	1737752	0.8790			4177	
313.00 > 119.00	1.951	1.940	0.011	1.000	148306		11.72(5.03-15.10)		3929	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.275	2.262	0.013	1.000	340716	0.1714			405	
363.00 > 169.00	2.275	2.262	0.013	1.000	144301		2.36(1.13-3.40)		894	
D 9 13C4-PFHpA										
367.00 > 322.00	2.275	2.262	0.013	0.868	477677	0.2583		103	7677	
D 11 18O2 PFHxS										
403.00 > 84.00	2.288	2.275	0.013	0.873	523017	0.2290		96.8	9248	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.288	2.275	0.013	1.000	2683887	1.07			9896	
399.00 > 99.00	2.288	2.275	0.013	1.000	836079		3.21(1.50-4.49)		5076	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.620	2.606	0.014	1.000	438918	0.2426		97.0	8267	
* 62 13C2-PFOA										
415.00 > 370.00	2.620	2.606	0.014		503605	0.2500			6989	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.620	2.606	0.014	1.000	9370911	4.69			3176	M
413.00 > 169.00	2.620	2.606	0.014	1.000	5527533		1.70(0.84-2.52)		14728	M
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.628	2.613	0.015	1.000	43441	0.0230			146	
449.00 > 99.00	2.628	2.613	0.015	1.000	13200		3.29(1.94-5.82)		209	
D 18 13C4 PFOS										
503.00 > 80.00	2.984	2.976	0.008	1.139	331993	0.2212		92.6	5631	
D 19 13C5 PFNA										
468.00 > 423.00	2.984	2.976	0.008	1.139	370616	0.2517		101	5553	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.984	2.976	0.008	1.000	1331436	0.8684			2440	
499.00 > 99.00	2.984	2.976	0.008	1.000	316648		4.20(2.31-6.93)		2700	
20 Perfluorononanoic acid										
463.00 > 419.00	2.984	2.976	0.008	1.000	9666	0.006406			12.7	
463.00 > 169.00	2.984	2.976	0.008	1.000	2281		4.24(1.90-5.69)		42.2	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.331	0.0	1.271	448506	0.2161		86.4	6018	
D 23 13C2 PFDA										
515.00 > 470.00	3.338	3.331	0.007	1.274	268112	0.2114		84.5	4196	
D 30 13C2 PFUnA										
565.00 > 520.00	3.662	3.655	0.007	1.398	182649	0.1861		74.5	3831	
D 36 13C2 PFDoA										
615.00 > 570.00	3.961	3.952	0.009	1.512	131307	0.1310		52.4	1269	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.455	4.443	0.012	1.700	25618	0.0207		8.3	269	

QC Flag Legend

Review Flags

M - Manually Integrated

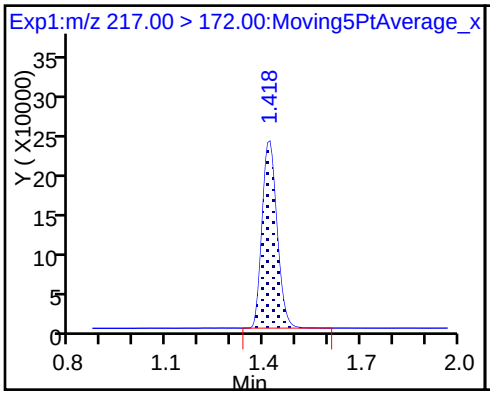
Report Date: 09-Feb-2018 16:17:09 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

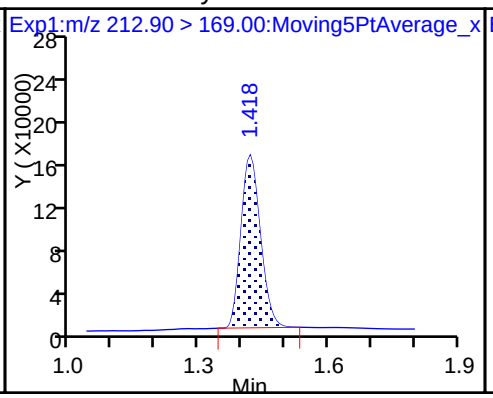
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_055.d

Injection Date:	08-Feb-2018 23:12:05	Instrument ID:	A8_N
Lims ID:	320-35682-C-1-A	Lab Sample ID:	320-35682-1
Client ID:	TP-PFC-026-TPI		
Operator ID:	SACINSTLCMS01	ALS Bottle#:	49 Worklist Smp#: 2
Injection Vol:	2.0 ul	Dil. Factor:	10.0000
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL

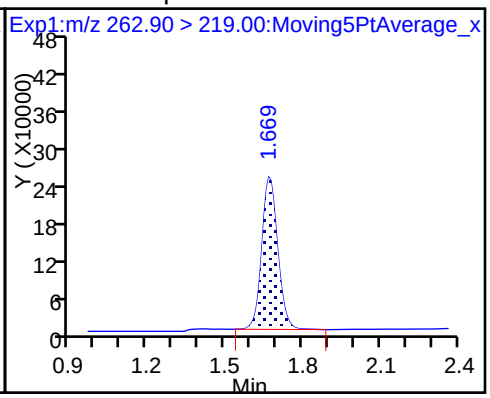
D 1 13C4 PFBA



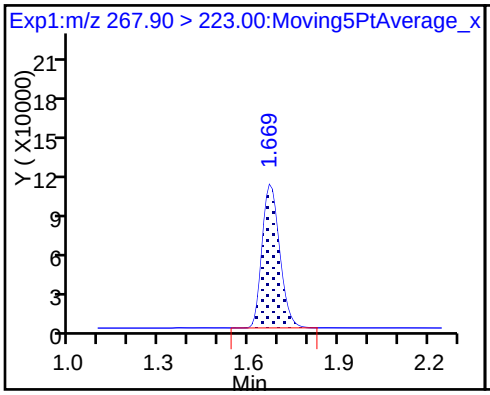
2 Perfluorobutyric acid



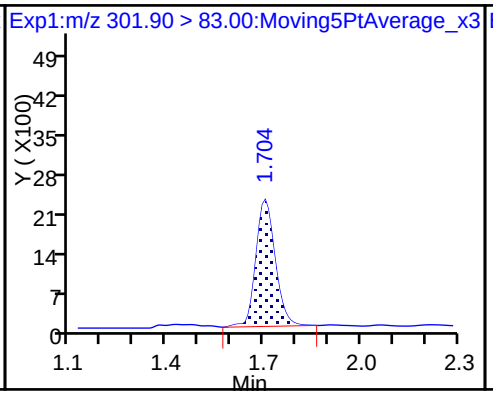
4 Perfluoropentanoic acid



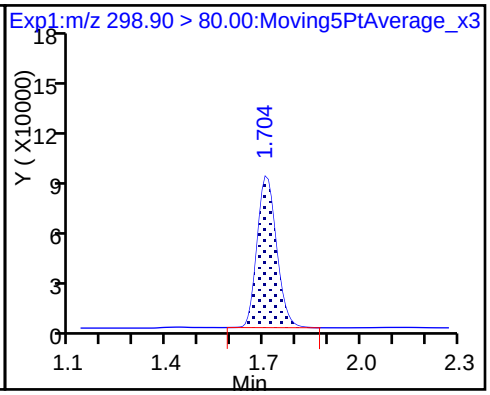
D 3 13C5-PFPeA



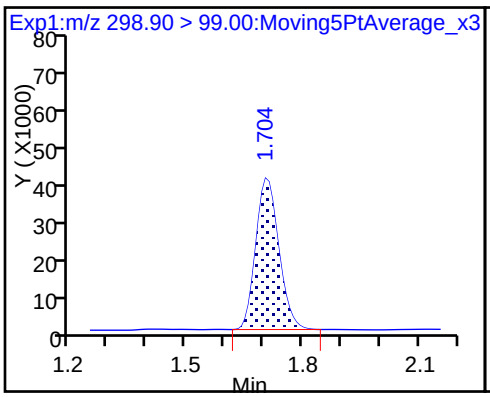
D 47 13C3-PFBS



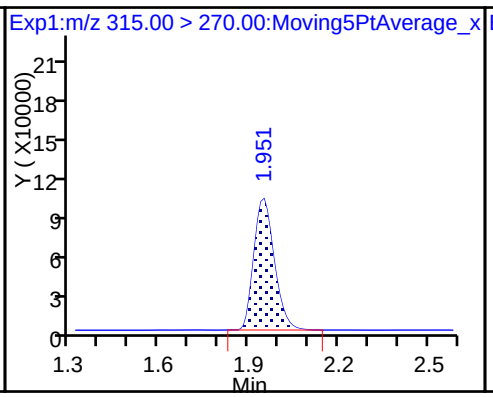
5 Perfluorobutanesulfonic acid



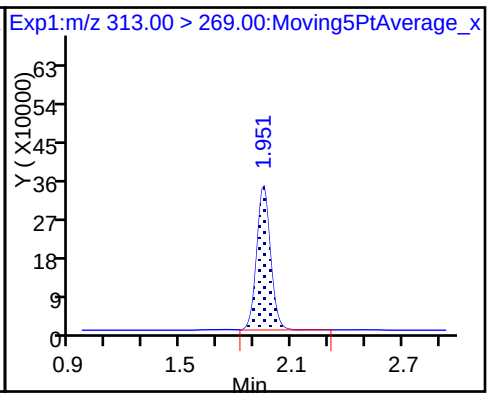
5 Perfluorobutanesulfonic acid



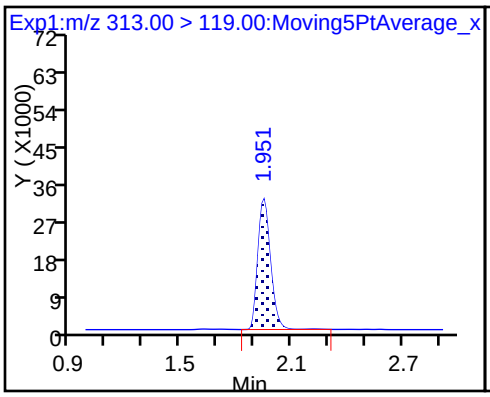
D 7 13C2 PFHxA



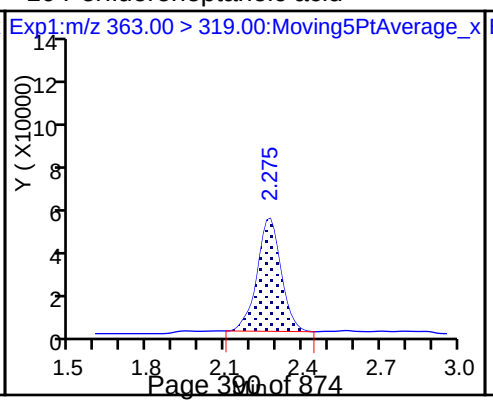
6 Perfluorohexanoic acid



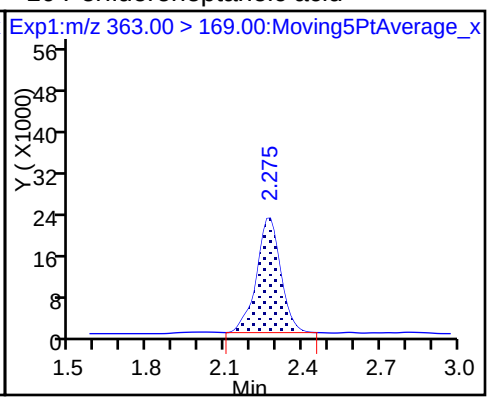
6 Perfluorohexanoic acid



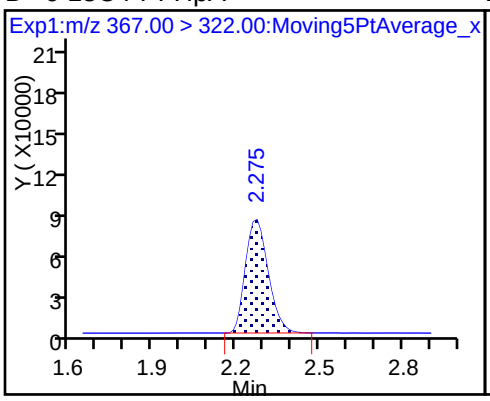
10 Perfluoroheptanoic acid



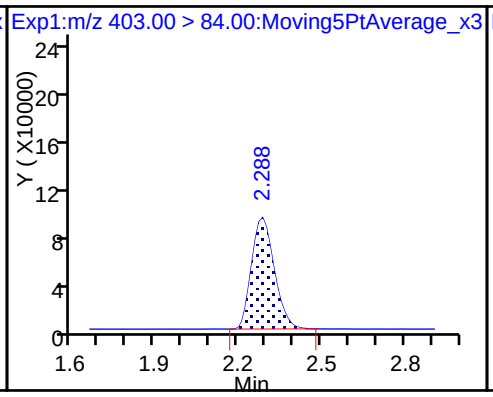
10 Perfluoroheptanoic acid



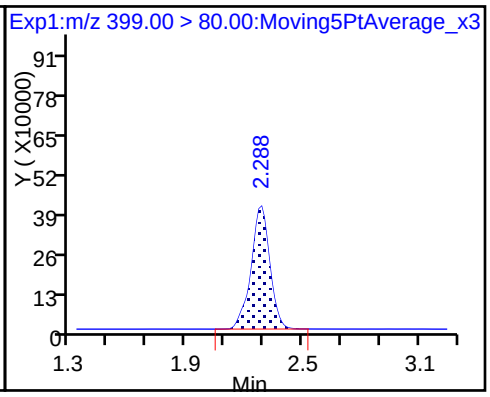
D 9 13C4-PFHpA



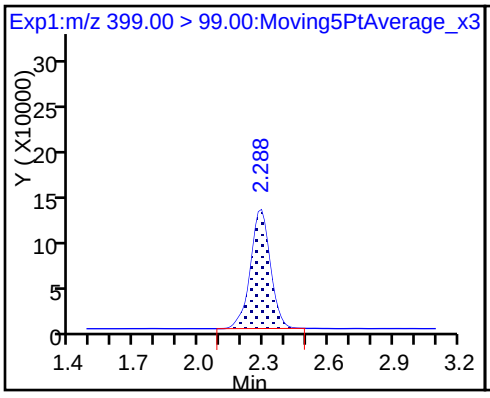
D 11 18O2 PFHxS



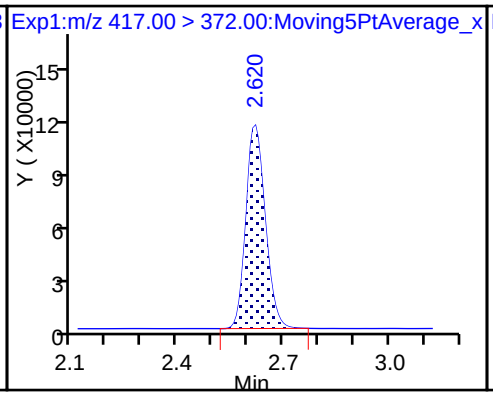
8 Perfluorohexanesulfonic acid



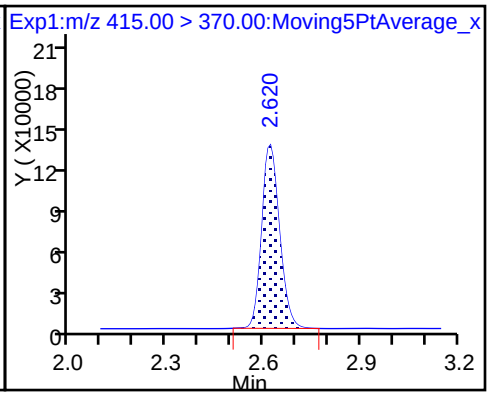
8 Perfluorohexanesulfonic acid



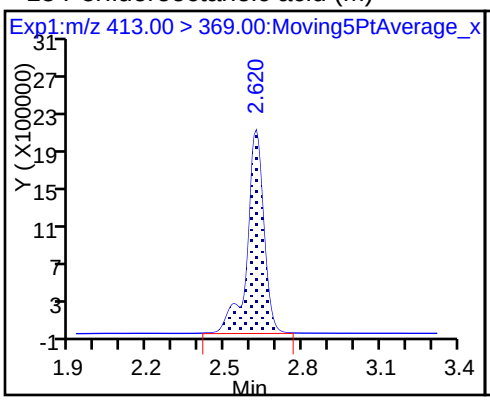
D 14 13C4 PFOA



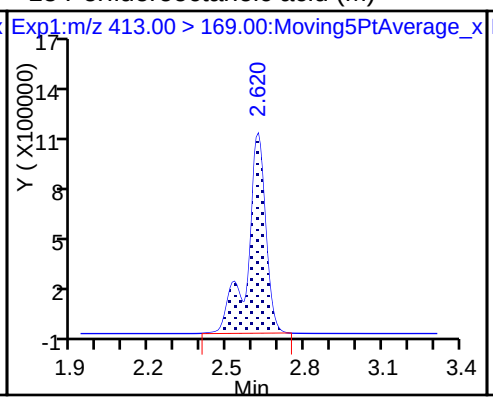
* 62 13C2-PFOA



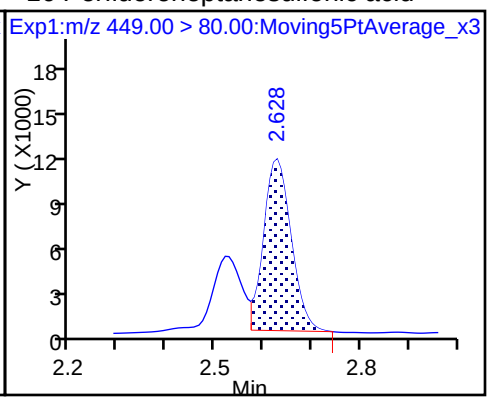
15 Perfluorooctanoic acid (M)



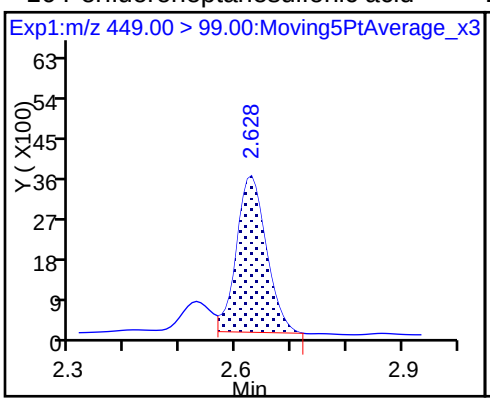
15 Perfluorooctanoic acid (M)



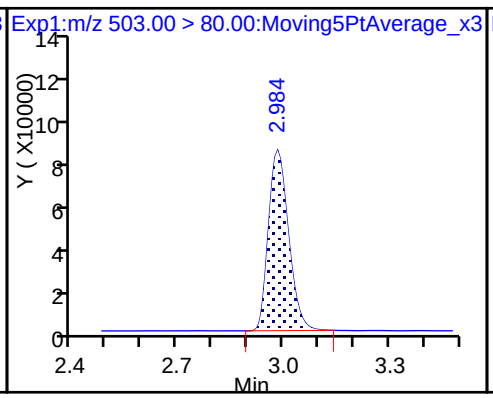
16 Perfluoroheptanesulfonic acid



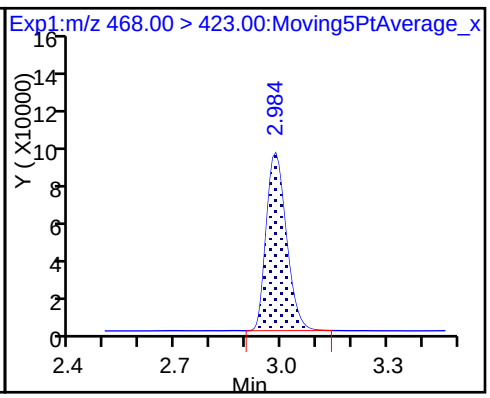
16 Perfluoroheptanesulfonic acid



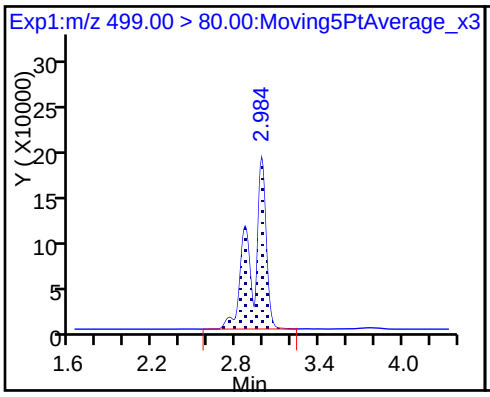
D 18 13C4 PFOS



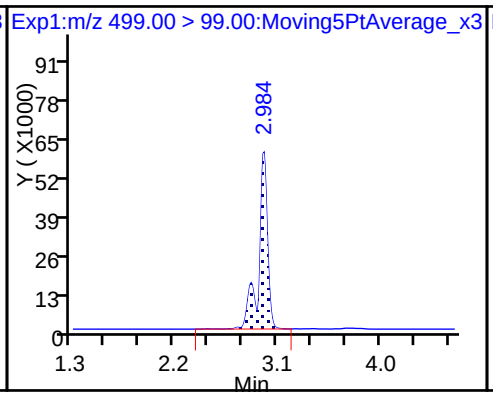
D 19 13C5 PFNA



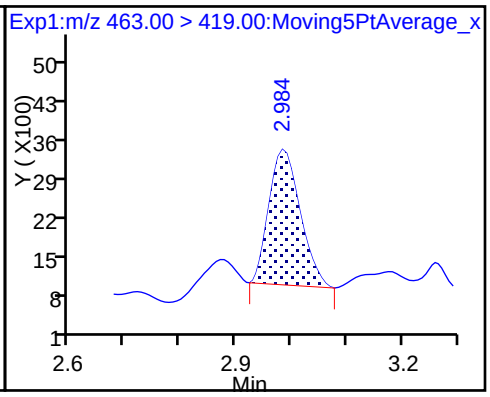
17 Perfluorooctane sulfonic acid



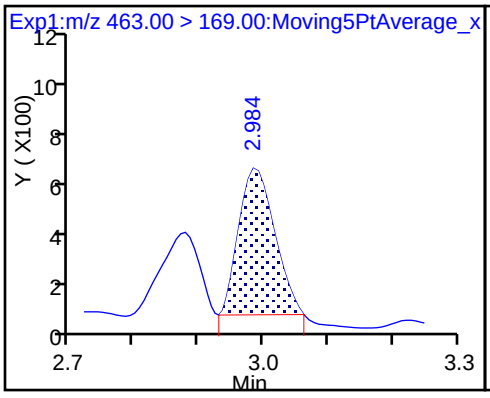
17 Perfluorooctane sulfonic acid



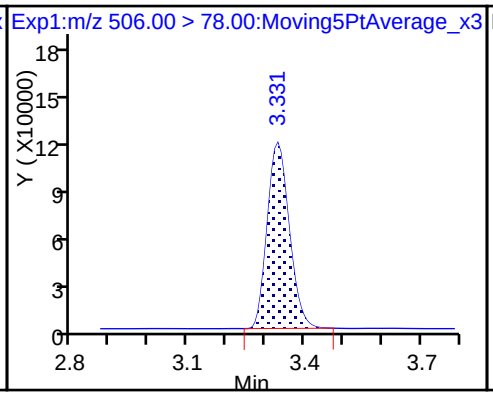
20 Perfluorononanoic acid



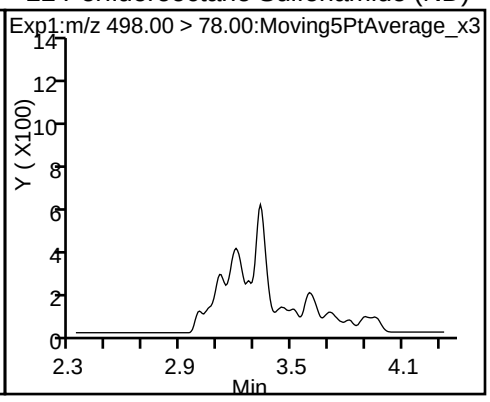
20 Perfluorononanoic acid



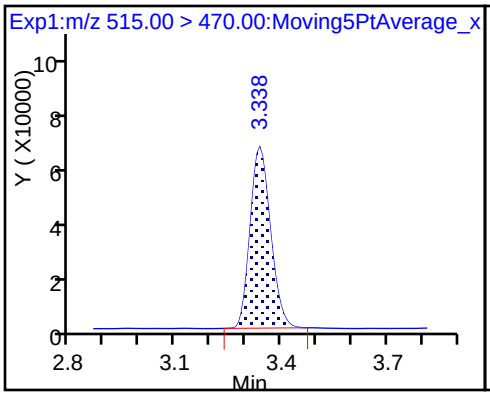
D 21 13C8 FOSA



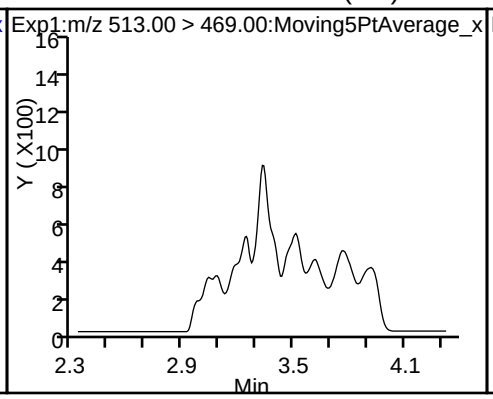
22 Perfluorooctane Sulfonamide (ND)



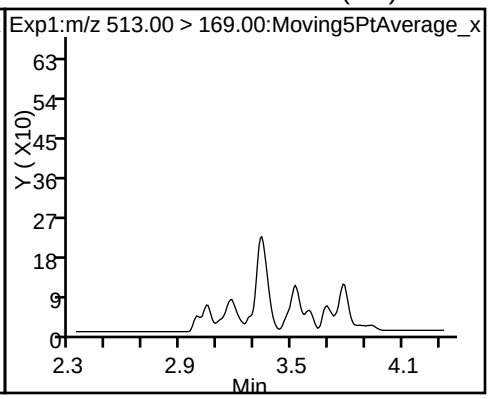
D 23 13C2 PFDA



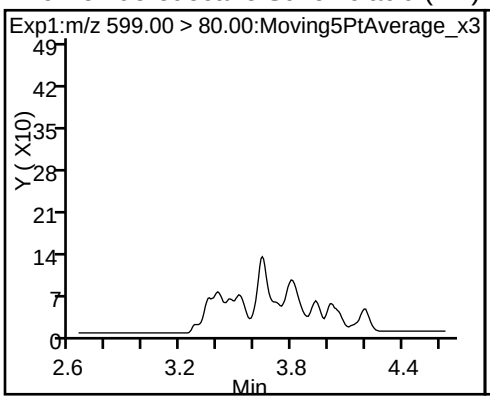
24 Perfluorodecanoic acid (ND)



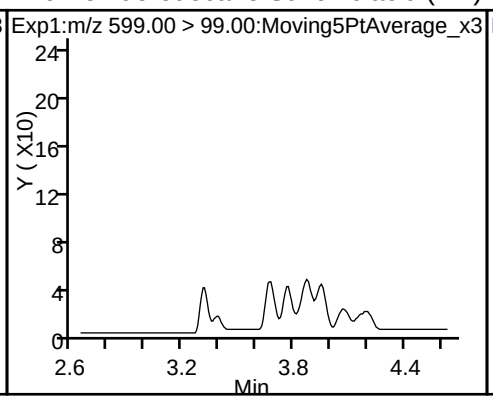
24 Perfluorodecanoic acid (ND)



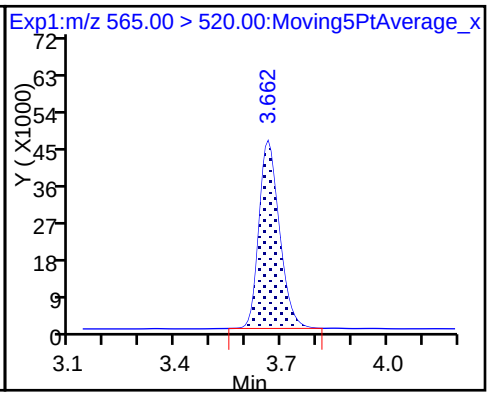
29 Perfluorodecane Sulfonic acid (ND)



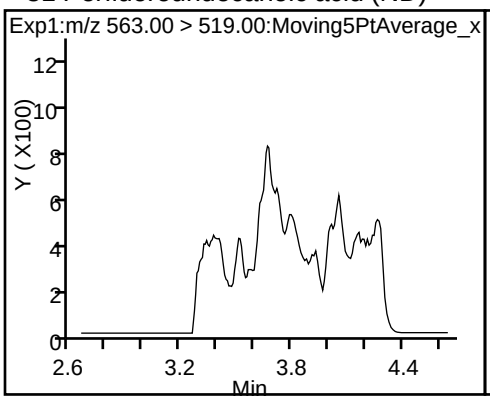
29 Perfluorodecane Sulfonic acid (ND)



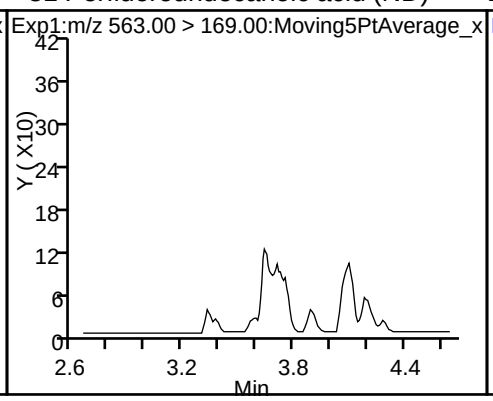
D 30 13C2 PFUnA



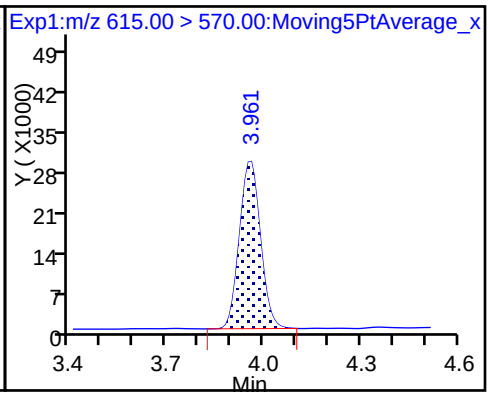
31 Perfluoroundecanoic acid (ND)



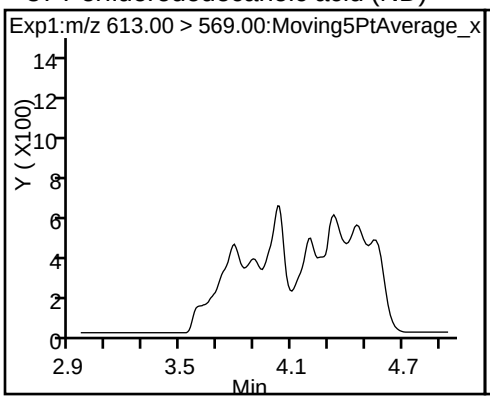
31 Perfluoroundecanoic acid (ND)



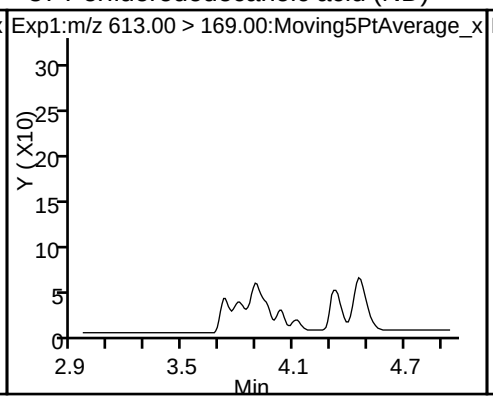
D 36 13C2 PFDoA



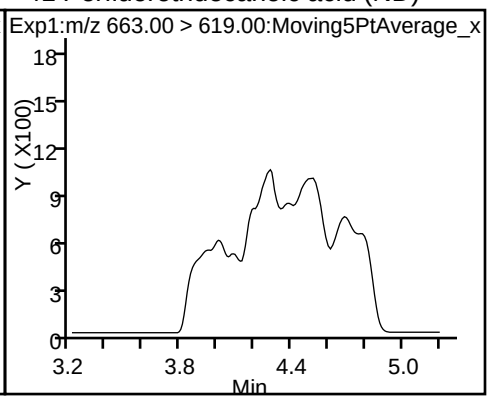
37 Perfluorododecanoic acid (ND)



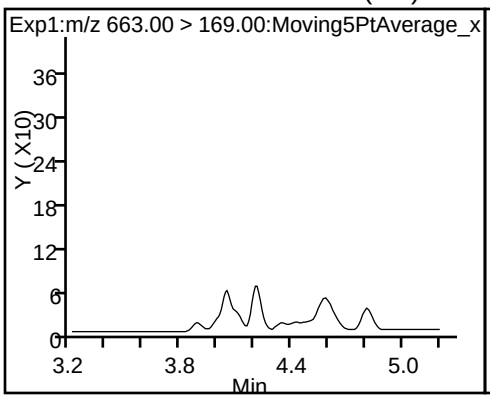
37 Perfluorododecanoic acid (ND)



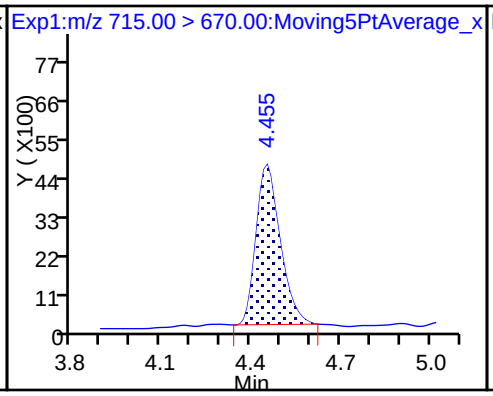
41 Perfluorotridecanoic acid (ND)



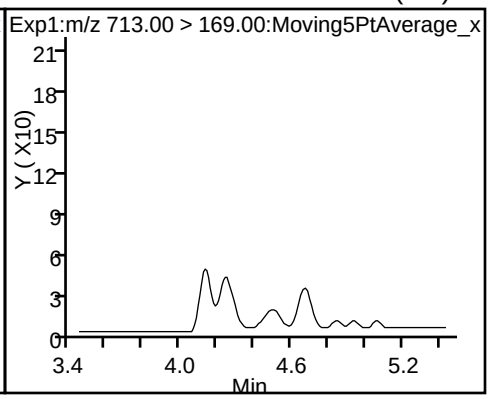
41 Perfluorotridecanoic acid (ND)



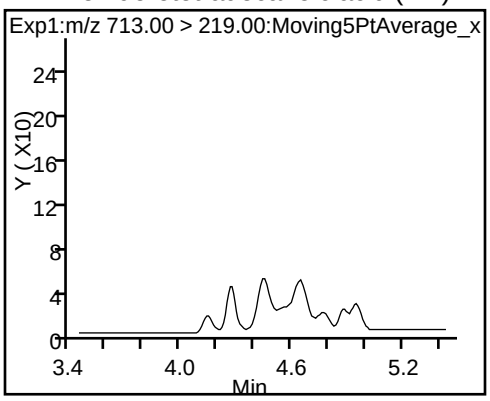
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

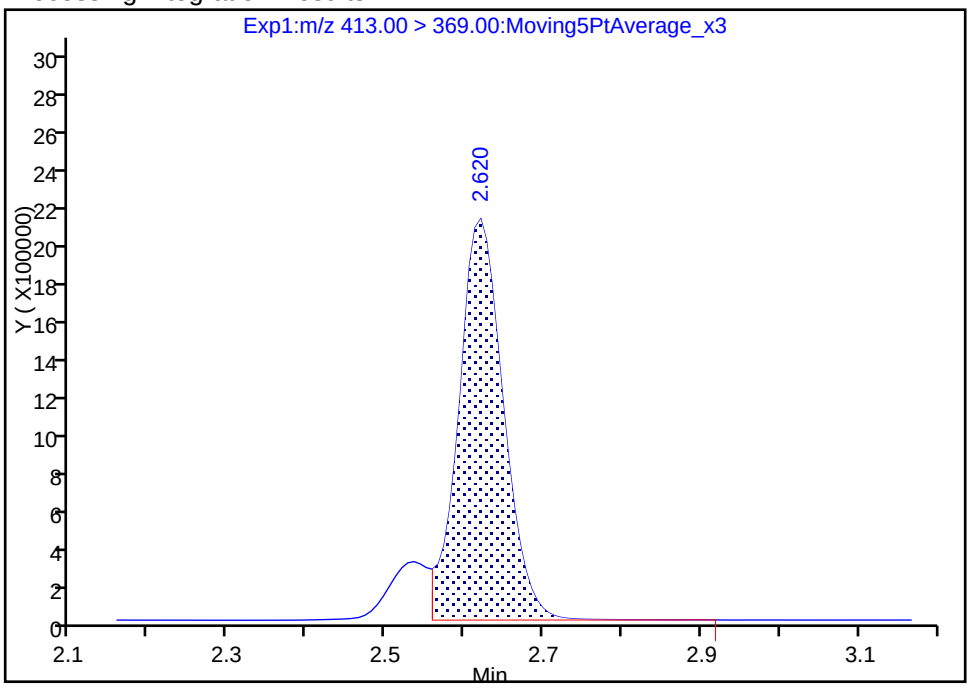
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_055.d				
Injection Date:	08-Feb-2018 23:12:05	Instrument ID:	A8_N		
Lims ID:	320-35682-C-1-A	Lab Sample ID:	320-35682-1		
Client ID:	TP-PFC-026-TPI				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	49	Worklist Smp#:	2
Injection Vol:	2.0 ul	Dil. Factor:	10.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

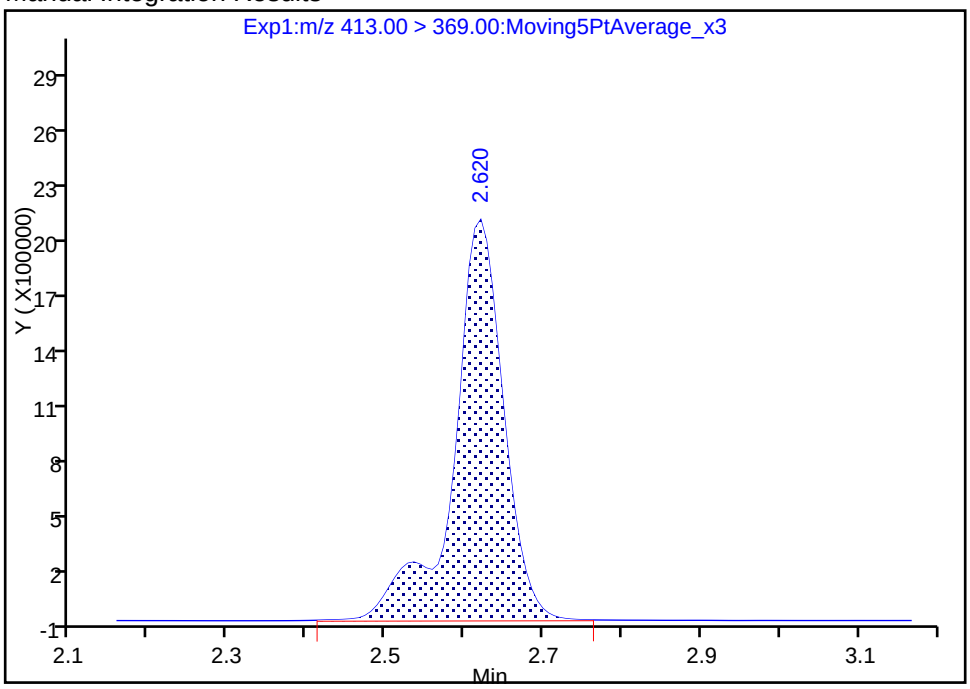
Processing Integration Results

RT: 2.62
Area: 8254212
Amount: 4.127504
Amount Units: ng/ml



Manual Integration Results

RT: 2.62
Area: 9370911
Amount: 4.685907
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 16:07:23

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_055.d

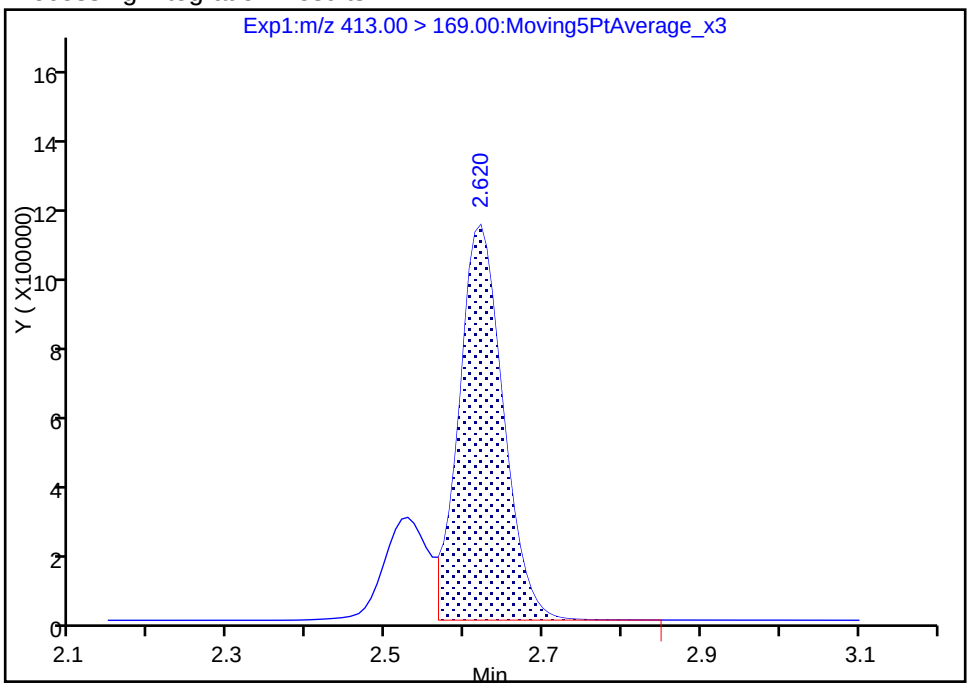
Injection Date:	08-Feb-2018 23:12:05	Instrument ID:	A8_N		
Lims ID:	320-35682-C-1-A	Lab Sample ID:	320-35682-1		
Client ID:	TP-PFC-026-TPI				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	49	Worklist Smp#:	2
Injection Vol:	2.0 ul	Dil. Factor:	10.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

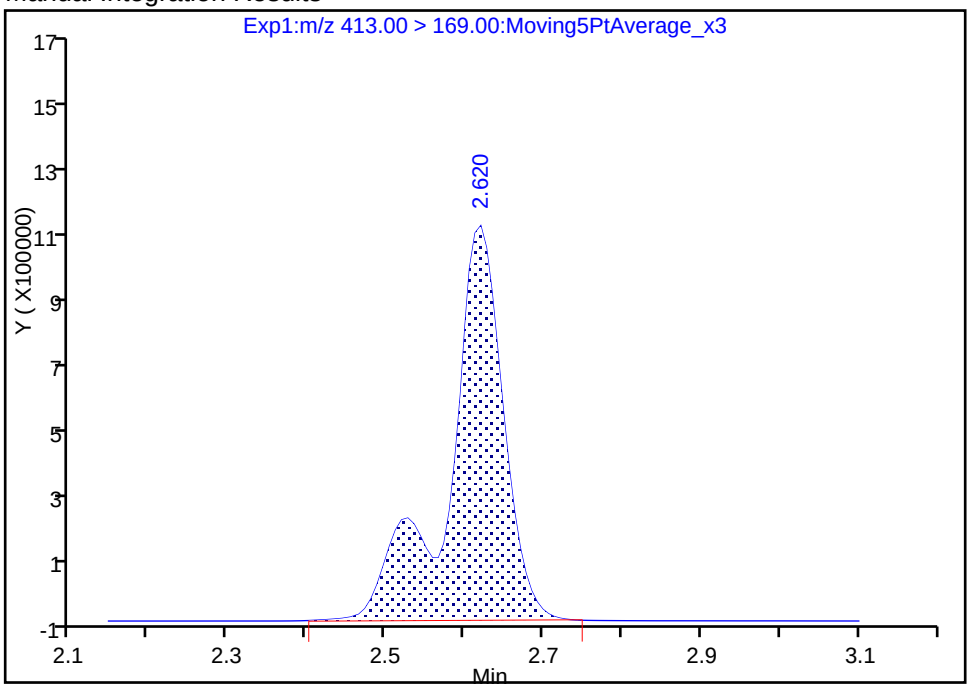
Processing Integration Results

RT: 2.62
Area: 4395359
Amount: 4.127504
Amount Units: ng/ml



Manual Integration Results

RT: 2.62
Area: 5527533
Amount: 4.685907
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 16:07:40

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-MID-CARBON | Lab Sample ID: 320-35682-2

Matrix: Water | Lab File ID: 2018.02.07LLAA_051.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:50

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.1(mL) | Date Analyzed: 02/07/2018 15:07

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	120		1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	180		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	85		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.3		1.9	1.4	0.59
335-67-1	Perfluorooctanoic acid (PFOA)	17	M	1.9	1.4	0.52
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U	1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	0.96	U	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.96	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.3	J	1.9	0.96	0.37
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.96	U	1.9	0.96	0.36
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9	U M	3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	2.9	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-MID-CARBON Lab Sample ID: 320-35682-2

Matrix: Water Lab File ID: 2018.02.07LLAA_051.d

Analysis Method: 537 (modified) Date Collected: 02/01/2018 09:50

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.1(mL) Date Analyzed: 02/07/2018 15:07

Con. Extract Vol.: 10.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	97		25-150
STL00992	13C4 PFBA	109		25-150
STL00993	13C2 PFHxA	105		25-150
STL00990	13C4 PFOA	106		25-150
STL00995	13C5 PFNA	106		25-150
STL00996	13C2 PFDA	110		25-150
STL00997	13C2 PFUnA	104		25-150
STL00998	13C2 PFDoA	103		25-150
STL00994	18O2 PFHxS	99		25-150
STL00991	13C4 PFOS	98		25-150
STL02116	13C2-PFTeDA	111		25-150
STL01892	13C4-PFHpA	103		25-150
STL01893	13C5 PFPeA	99		25-150
STL02337	13C3-PFBS	102		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_051.d
Lims ID: 320-35682-C-2-A
Client ID: TP-PFC-026-MID-CARBON
Sample Type: Client
Inject. Date: 07-Feb-2018 15:07:28 ALS Bottle#: 43 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35682-c-2-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 12-Feb-2018 14:59:16 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 12-Feb-2018 14:58:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.426	1.412	0.014	0.541	7291439	2.72		109	22276	
2 Perfluorobutyric acid										
212.90 > 169.00	1.426	1.412	0.014	1.000	8454265	3.06			1406	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.679	1.660	0.019	1.000	9012709	4.70			7366	
D 3 13C5-PFPeA										
267.90 > 223.00	1.679	1.660	0.019	0.637	4031005	2.47		99.0	27197	
D 47 13C3-PFBS										
301.90 > 83.00	1.715	1.695	0.020	0.651	86788	2.38		102	2902	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.715	1.695	0.020	1.000	166143	0.0579			974	
298.90 > 99.00	1.706	1.695	0.011	0.995	74195		2.24(1.25-3.74)		548	
D 7 13C2 PFHxA										
315.00 > 270.00	1.953	1.930	0.023	0.741	4605102	2.62		105	54137	
6 Perfluorohexanoic acid										R
313.00 > 269.00	1.953	1.940	0.013	1.000	4202899	2.21			9698	R
313.00 > 119.00	1.964	1.940	0.024	1.005	266638		15.76(5.03-15.10)		4979	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.265	2.262	0.003	0.994	158327	0.0870			174	
363.00 > 169.00	2.278	2.262	0.016	1.000	59116		2.68(1.13-3.40)		298	
D 9 13C4-PFHpA										
367.00 > 322.00	2.278	2.262	0.016	0.864	4376108	2.57		103	32066	
D 11 18O2 PFHxS										
403.00 > 84.00	2.304	2.275	0.029	0.874	4944531	2.35		99.2	37879	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.291	2.275	0.016	0.994	78352	0.0330			331	
399.00 > 99.00	2.291	2.275	0.016	0.994	23934		3.27(1.50-4.49)		109	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.606	0.029	1.000	4408463	2.64		106	53203	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.606	0.029		4645533	2.50			47366	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.635	2.606	0.029	1.000	901467	0.4488			332	M
413.00 > 169.00	2.635	2.606	0.029	1.000	615322		1.47(0.84-2.52)		2015	M
D 18 13C4 PFOS										
503.00 > 80.00	2.999	2.976	0.023	1.138	3257810	2.35		98.5	25630	
D 19 13C5 PFNA										
468.00 > 423.00	2.999	2.976	0.023	1.138	3607166	2.66		106	33745	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.871	2.976	-0.105	0.958	31734	0.0211			28.2	M
499.00 > 99.00	3.007	2.976	0.031	1.003	5155		6.16(2.31-6.93)		23.9	M
D 21 13C8 FOSA										
506.00 > 78.00	3.353	3.331	0.022	1.272	4622563	2.41		96.6	24687	
D 23 13C2 PFDA										
515.00 > 470.00	3.360	3.331	0.029	1.275	3219637	2.75		110	45251	
D 30 13C2 PFUnA										
565.00 > 520.00	3.677	3.655	0.022	1.395	2344336	2.59		104	28667	
D 36 13C2 PFDoA										
615.00 > 570.00	3.970	3.952	0.018	1.506	2386306	2.58		103	21337	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.477	4.443	0.034	1.699	3159887	2.77		111	20760	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 12-Feb-2018 14:59:27 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_051.d

Injection Date: 07-Feb-2018 15:07:28 Instrument ID: A8_N

Lims ID: 320-35682-C-2-A Lab Sample ID: 320-35682-2

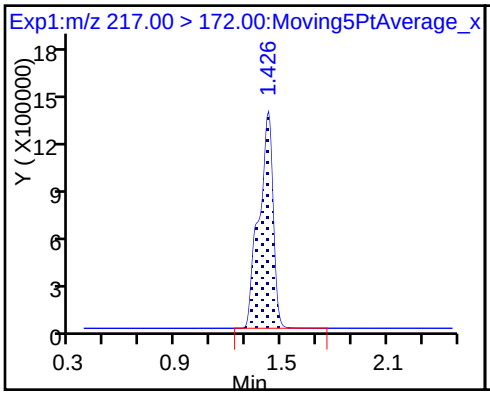
Client ID: TP-PFC-026-MID-CARBON

Operator ID: SACINSTLCMS01 ALS Bottle#: 43 Worklist Smp#: 16

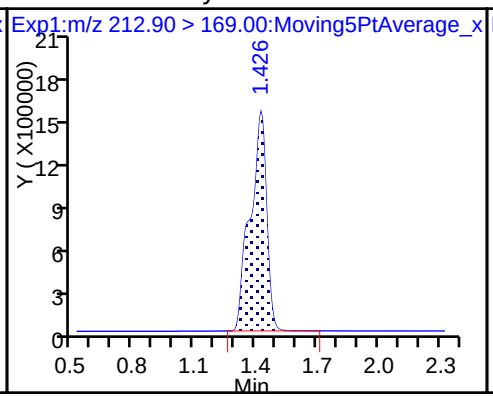
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

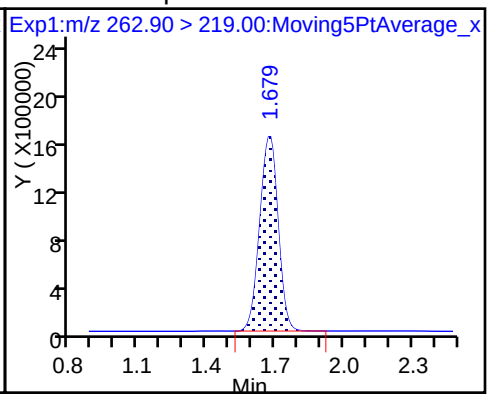
D 1 13C4 PFBA



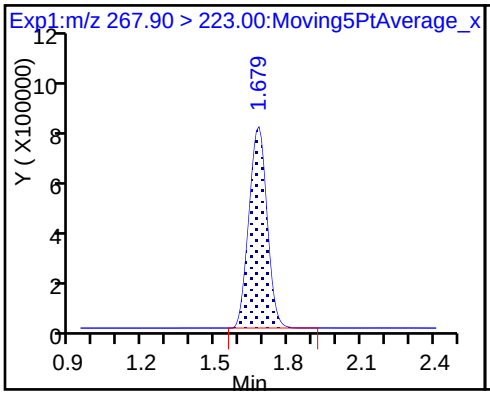
2 Perfluorobutyric acid



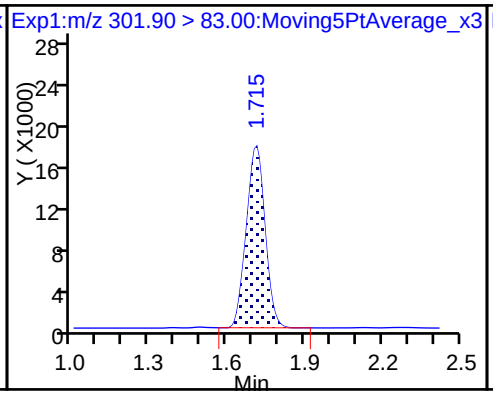
4 Perfluoropentanoic acid



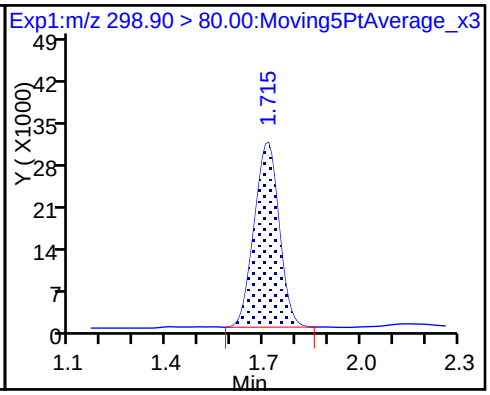
D 3 13C5-PFPeA



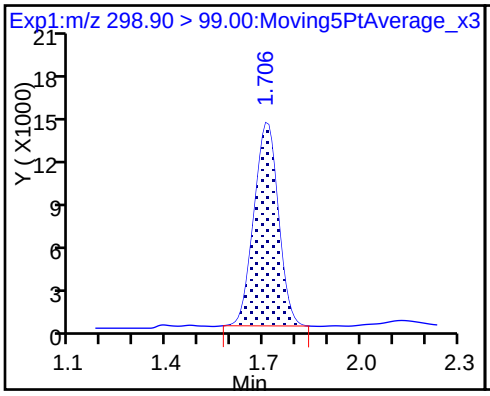
D 47 13C3-PFBS



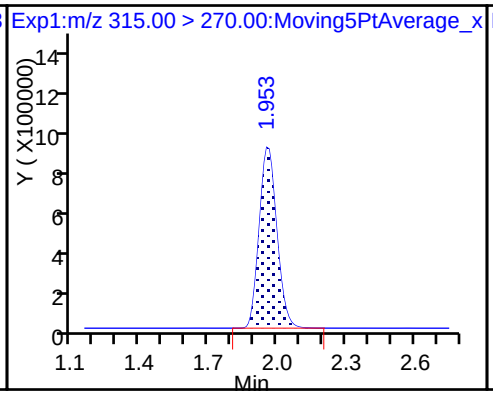
5 Perfluorobutanesulfonic acid



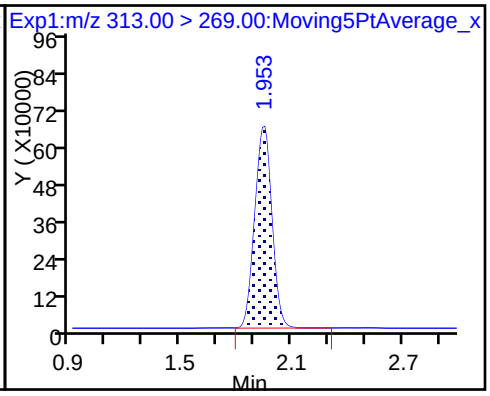
5 Perfluorobutanesulfonic acid



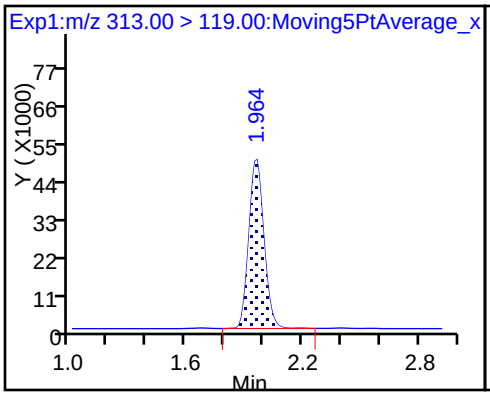
D 7 13C2 PFHxA



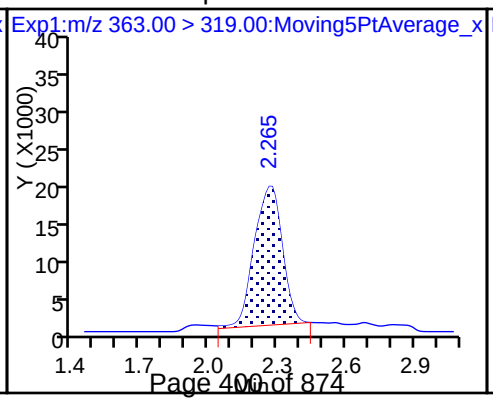
6 Perfluorohexanoic acid



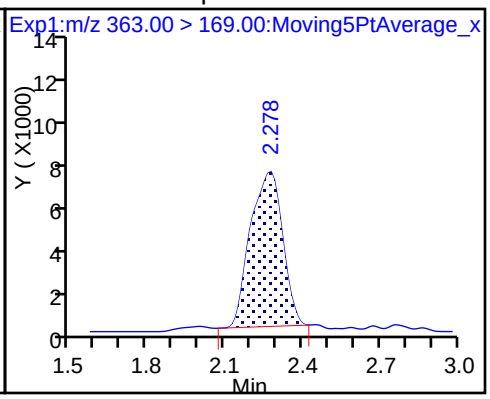
6 Perfluorohexanoic acid



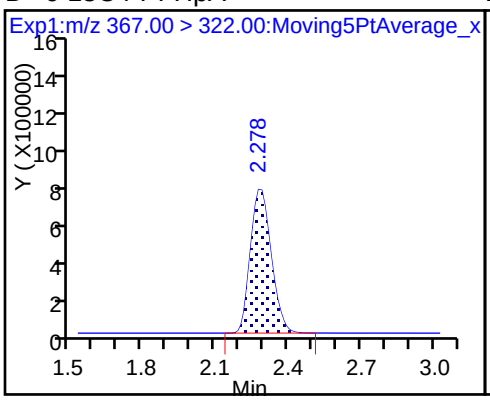
10 Perfluoroheptanoic acid



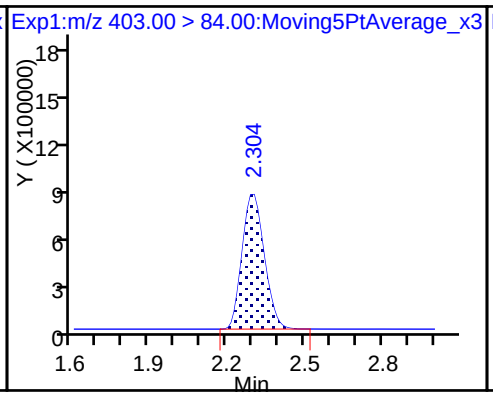
10 Perfluoroheptanoic acid



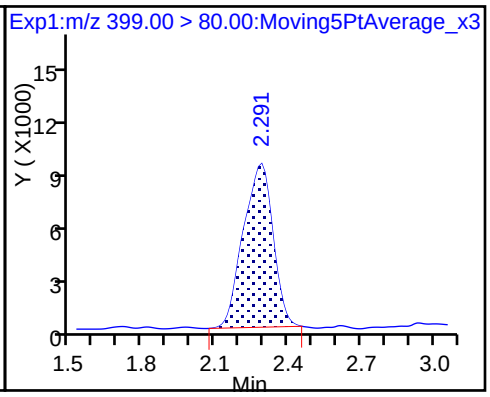
D 9 13C4-PFHpA



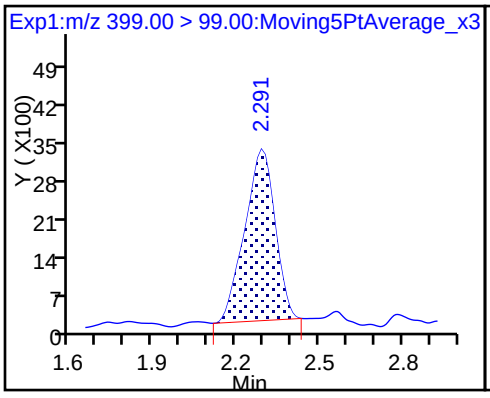
D 11 18O2 PFHxS



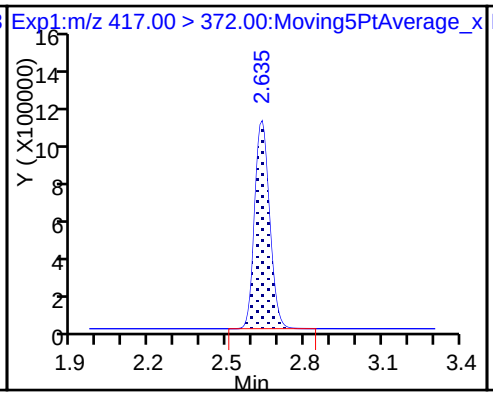
8 Perfluorohexanesulfonic acid



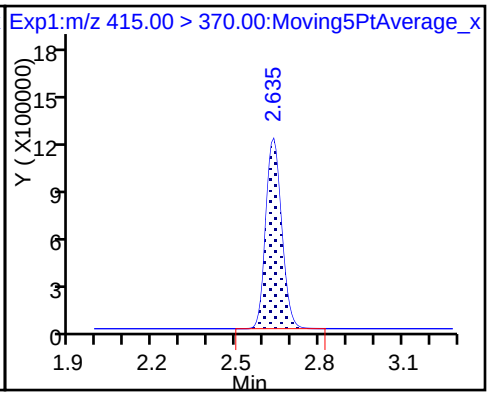
8 Perfluorohexanesulfonic acid



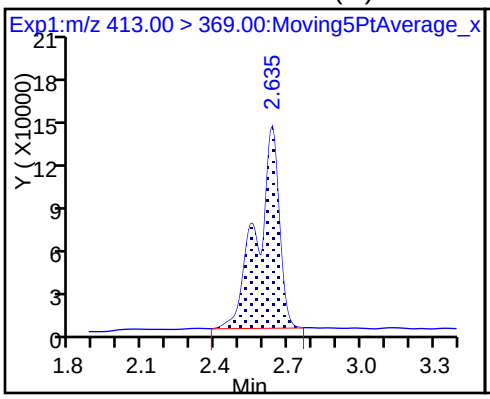
D 14 13C4 PFOA



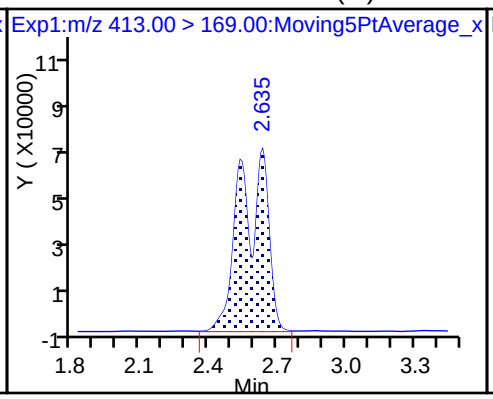
* 62 13C2-PFOA



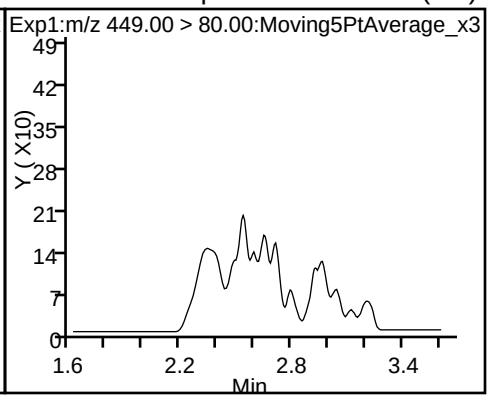
15 Perfluorooctanoic acid (M)



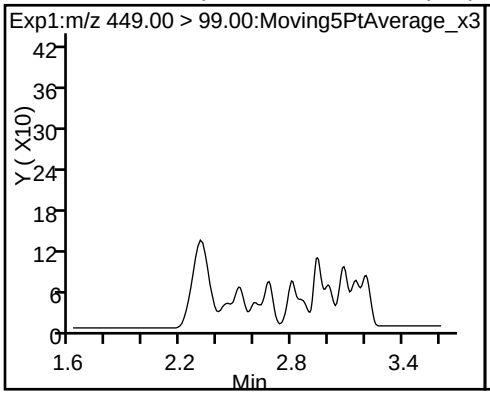
15 Perfluorooctanoic acid (M)



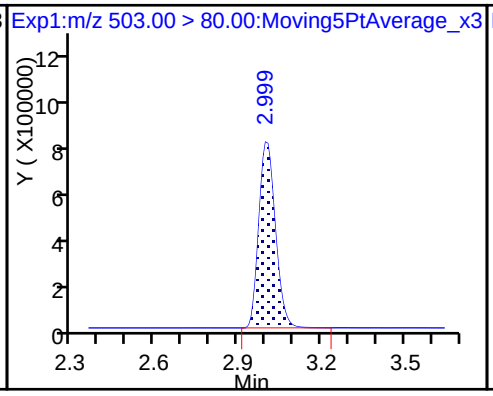
16 Perfluoroheptanesulfonic acid (ND)



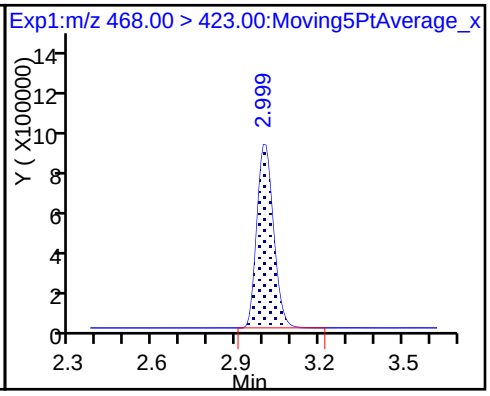
16 Perfluoroheptanesulfonic acid (ND)



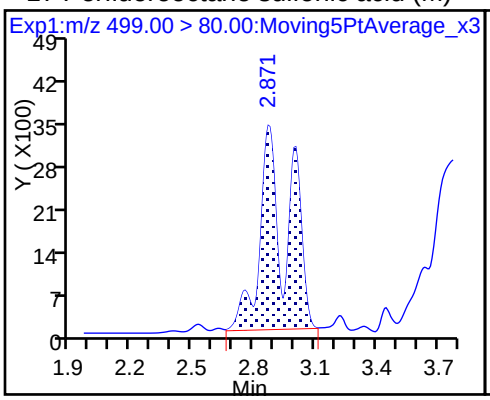
D 18 13C4 PFOS



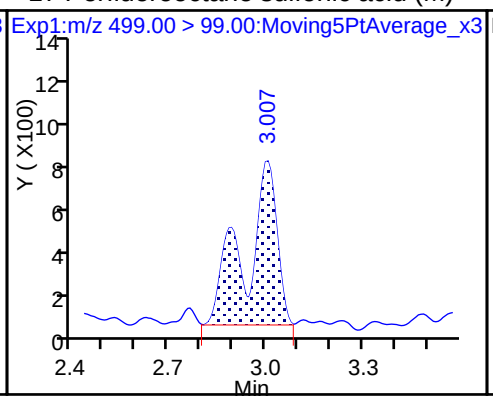
D 19 13C5 PFNA



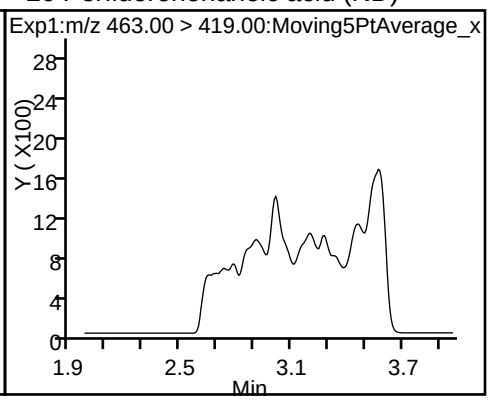
17 Perfluorooctane sulfonic acid (M)



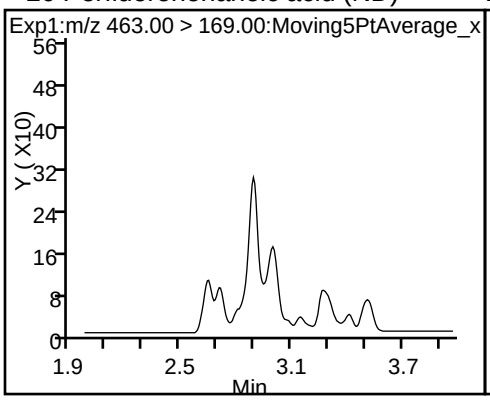
17 Perfluorooctane sulfonic acid (M)



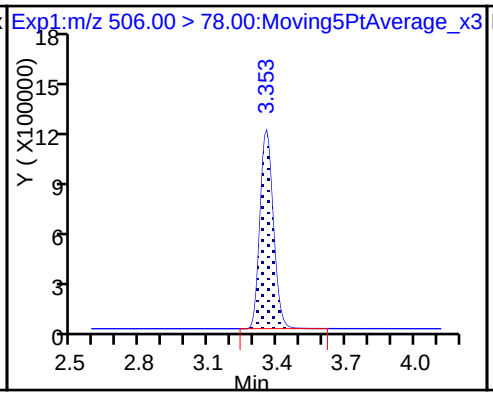
20 Perfluorononanoic acid (ND)



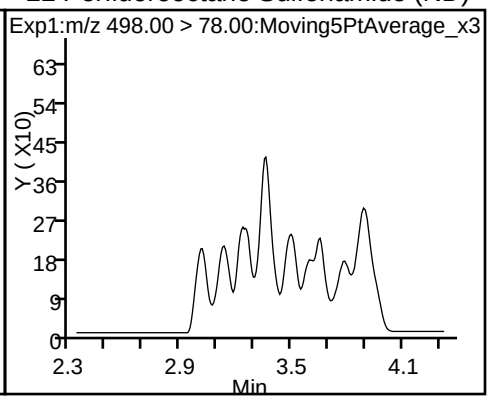
20 Perfluorononanoic acid (ND)



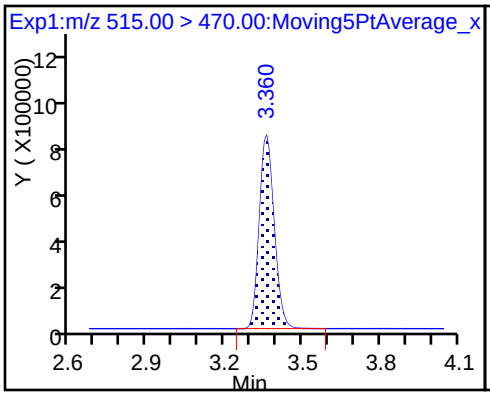
D 21 13C8 FOSA



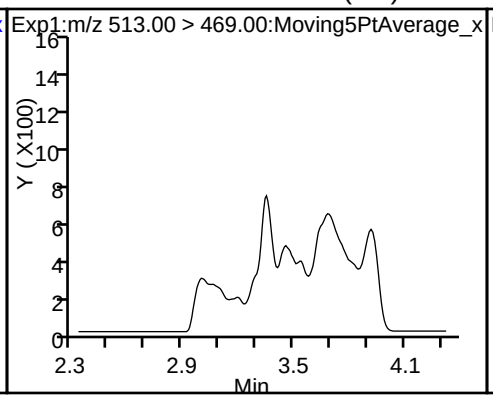
22 Perfluorooctane Sulfonamide (ND)



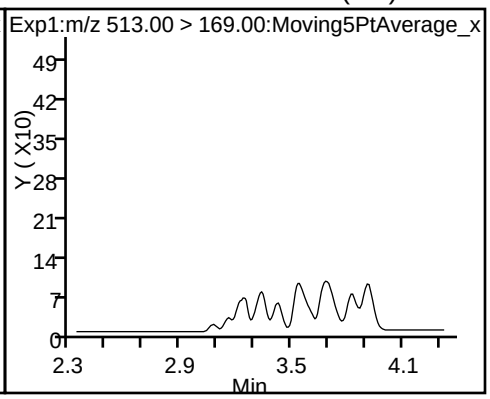
D 23 13C2 PFDA



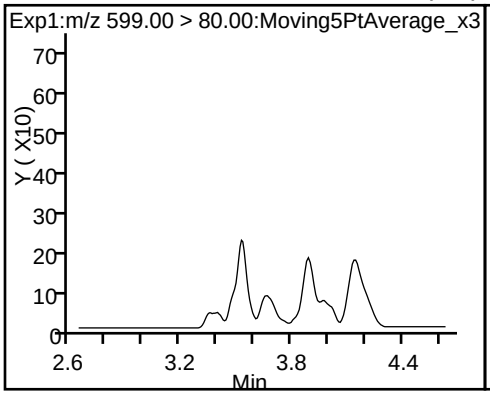
24 Perfluorodecanoic acid (ND)



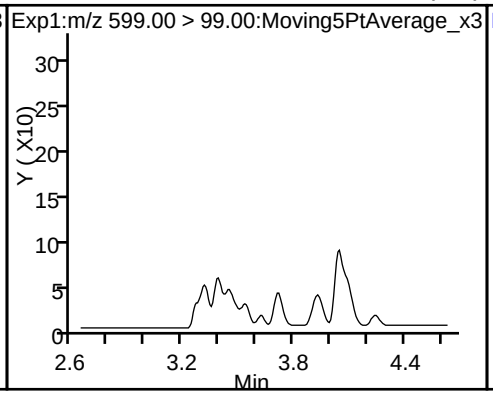
24 Perfluorodecanoic acid (ND)



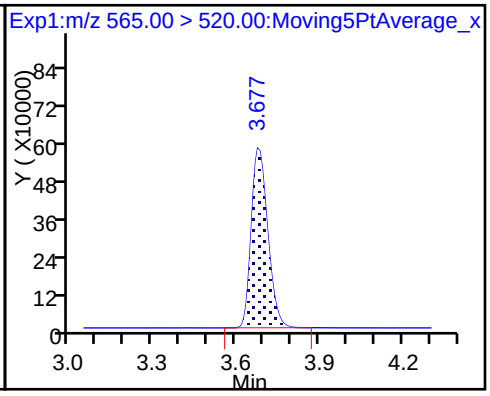
29 Perfluorodecane Sulfonic acid (ND)



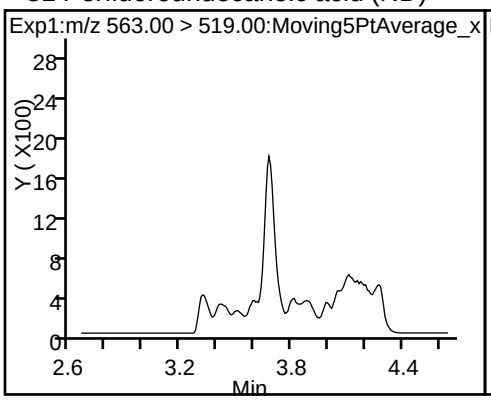
29 Perfluorodecane Sulfonic acid (ND)



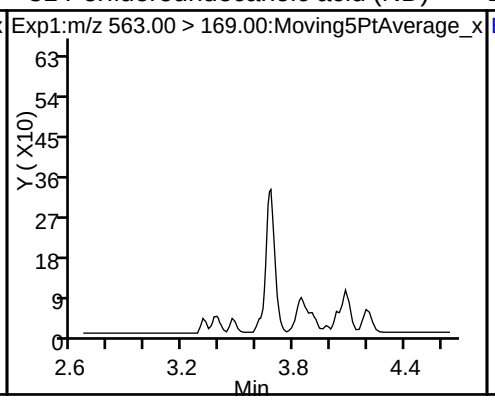
D 30 13C2 PFUnA



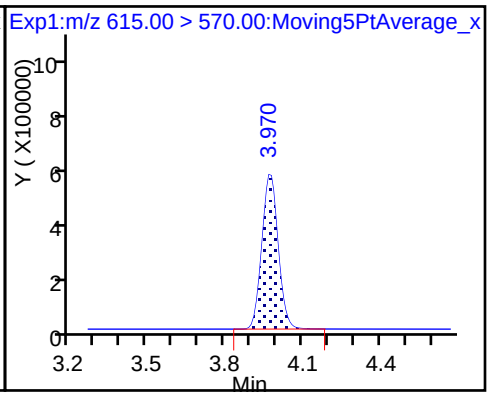
31 Perfluoroundecanoic acid (ND)



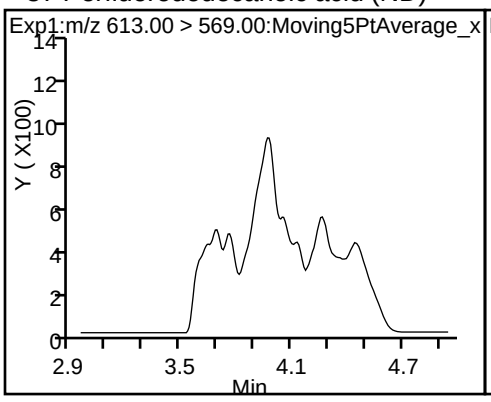
31 Perfluoroundecanoic acid (ND)



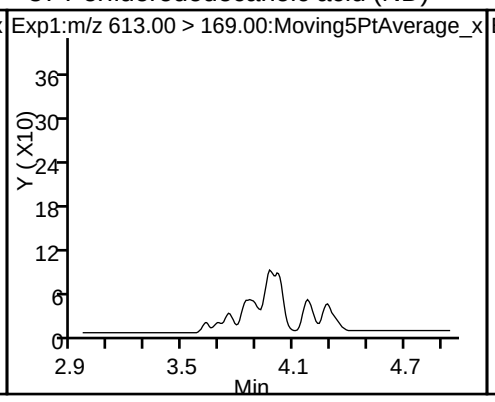
D 36 13C2 PFDoA



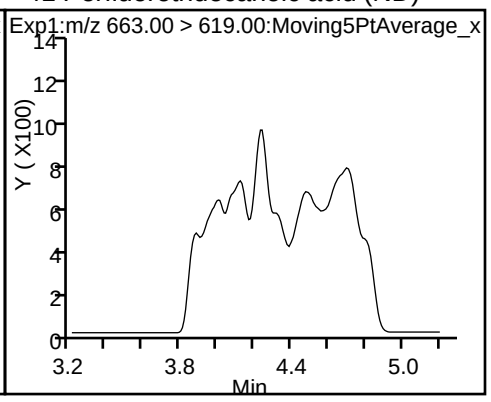
37 Perfluorododecanoic acid (ND)



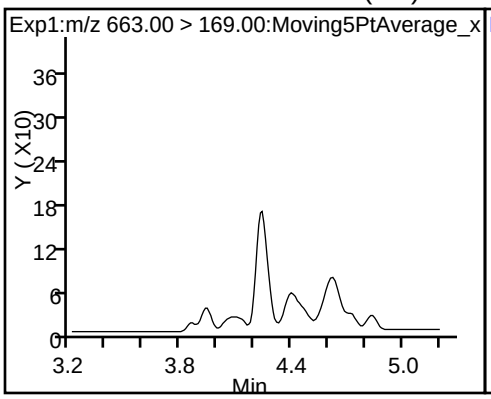
37 Perfluorododecanoic acid (ND)



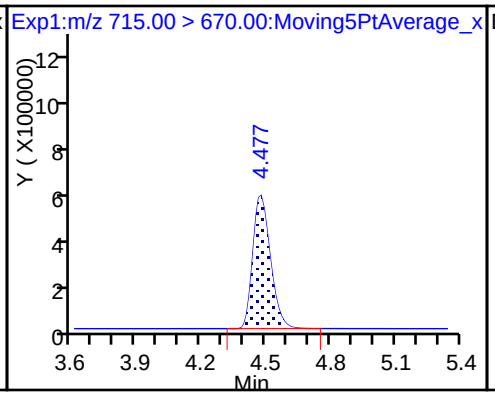
41 Perfluorotridecanoic acid (ND)



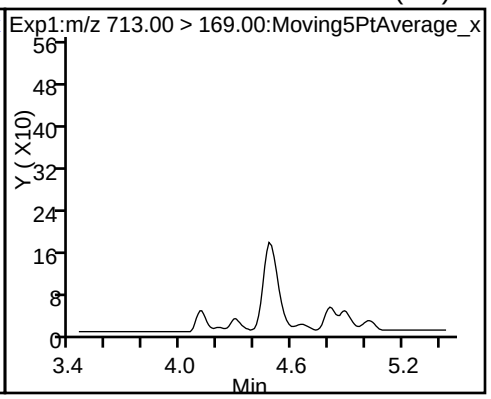
41 Perfluorotridecanoic acid (ND)



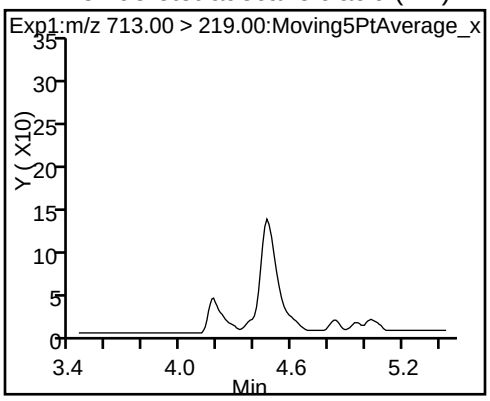
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

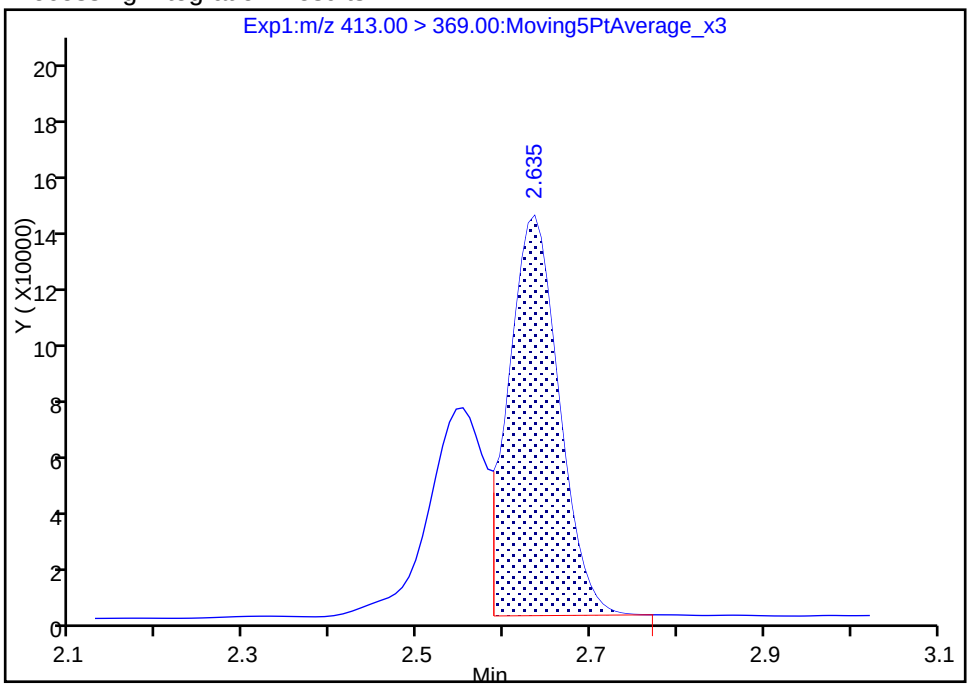
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_051.d				
Injection Date:	07-Feb-2018 15:07:28	Instrument ID:	A8_N		
Lims ID:	320-35682-C-2-A	Lab Sample ID:	320-35682-2		
Client ID:	TP-PFC-026-MID-CARBON				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	43	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

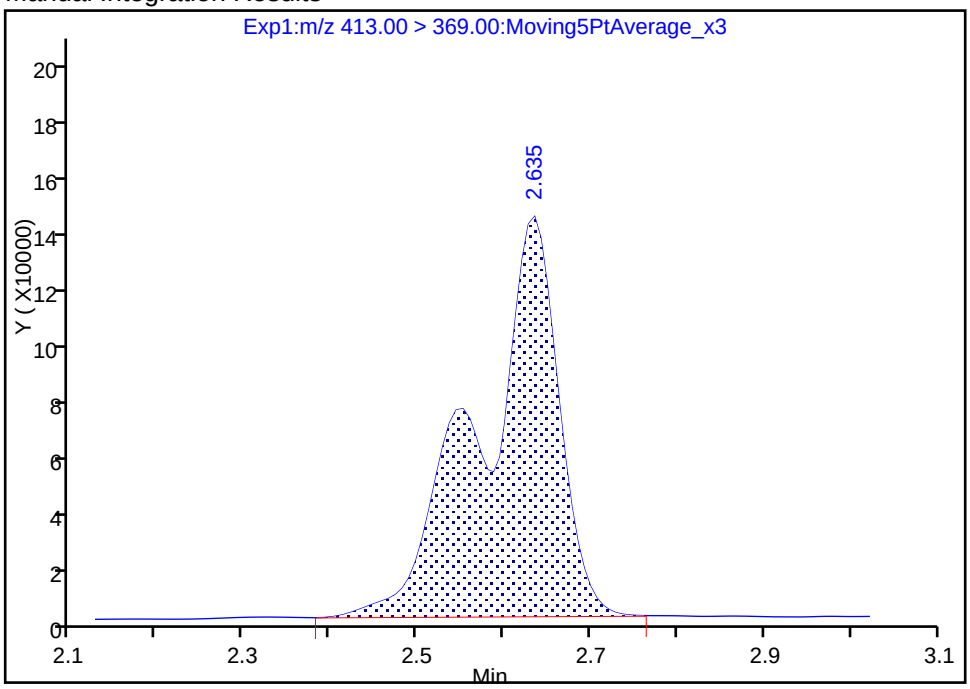
Processing Integration Results

RT: 2.64
Area: 563360
Amount: 0.280475
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 901467
Amount: 0.448805
Amount Units: ng/ml



Reviewer: barnettj, 12-Feb-2018 14:58:06

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

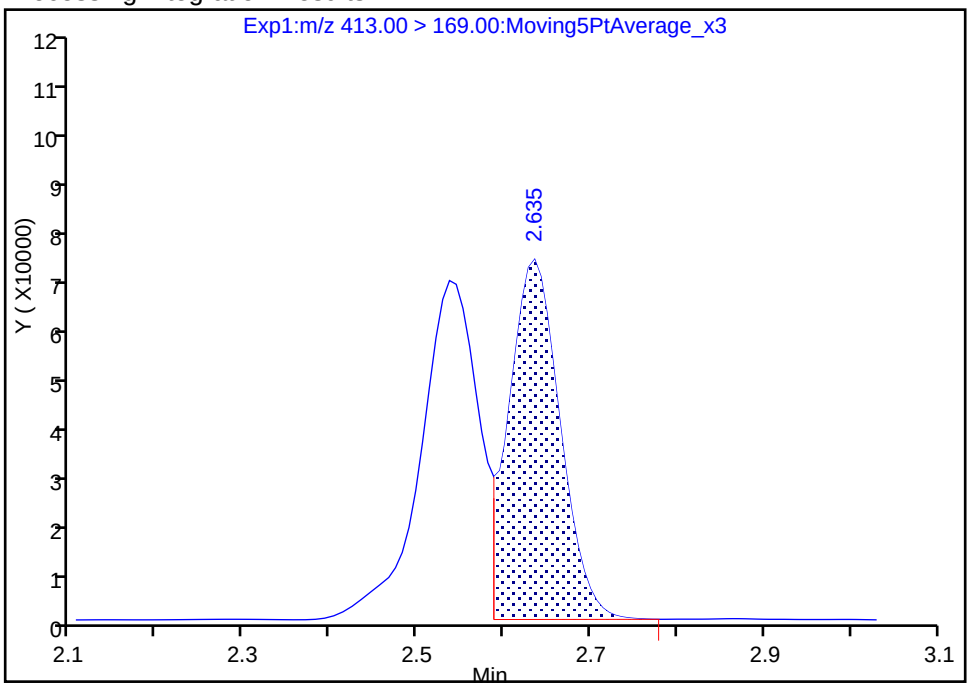
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_051.d				
Injection Date:	07-Feb-2018 15:07:28	Instrument ID:	A8_N		
Lims ID:	320-35682-C-2-A	Lab Sample ID:	320-35682-2		
Client ID:	TP-PFC-026-MID-CARBON				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	43	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

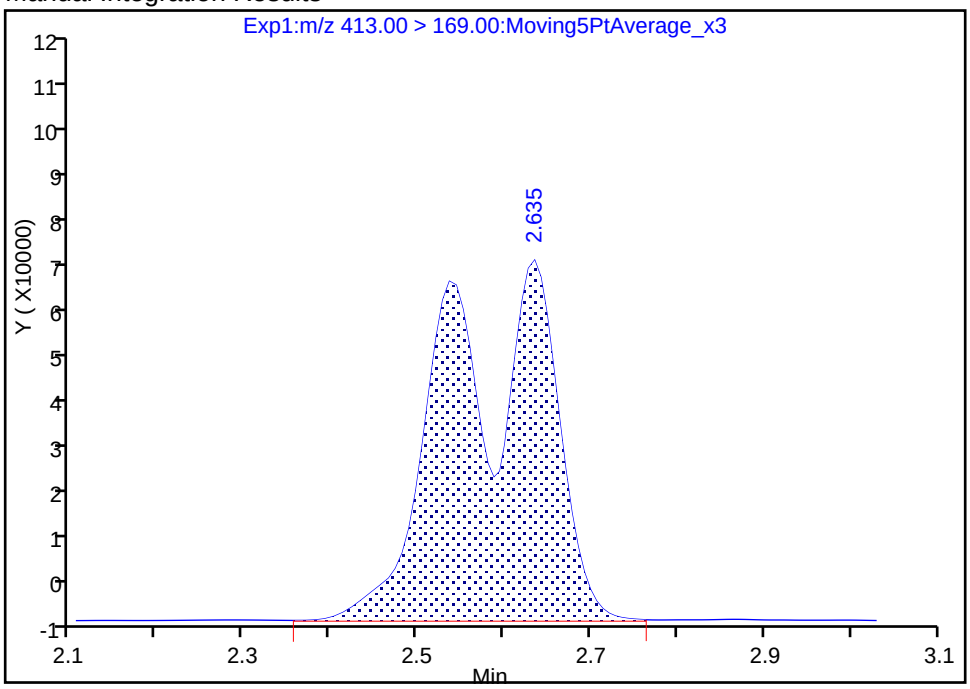
Processing Integration Results

RT: 2.64
Area: 294324
Amount: 0.280475
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 615322
Amount: 0.448805
Amount Units: ng/ml



Reviewer: barnettj, 12-Feb-2018 14:58:18
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

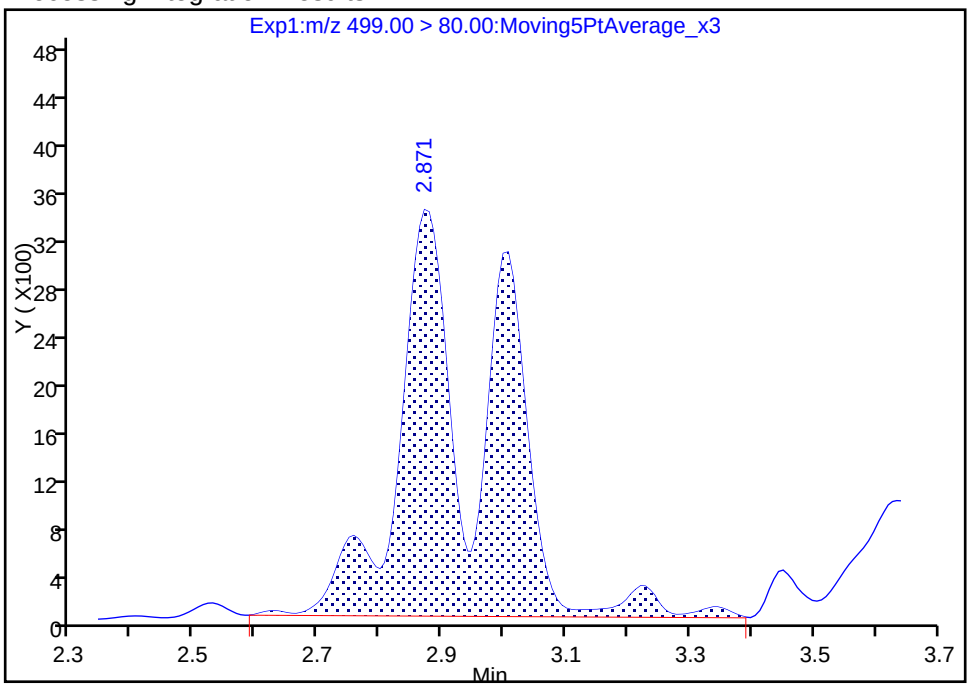
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_051.d				
Injection Date:	07-Feb-2018 15:07:28	Instrument ID:	A8_N		
Lims ID:	320-35682-C-2-A	Lab Sample ID:	320-35682-2		
Client ID:	TP-PFC-026-MID-CARBON				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	43	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

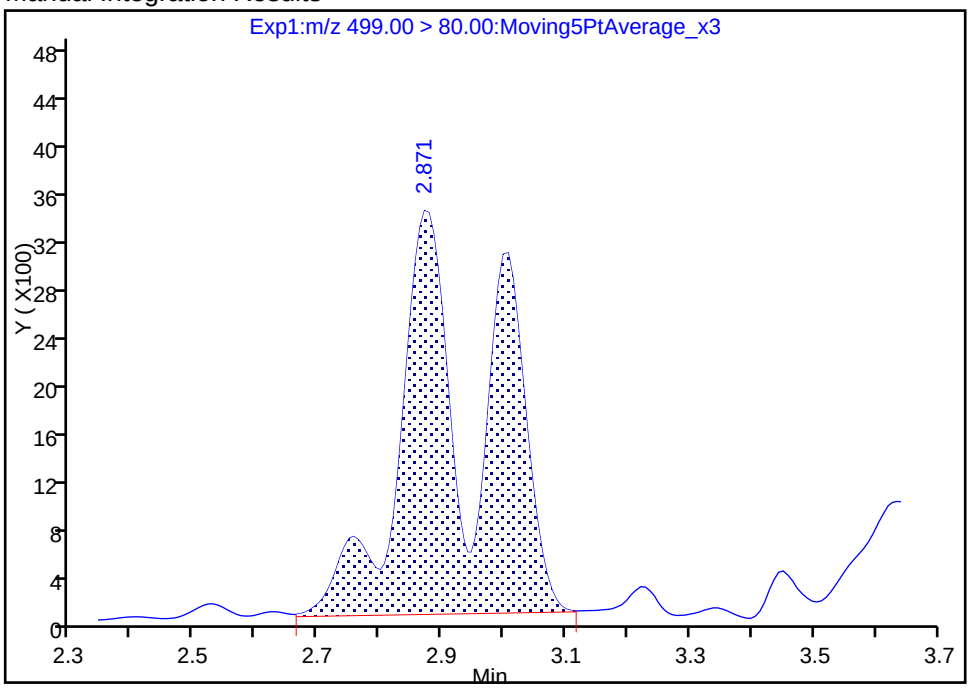
Processing Integration Results

RT: 2.87
Area: 33950
Amount: 0.022565
Amount Units: ng/ml



Manual Integration Results

RT: 2.87
Area: 31734
Amount: 0.021092
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 16:34:53

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

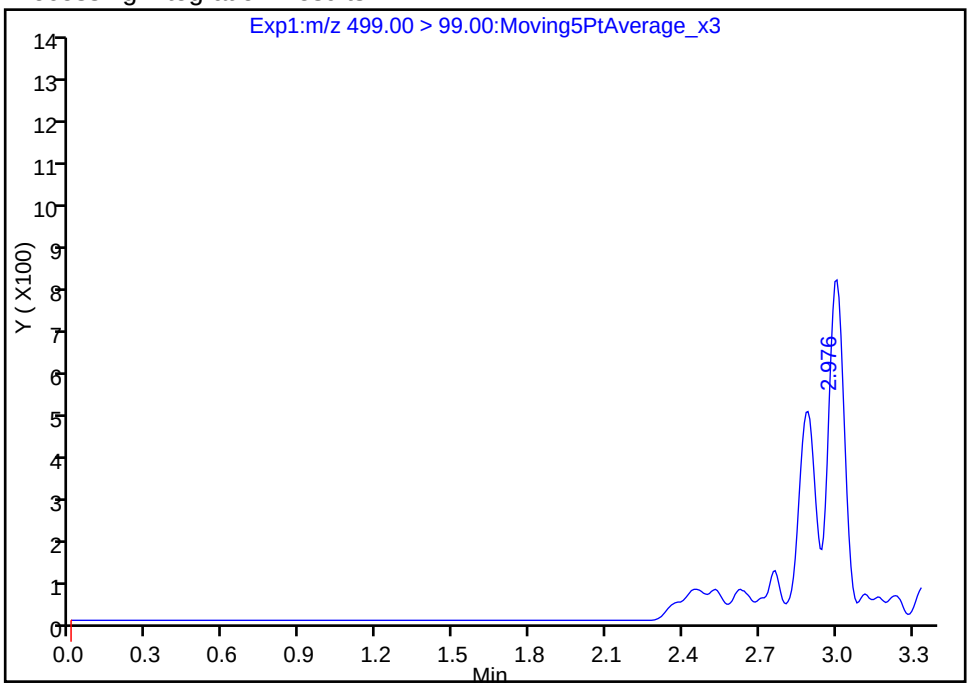
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_051.d
Injection Date: 07-Feb-2018 15:07:28 Instrument ID: A8_N
Lims ID: 320-35682-C-2-A Lab Sample ID: 320-35682-2
Client ID: TP-PFC-026-MID-CARBON
Operator ID: SACINSTLCMS01 ALS Bottle#: 43 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

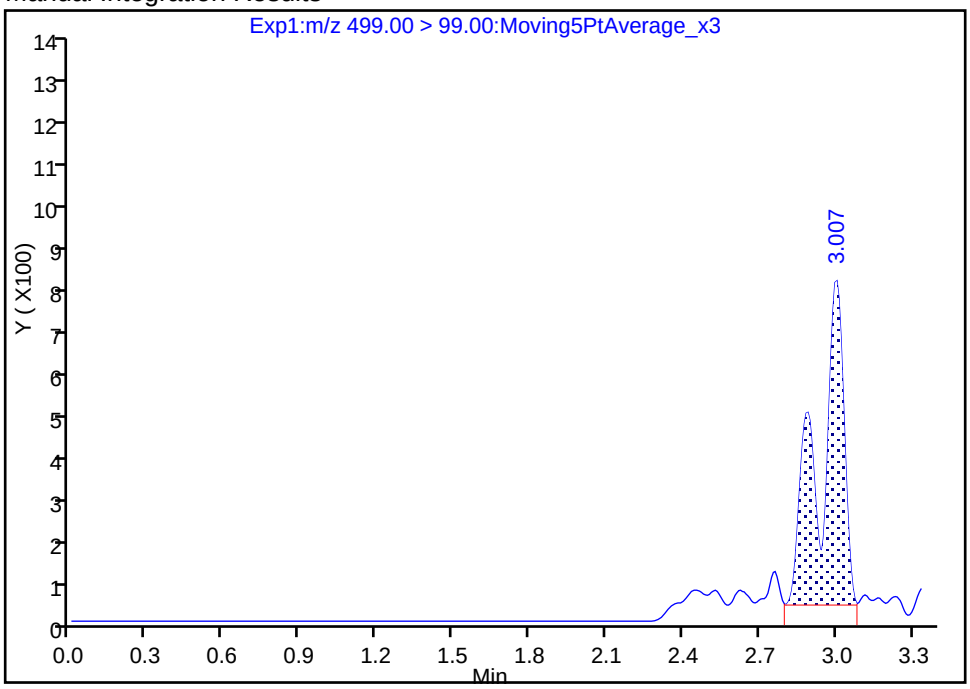
Processing Integration Results

RT: 2.98
Area: 0
Amount: 0.022565
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 5155
Amount: 0.021092
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 16:35:19
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE | Lab Sample ID: 320-35682-3

Matrix: Water | Lab File ID: 2018.02.07LLAA_052.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.7(mL) | Date Analyzed: 02/07/2018 15:15

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	130		1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	130		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	33		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.4	U M	1.9	1.4	0.58
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.71*	*J M*	*1.9*	1.4	*0.52*
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U	1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	0.96	U	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.51	J	1.9	0.96	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.96	U	1.9	0.96	0.36
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.96	U	1.9	0.96	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.2	J	3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	2.9	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE | Lab Sample ID: 320-35682-3

Matrix: Water | Lab File ID: 2018.02.07LLAA_052.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.7(mL) | Date Analyzed: 02/07/2018 15:15

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	94		25-150
STL00992	13C4 PFBA	105		25-150
STL00993	13C2 PFHxA	101		25-150
STL00990	13C4 PFOA	97		25-150
STL00995	13C5 PFNA	93		25-150
STL00996	13C2 PFDA	103		25-150
STL00997	13C2 PFUnA	94		25-150
STL00998	13C2 PFDoA	92		25-150
STL00994	18O2 PFHxS	98		25-150
STL00991	13C4 PFOS	96		25-150
STL02116	13C2-PFTeDA	102		25-150
STL01892	13C4-PFHpA	106		25-150
STL01893	13C5 PFPeA	101		25-150
STL02337	13C3-PFBS	102		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_052.d
Lims ID: 320-35682-B-3-A
Client ID: TP-PFC-026-TPE
Sample Type: Client
Inject. Date: 07-Feb-2018 15:15:16 ALS Bottle#: 44 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35682-b-3-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 12-Feb-2018 14:59:16 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 08-Feb-2018 16:37:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.420	1.412	0.008	0.540	7111862	2.62		105	19873	
2 Perfluorobutyric acid										
212.90 > 169.00	1.420	1.412	0.008	1.000	8829440	3.28			1486	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.672	1.660	0.012	1.000	6482224	3.27			5650	
D 3 13C5-PFPeA										
267.90 > 223.00	1.672	1.660	0.012	0.635	4165105	2.53		101	93101	
D 47 13C3-PFBS										
301.90 > 83.00	1.707	1.695	0.012	0.649	87603	2.38		102	3544	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.707	1.695	0.012	1.000	38683	0.0134			190	
298.90 > 99.00	1.698	1.695	0.003	0.995	18809		2.06(1.25-3.74)		160	
D 7 13C2 PFHxA										
315.00 > 270.00	1.955	1.930	0.025	0.743	4490950	2.52		101	39045	
6 Perfluorohexanoic acid										R
313.00 > 269.00	1.934	1.940	-0.006	0.989	1621182	0.8726			3754	R
313.00 > 119.00	1.955	1.940	0.015	1.000	75452		21.49(5.03-15.10)		1214	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.228	2.262	-0.034	0.978	28538	0.0150			29.9	M
363.00 > 169.00	2.253	2.262	-0.009	0.988	11451		2.49(1.13-3.40)		58.9	
D 9 13C4-PFHpA										
367.00 > 322.00	2.279	2.262	0.017	0.866	4582157	2.65		106	31716	
D 11 18O2 PFHxS										
403.00 > 84.00	2.292	2.275	0.017	0.871	4925987	2.31		97.7	33760	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.292	2.275	0.017	1.000	20987	0.008863			114	
399.00 > 99.00	2.292	2.275	0.017	1.000	5613		3.74(1.50-4.49)		37.5	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.631	2.606	0.025	1.000	4113192	2.44		97.4	38434	
* 62 13C2-PFOA										
415.00 > 370.00	2.631	2.606	0.025		4701496	2.50			38347	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.546	2.606	-0.060	0.968	34603	0.0185			15.6	
413.00 > 169.00	2.531	2.606	-0.075	0.962	55649		0.62(0.84-2.52)		219	M
D 18 13C4 PFOS										
503.00 > 80.00	2.994	2.976	0.018	1.138	3219827	2.30		96.2	28292	
D 19 13C5 PFNA										
468.00 > 423.00	2.994	2.976	0.018	1.138	3207152	2.33		93.3	29938	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.002	2.976	0.026	1.003	46073	0.0310			38.1	
499.00 > 99.00	3.002	2.976	0.026	1.003	8757		5.26(2.31-6.93)		45.9	
D 21 13C8 FOSA										
506.00 > 78.00	3.348	3.331	0.017	1.273	4553030	2.35		94.0	23335	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.340	3.331	0.009	0.998	2299	0.001275			16.1	
D 23 13C2 PFDA										
515.00 > 470.00	3.356	3.331	0.025	1.275	3039089	2.57		103	30602	
D 30 13C2 PFUnA										
565.00 > 520.00	3.672	3.655	0.017	1.396	2144189	2.34		93.6	25981	
D 36 13C2 PFDoA										
615.00 > 570.00	3.973	3.952	0.021	1.510	2149327	2.30		91.8	22400	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.472	4.443	0.029	1.700	2942355	2.55		102	18047	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

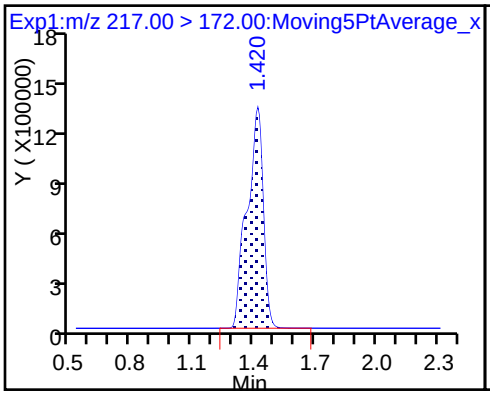
Report Date: 12-Feb-2018 14:59:28 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

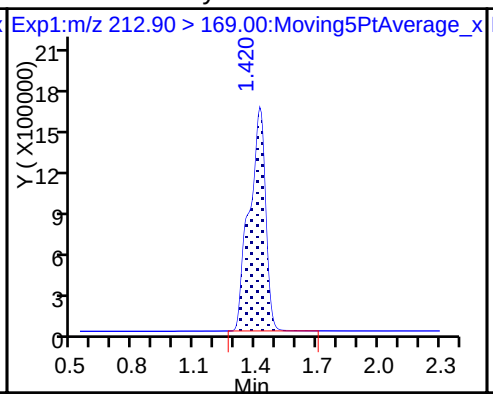
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_052.d

Injection Date:	07-Feb-2018 15:15:16	Instrument ID:	A8_N		
Lims ID:	320-35682-B-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	44	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

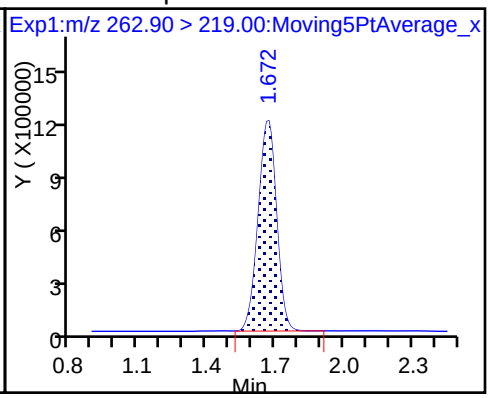
D 1 13C4 PFBA



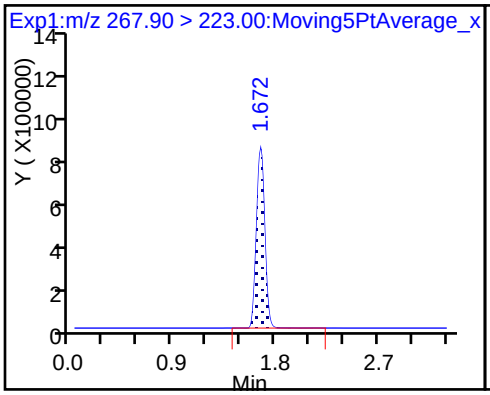
2 Perfluorobutyric acid



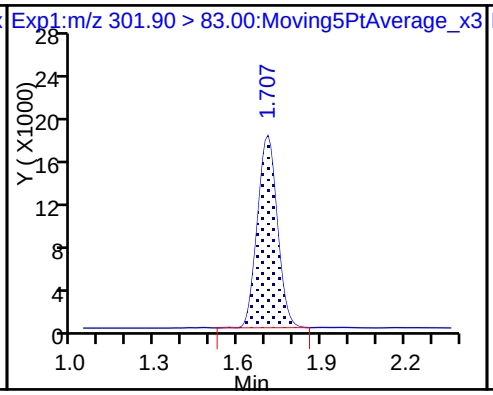
4 Perfluoropentanoic acid



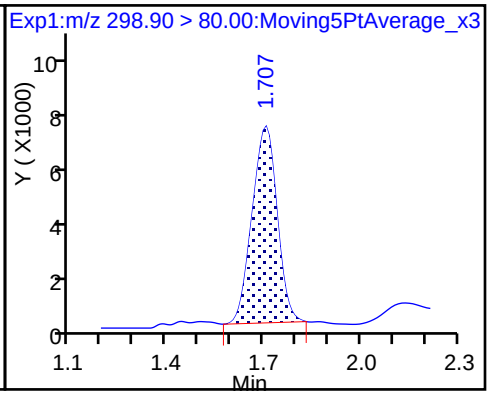
D 3 13C5-PFPeA



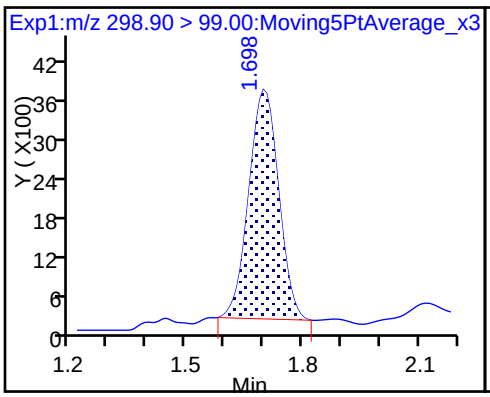
D 47 13C3-PFBS



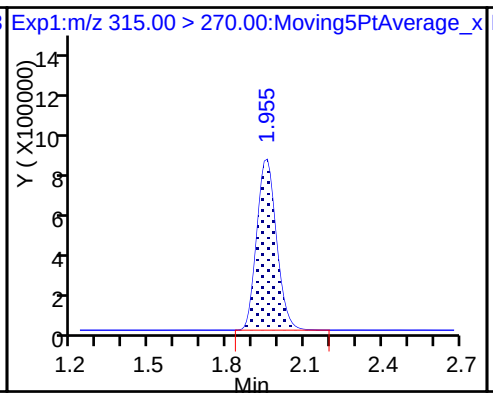
5 Perfluorobutanesulfonic acid



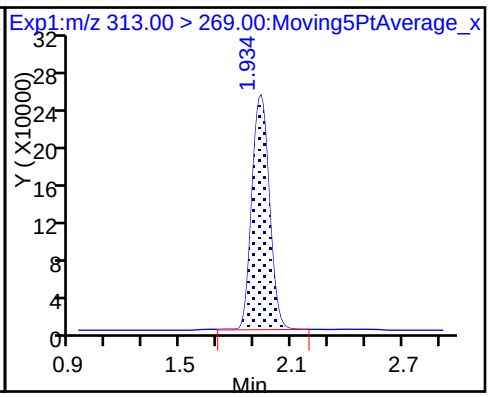
5 Perfluorobutanesulfonic acid



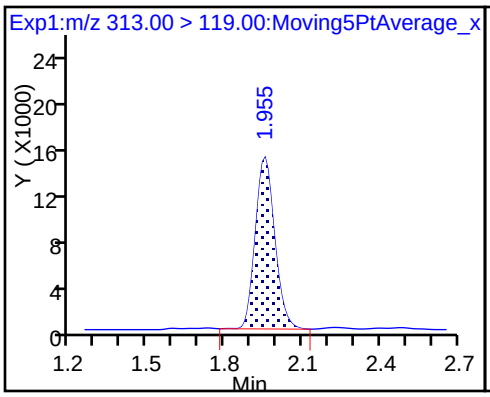
D 7 13C2 PFHxA



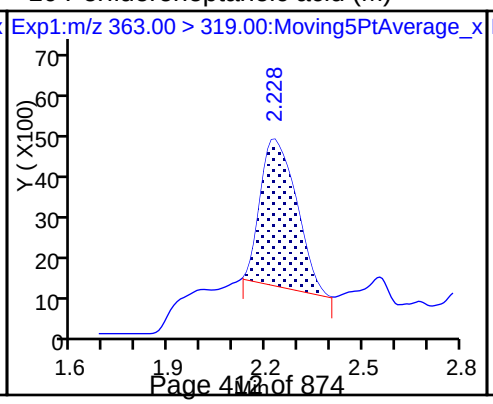
6 Perfluorohexanoic acid



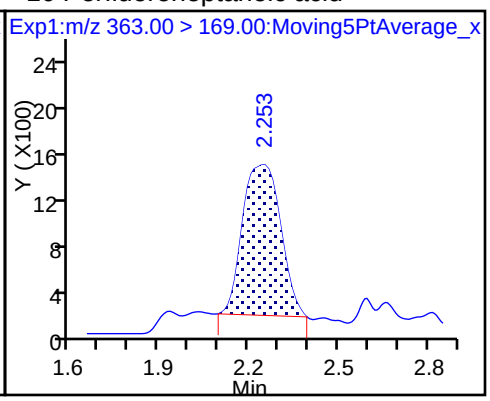
6 Perfluorohexanoic acid



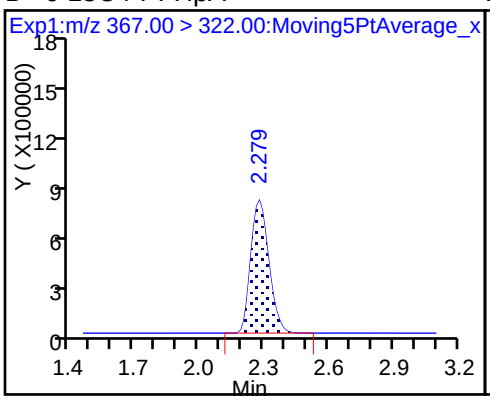
10 Perfluoroheptanoic acid (M)



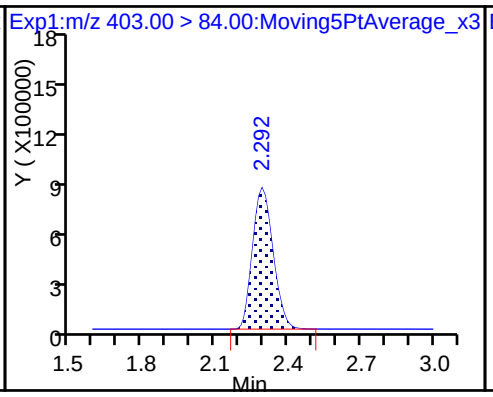
10 Perfluoroheptanoic acid



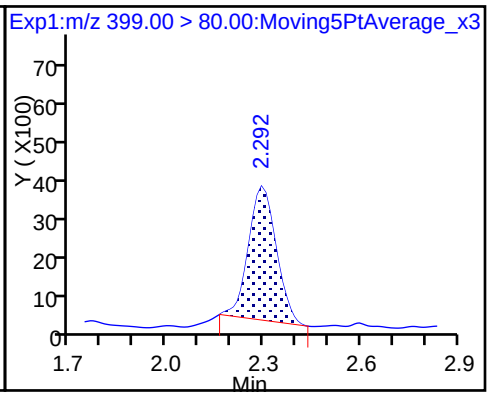
D 9 13C4-PFHpA



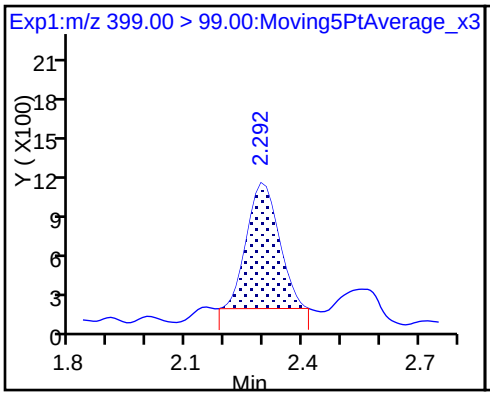
D 11 18O2 PFHxS



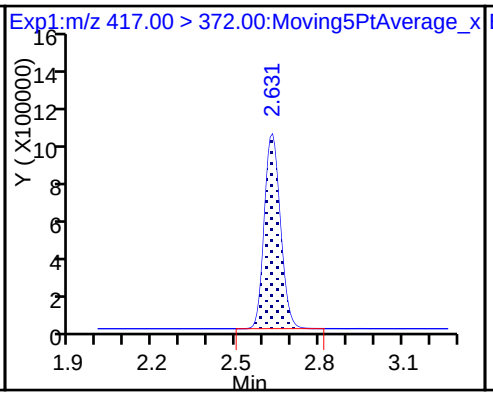
8 Perfluorohexanesulfonic acid



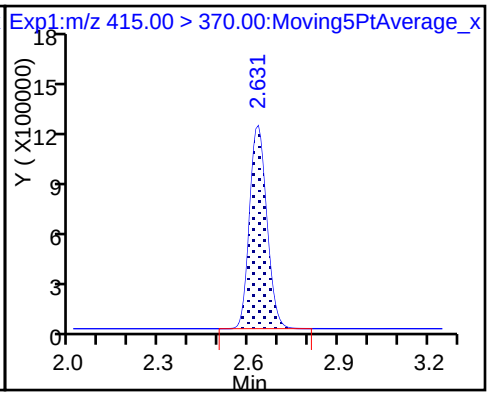
8 Perfluorohexanesulfonic acid



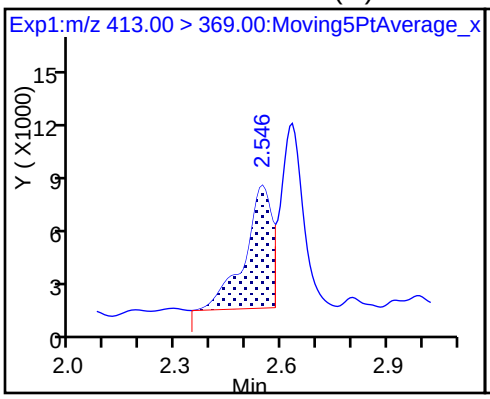
D 14 13C4 PFOA



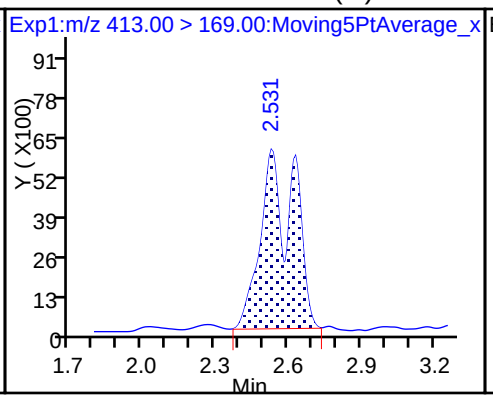
* 62 13C2-PFOA



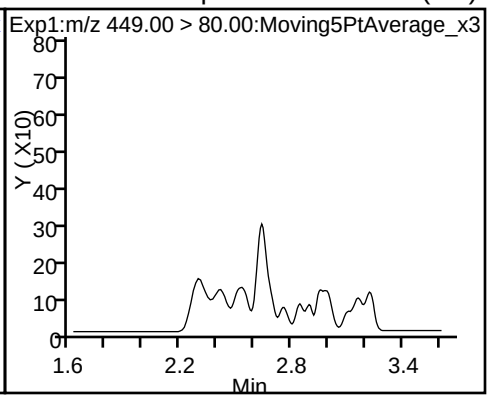
15 Perfluorooctanoic acid (M)



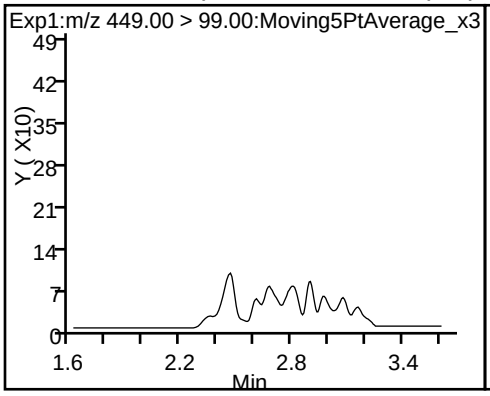
15 Perfluorooctanoic acid (M)



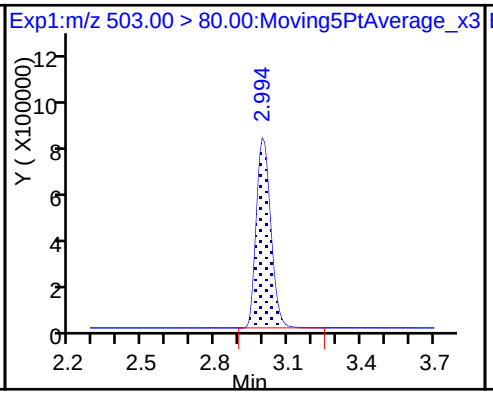
16 Perfluoroheptanesulfonic acid (ND)



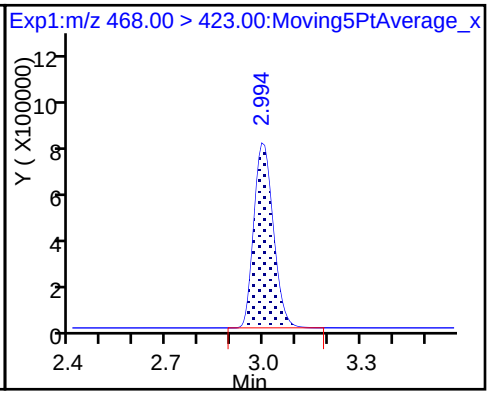
16 Perfluoroheptanesulfonic acid (ND)



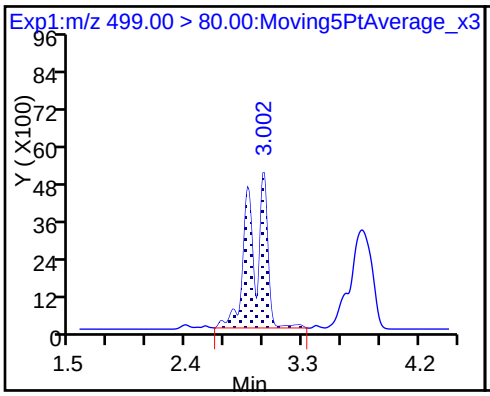
D 18 13C4 PFOS



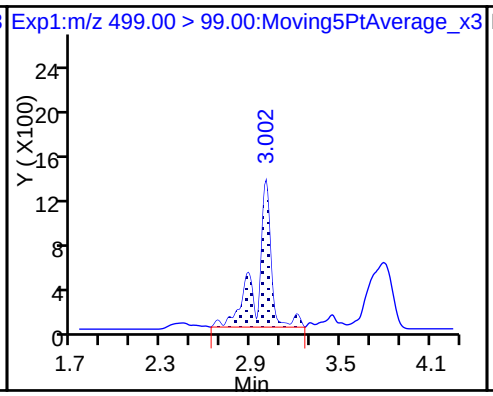
D 19 13C5 PFNA



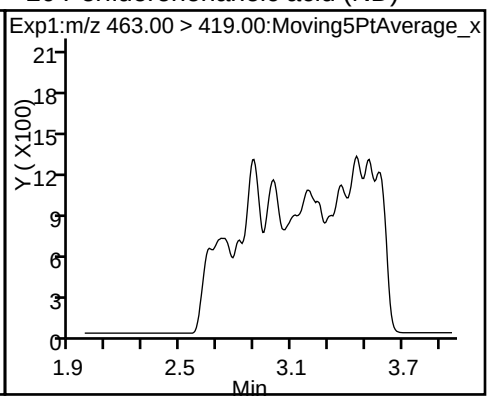
17 Perfluorooctane sulfonic acid



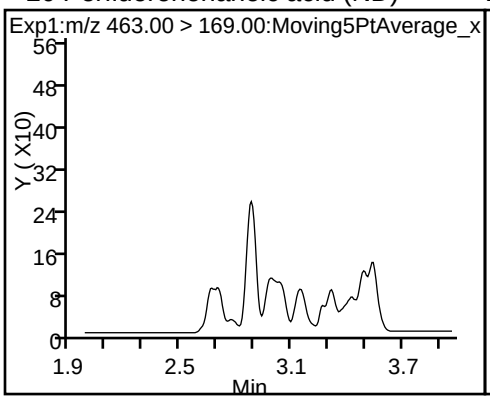
17 Perfluorooctane sulfonic acid



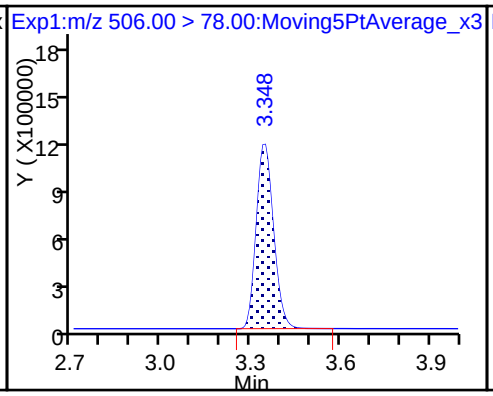
20 Perfluorononanoic acid (ND)



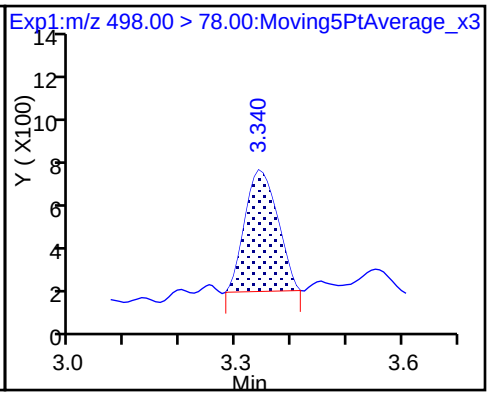
20 Perfluorononanoic acid (ND)



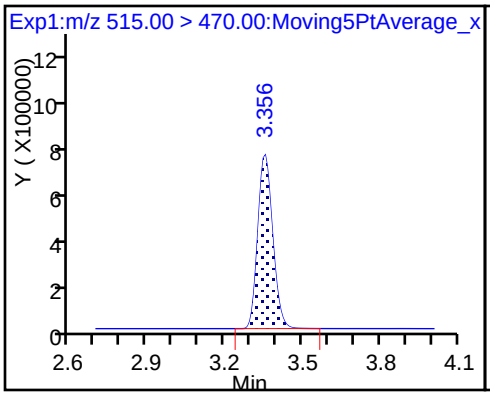
D 21 13C8 FOSA



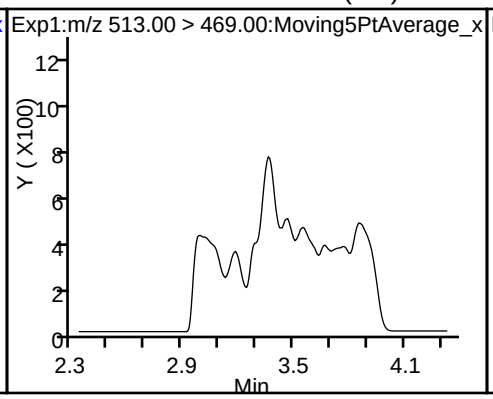
22 Perfluorooctane Sulfonamide



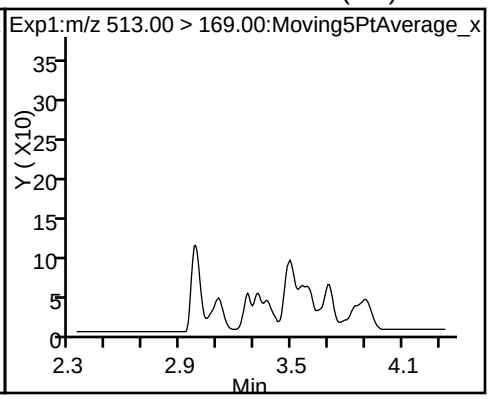
D 23 13C2 PFDA



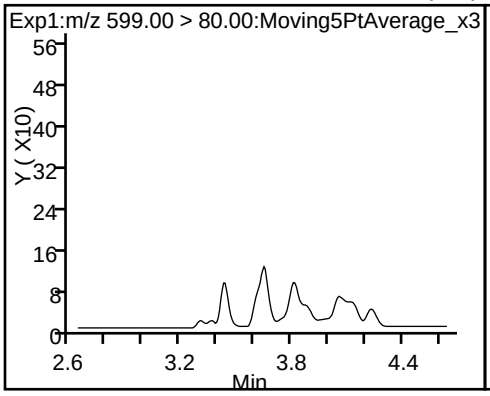
24 Perfluorodecanoic acid (ND)



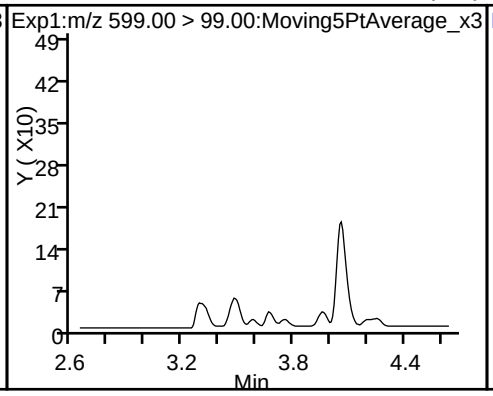
24 Perfluorodecanoic acid (ND)



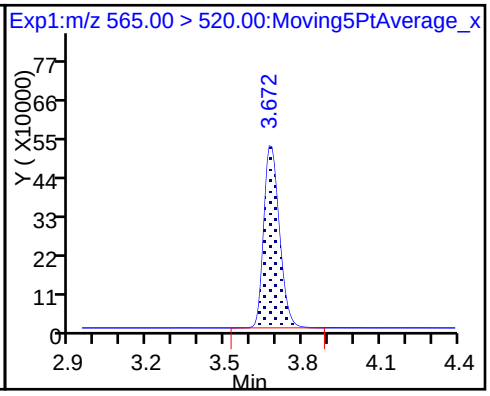
29 Perfluorodecane Sulfonic acid (ND)



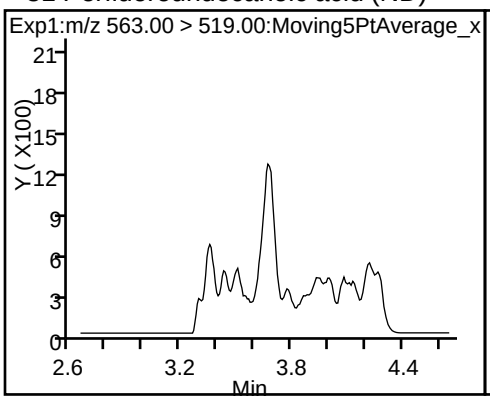
29 Perfluorodecane Sulfonic acid (ND)



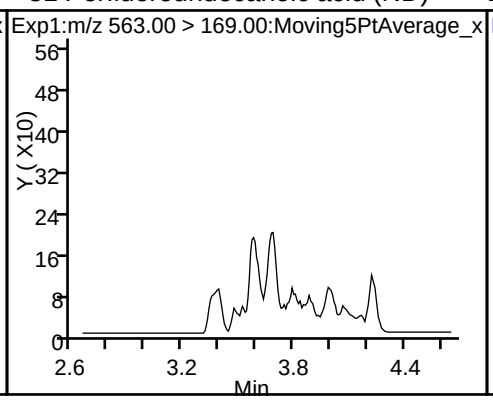
D 30 13C2 PFUnA



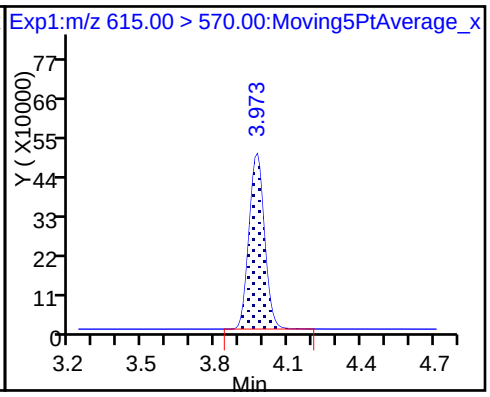
31 Perfluoroundecanoic acid (ND)



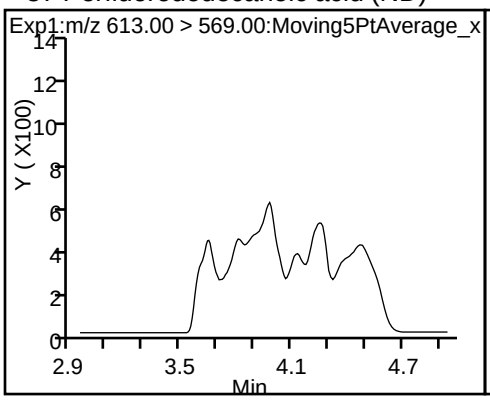
31 Perfluoroundecanoic acid (ND)



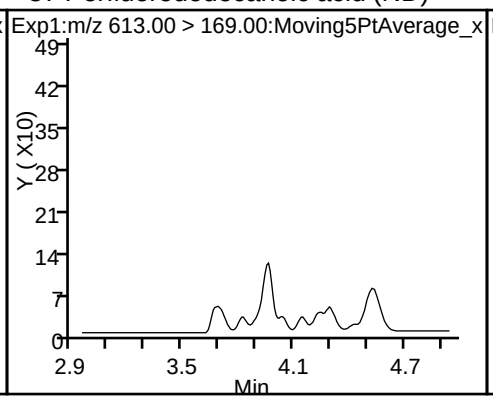
D 36 13C2 PFDoA



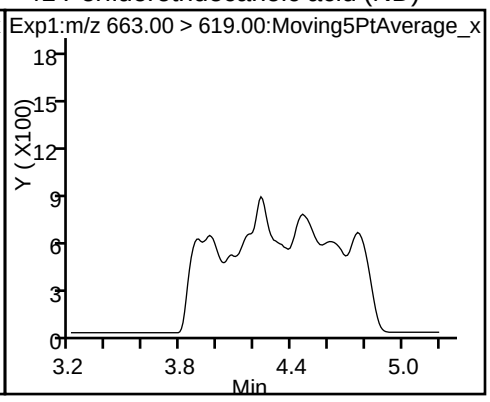
37 Perfluorododecanoic acid (ND)



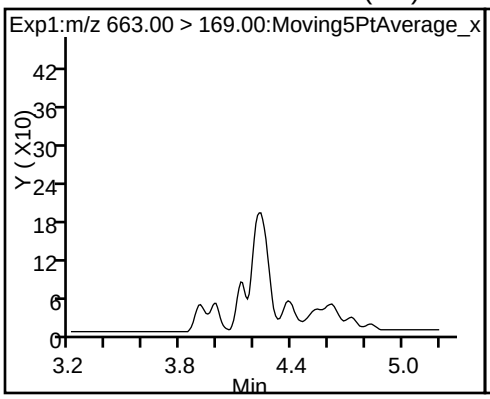
37 Perfluorododecanoic acid (ND)



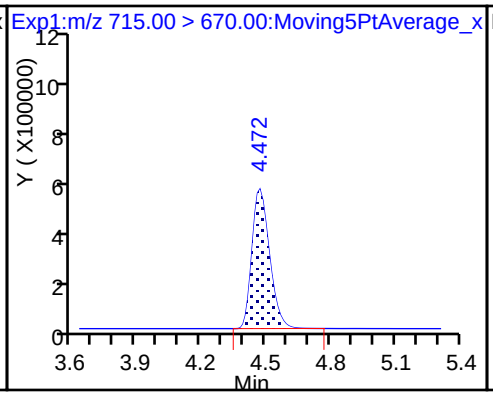
41 Perfluorotridecanoic acid (ND)



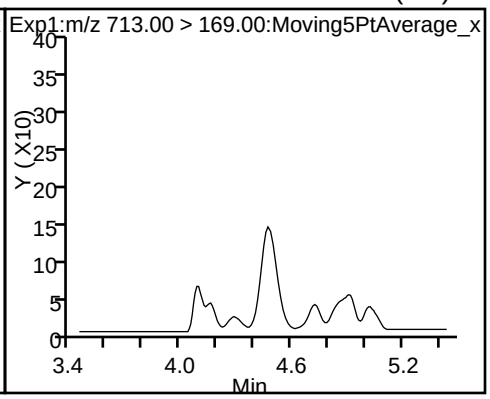
41 Perfluorotridecanoic acid (ND)



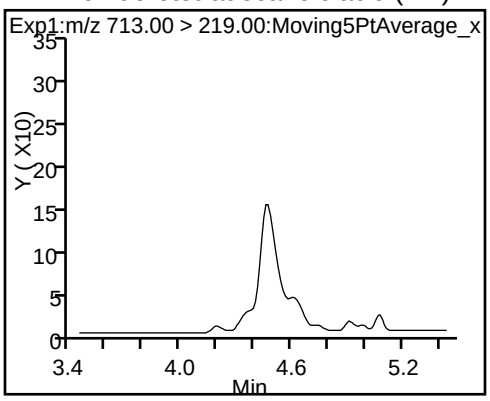
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

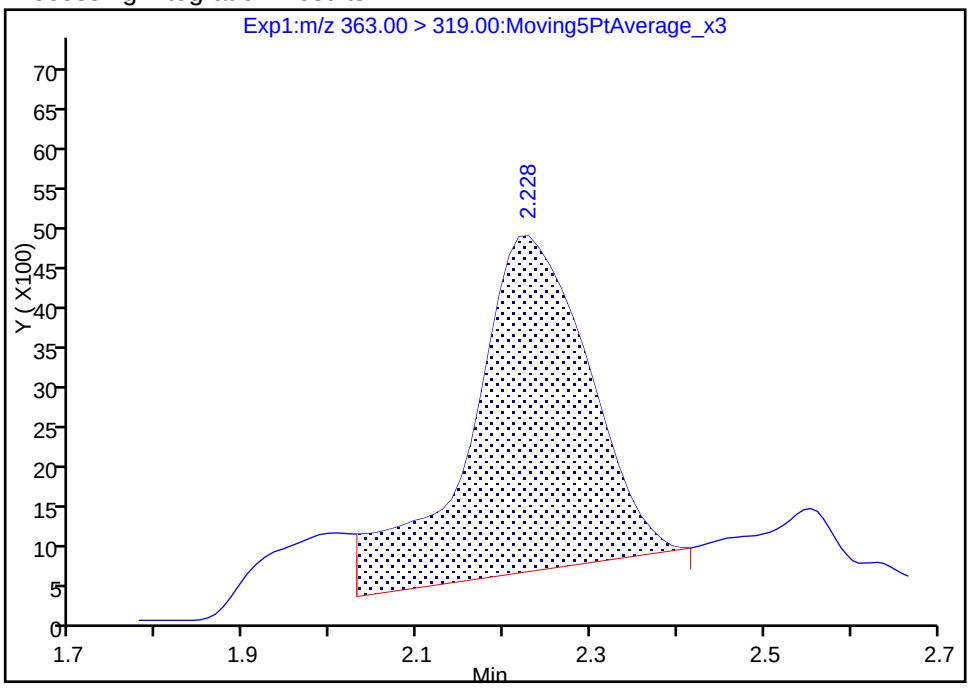
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_052.d				
Injection Date:	07-Feb-2018 15:15:16	Instrument ID:	A8_N		
Lims ID:	320-35682-B-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	44	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

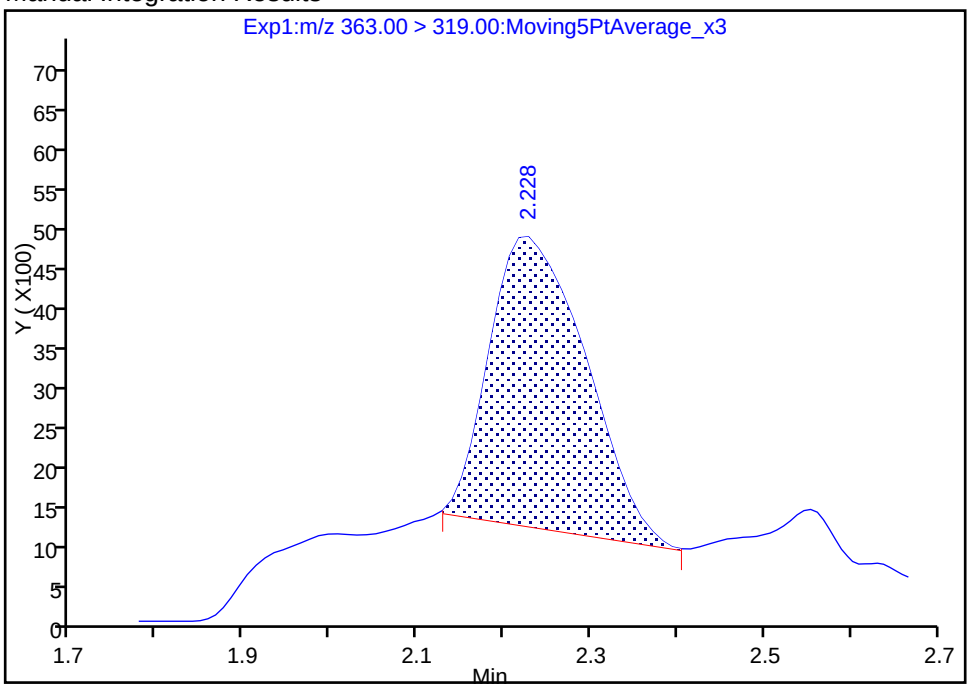
Processing Integration Results

RT: 2.23
Area: 40841
Amount: 0.021423
Amount Units: ng/ml



Manual Integration Results

RT: 2.23
Area: 28538
Amount: 0.014970
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 16:36:35

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

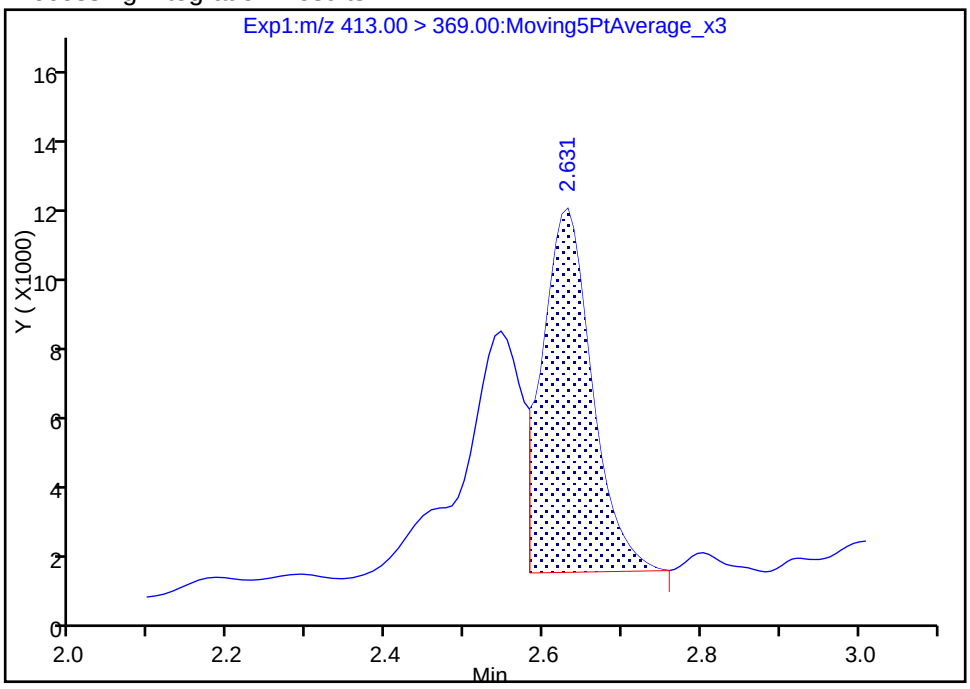
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_052.d				
Injection Date:	07-Feb-2018 15:15:16	Instrument ID:	A8_N		
Lims ID:	320-35682-B-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	44	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

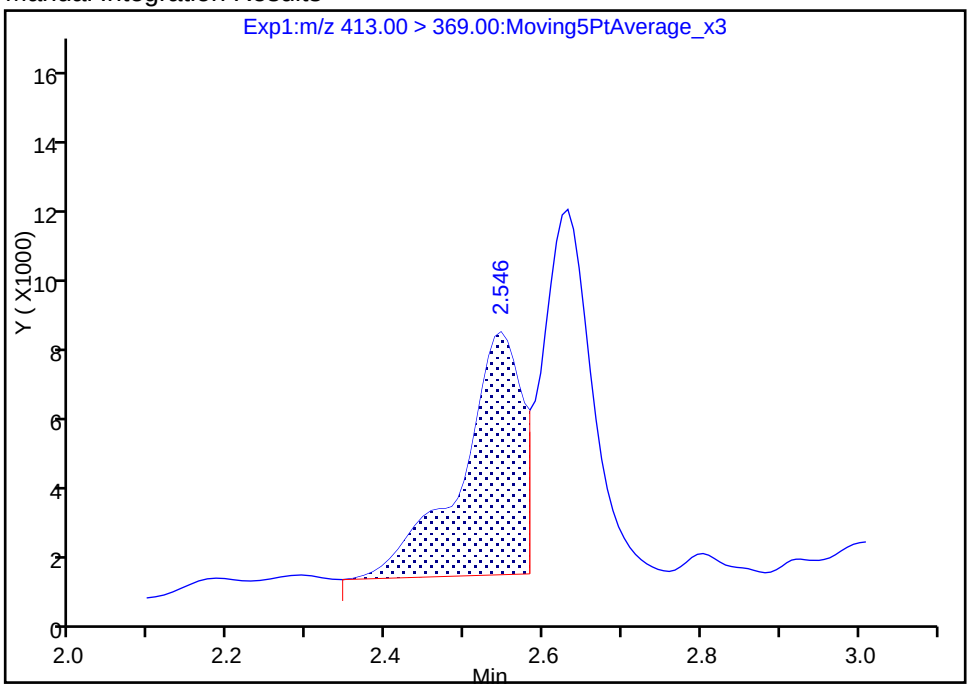
Processing Integration Results

RT: 2.63
Area: 41835
Amount: 0.022323
Amount Units: ng/ml



Manual Integration Results

RT: 2.55
Area: 34603
Amount: 0.018464
Amount Units: ng/ml



Reviewer: barnettj, 12-Feb-2018 14:58:39

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

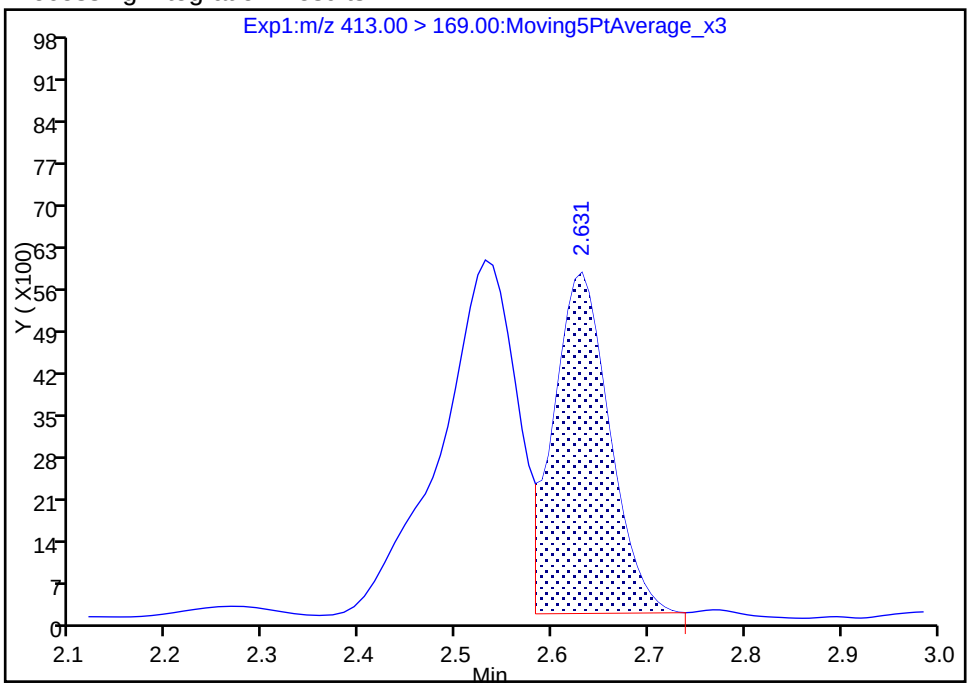
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_052.d				
Injection Date:	07-Feb-2018 15:15:16	Instrument ID:	A8_N		
Lims ID:	320-35682-B-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	44	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

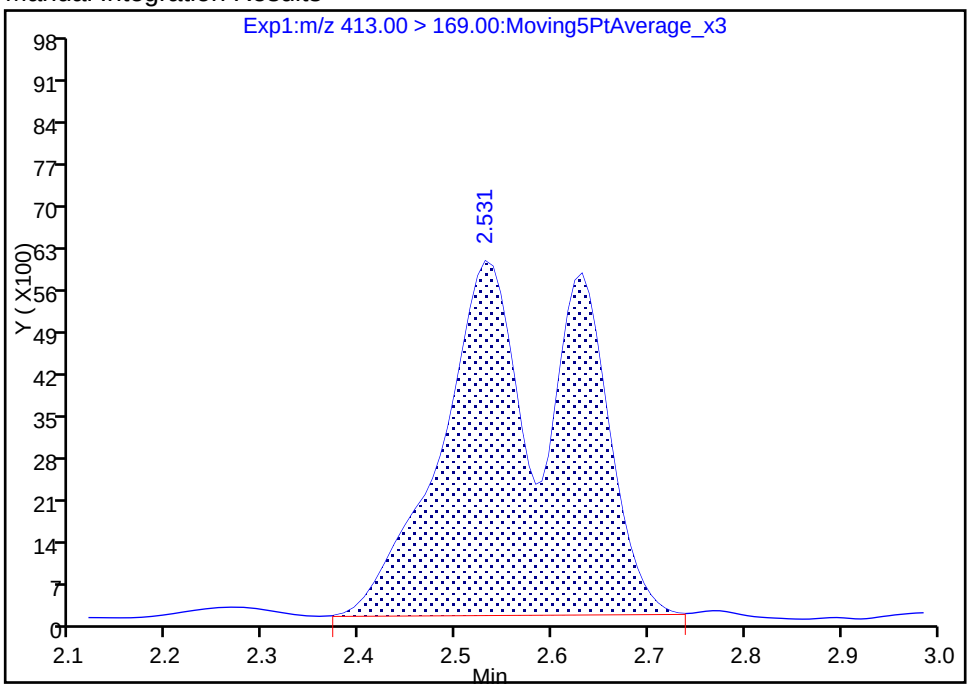
Processing Integration Results

RT: 2.63
Area: 22906
Amount: 0.022323
Amount Units: ng/ml



Manual Integration Results

RT: 2.53
Area: 55649
Amount: 0.018464
Amount Units: ng/ml



Reviewer: barnettj, 12-Feb-2018 14:58:55

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE RE | Lab Sample ID: 320-35682-3 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_012.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.7(mL) | Date Analyzed: 02/16/2018 16:35

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	*Perfluorobutanoic acid (PFBA)*	*130*	*M*	*1.7*	1.3	*0.50*
2706-90-3	*Perfluoropentanoic acid (PFPeA)*	*130*		*1.7*	0.85	*0.37*
307-24-4	*Perfluorohexanoic acid (PFHxA)*	*34*		*1.7*	0.85	*0.40*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*1.3*	*U M*	*1.7*	1.3	*0.52*
335-67-1	Perfluorooctanoic acid (PFOA)	0.68	J	1.7	1.3	0.46
375-95-1	*Perfluorononanoic acid (PFNA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
335-76-2	*Perfluorodecanoic acid (PFDA)*	*0.85*	*U*	*1.7*	0.85	*0.41*
2058-94-8	*Perfluoroundecanoic acid (PFUnA)*	*1.3*	*U*	*1.7*	1.3	*0.61*
307-55-1	*Perfluorododecanoic acid (PFDoA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
72629-94-8	*Perfluorotridecanoic Acid (PFTriA)*	*2.6*	*U*	*3.4*	2.6	*0.65*
376-06-7	*Perfluorotetradecanoic acid (PFTeA)*	*2.6*	*U*	*3.4*	2.6	*0.71*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*0.54*	*J*	*1.7*	0.85	*0.39*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*0.37*	*J*	*1.7*	0.85	*0.32*
375-92-8	*Perfluoroheptanesulfonic Acid (PFHpS)*	*0.85*	*U*	*1.7*	0.85	*0.31*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*2.6*	*U*	*3.4*	2.6	*0.94*
335-77-3	*Perfluorodecanesulfonic acid (PFDS)*	*1.3*	*U*	*1.7*	1.3	*0.48*
754-91-6	*Perfluorooctane Sulfonamide (FOSA)*	*2.6*	*U*	*3.4*	2.6	*1.1*

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE RE | Lab Sample ID: 320-35682-3 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_012.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.7(mL) | Date Analyzed: 02/16/2018 16:35

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	58		25-150
STL00992	13C4 PFBA	59		25-150
STL00993	13C2 PFHxA	60		25-150
STL00990	13C4 PFOA	60		25-150
STL00995	13C5 PFNA	58		25-150
STL00996	13C2 PFDA	57		25-150
STL00997	13C2 PFUnA	58		25-150
STL00998	13C2 PFDoA	55		25-150
STL00994	18O2 PFHxS	59		25-150
STL00991	13C4 PFOS	56		25-150
STL02116	13C2-PFTeDA	67		25-150
STL01892	13C4-PFHpA	61		25-150
STL01893	13C5 PFPeA	62		25-150
STL02337	13C3-PFBS	58		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_012.d
Lims ID: 320-35682-D-3-A
Client ID: TP-PFC-026-TPE
Sample Type: Client
Inject. Date: 16-Feb-2018 16:35:54 ALS Bottle#: 33 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35682-d-3-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:25 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: barnettj Date: 17-Feb-2018 12:57:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.399	1.401	-0.002	0.536	5495288	1.48		59.2	83264	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.399	1.402	-0.003	1.000	7607054	3.70			1514	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.641	1.644	-0.003	0.995	7305430	3.71			1902	
D 3 13C5-PFPeA										
267.90 > 223.00	1.649	1.652	-0.003	0.632	4135132	1.56		62.4	91100	
D 47 13C3-PFBS										
301.90 > 83.00	1.675	1.679	-0.004	0.642	95863	1.35		58.2	1533	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.675	1.679	-0.004	1.000	48515	0.0158			534	
298.90 > 99.00	1.675	1.679	-0.004	1.000	27200		1.78(1.25-3.74)		158	
D 7 13C2 PFHxA										
315.00 > 270.00	1.917	1.922	-0.005	0.735	4305533	1.51		60.4	104237	
6 Perfluorohexanoic acid										R
313.00 > 269.00	1.897	1.923	-0.026	0.989	1790794	1.01			2581	R
313.00 > 119.00	1.927	1.923	0.004	1.005	80595		22.22(5.03-15.10)		809	
D 9 13C4-PFHpA										
367.00 > 322.00	2.244	2.252	-0.008	0.860	4112795	1.52		60.9	95134	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.187	2.252	-0.065	0.975	26080	0.0148			16.4	M
363.00 > 169.00	2.220	2.252	-0.032	0.989	8848		2.95(1.13-3.40)		42.7	
D 11 18O2 PFHxS										
403.00 > 84.00	2.271	2.265	0.006	0.870	5349115	1.41		59.4	95448	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.258	2.265	-0.007	0.994	27201	0.0109			105	
399.00 > 99.00	2.271	2.265	0.006	1.000	8407		3.24(1.50-4.49)		17.7	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.610	2.614	-0.004	1.000	3888343	1.50		60.1	91983	
* 62 13C2-PFOA										
415.00 > 370.00	2.610	2.615	-0.005		7143952	2.50			118654	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.610	2.615	-0.005	1.000	34105	0.0199			3.7	
413.00 > 169.00	2.617	2.615	0.002	1.003	26026		1.31(0.84-2.52)		6.2	
D 19 13C5 PFNA										
468.00 > 423.00	2.987	2.984	0.003	1.144	2920584	1.46		58.5	63694	
D 18 13C4 PFOS										
503.00 > 80.00	2.987	2.984	0.003	1.144	3492970	1.33		55.8	70467	
D 21 13C8 FOSA										
506.00 > 78.00	3.327	3.339	-0.012	1.275	5414697	1.44		57.5	46131	
D 23 13C2 PFDA										
515.00 > 470.00	3.342	3.347	-0.005	1.281	2358839	1.43		57.3	39499	
D 30 13C2 PFUnA										
565.00 > 520.00	3.666	3.663	0.003	1.405	1833857	1.46		58.3	46550	
D 36 13C2 PFDoA										
615.00 > 570.00	3.966	3.962	0.004	1.520	1644124	1.37		54.8	19845	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.448	0.014	1.710	1766846	1.67		66.7	20148	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

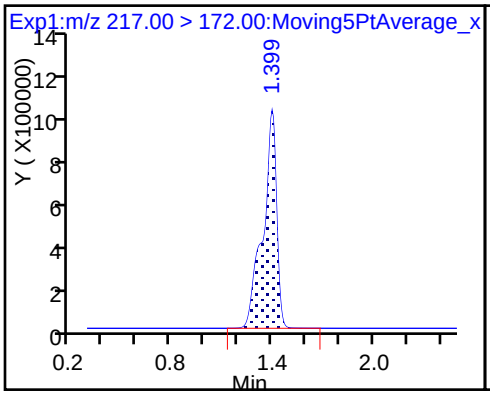
Report Date: 17-Feb-2018 13:11:36 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

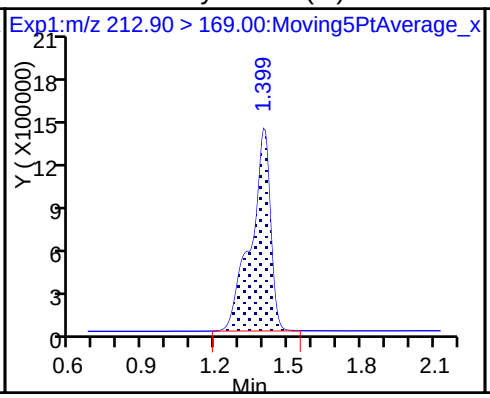
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_012.d

Injection Date:	16-Feb-2018 16:35:54	Instrument ID:	A8_N		
Lims ID:	320-35682-D-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

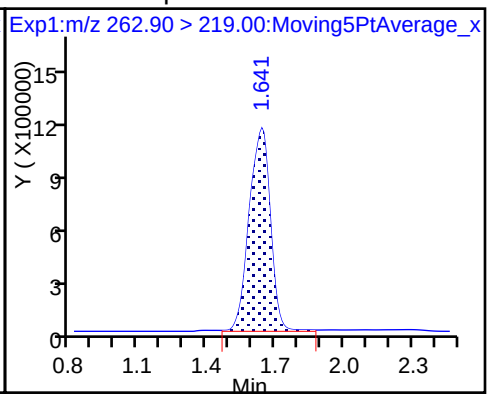
D 1 13C4 PFBA



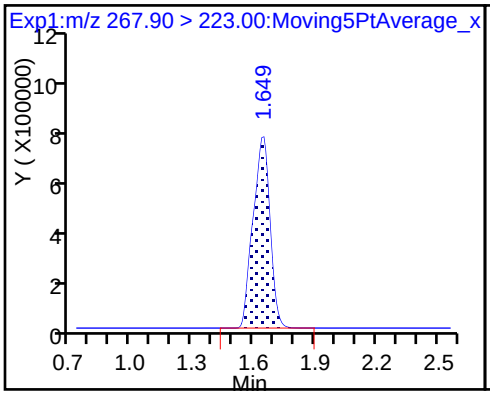
2 Perfluorobutyric acid (M)



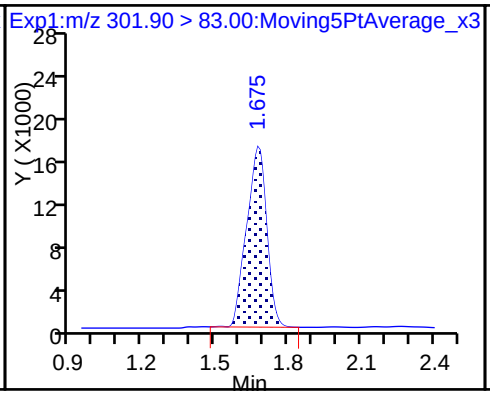
4 Perfluoropentanoic acid



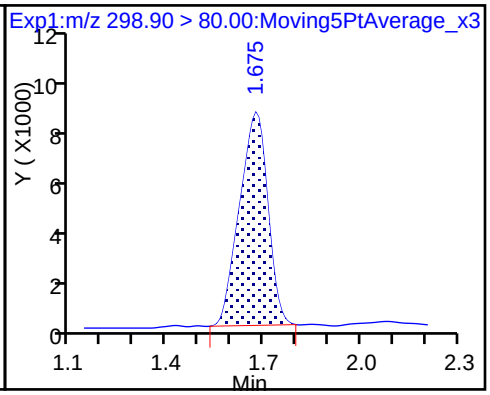
D 3 13C5-PFPeA



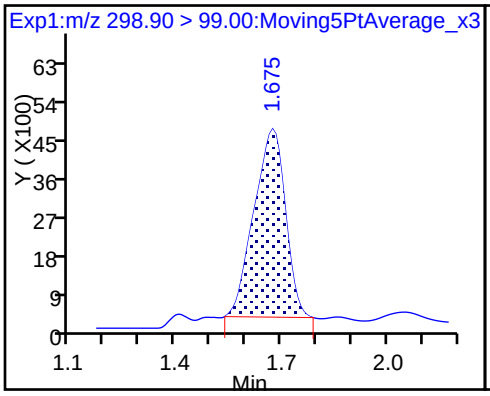
D 47 13C3-PFBS



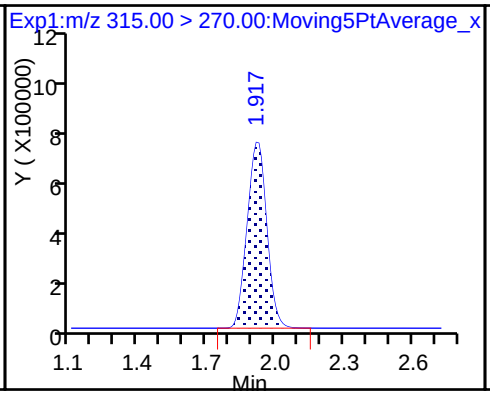
5 Perfluorobutanesulfonic acid



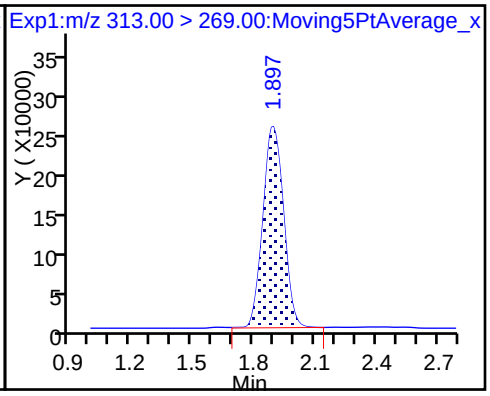
5 Perfluorobutanesulfonic acid



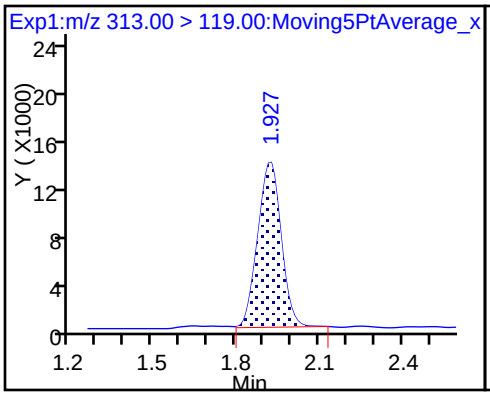
D 7 13C2 PFHxA



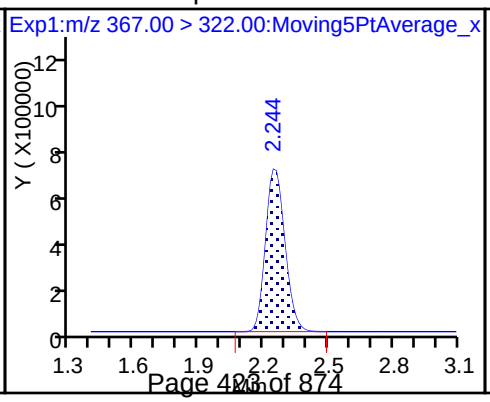
6 Perfluorohexanoic acid



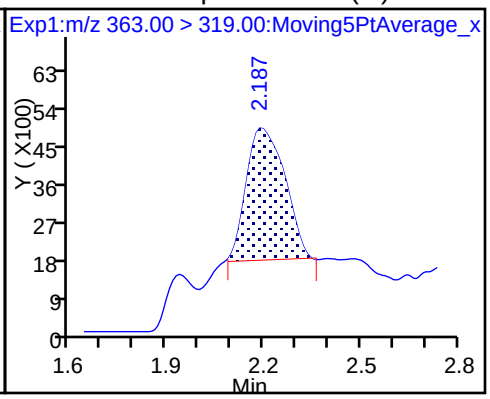
6 Perfluorohexanoic acid



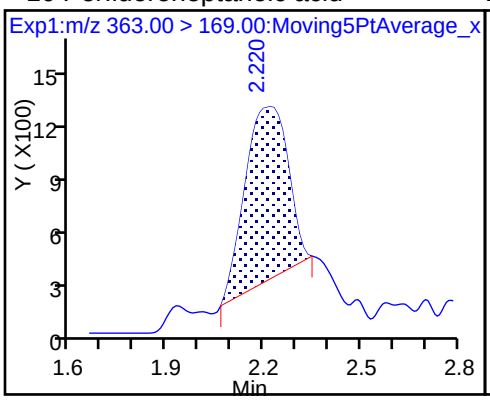
D 9 13C4-PFHpA



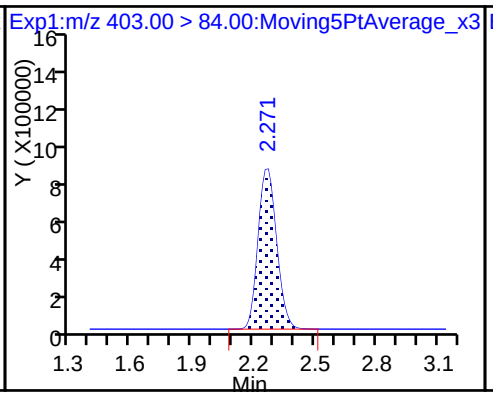
10 Perfluoroheptanoic acid (M)



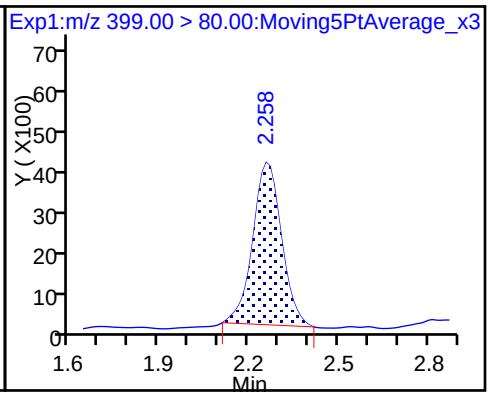
10 Perfluoroheptanoic acid



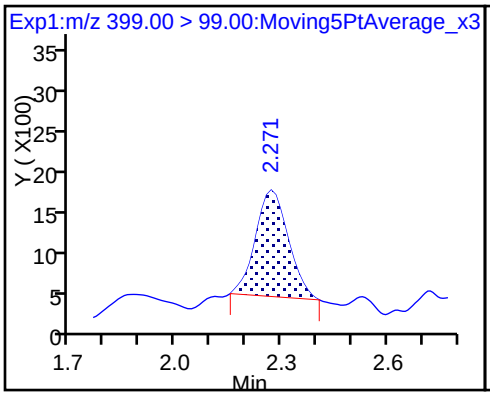
D 11 18O2 PFHxS



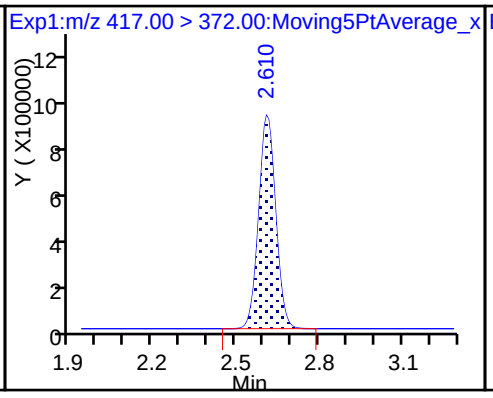
8 Perfluorohexanesulfonic acid



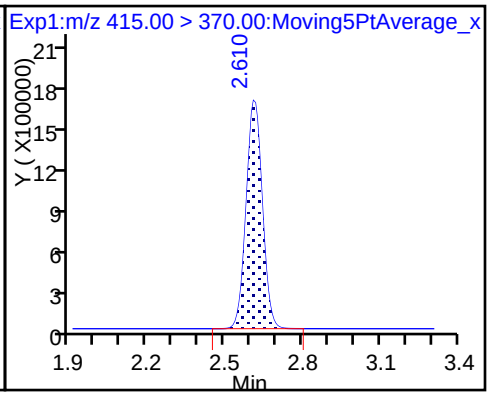
8 Perfluorohexanesulfonic acid



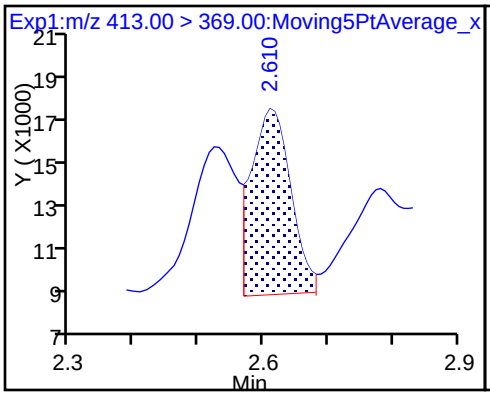
D 14 13C4 PFOA



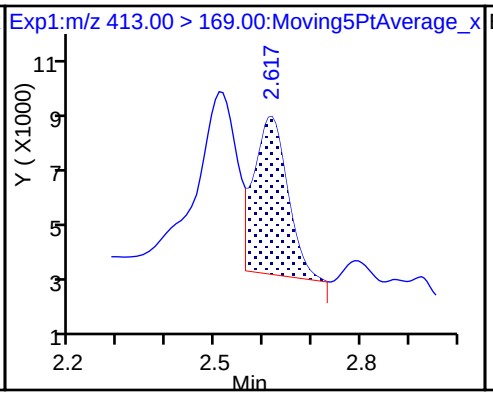
* 62 13C2-PFOA



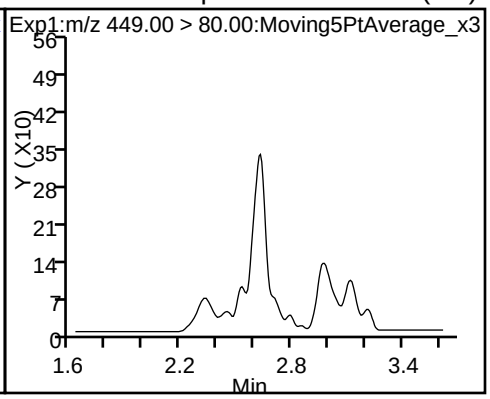
15 Perfluorooctanoic acid



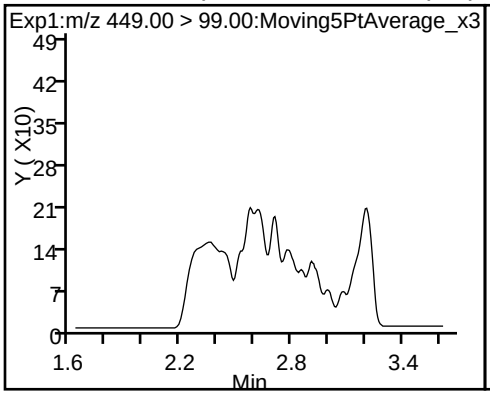
15 Perfluorooctanoic acid



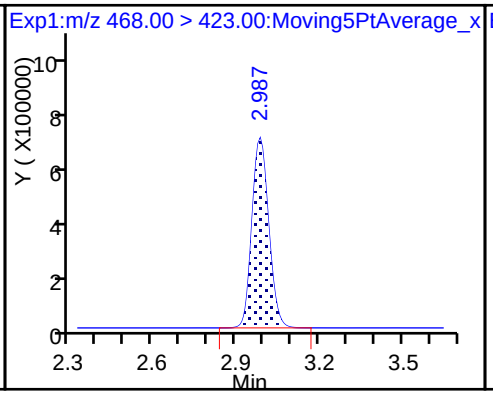
16 Perfluoroheptanesulfonic acid (ND)



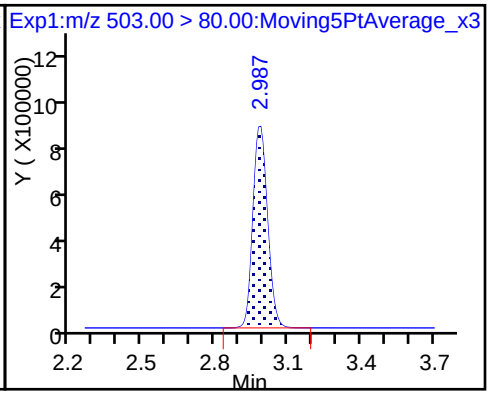
16 Perfluoroheptanesulfonic acid (ND)



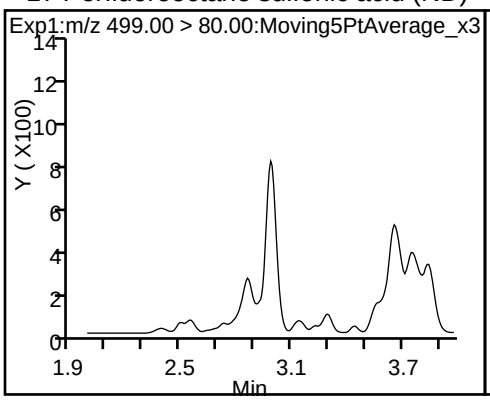
D 19 13C5 PFNA



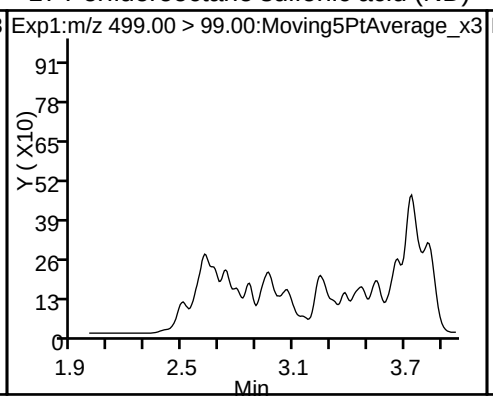
D 18 13C4 PFOS



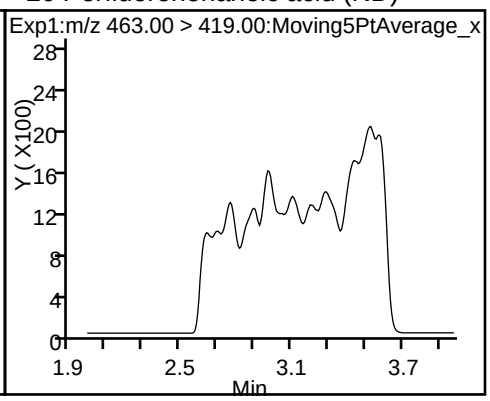
17 Perfluorooctane sulfonic acid (ND)



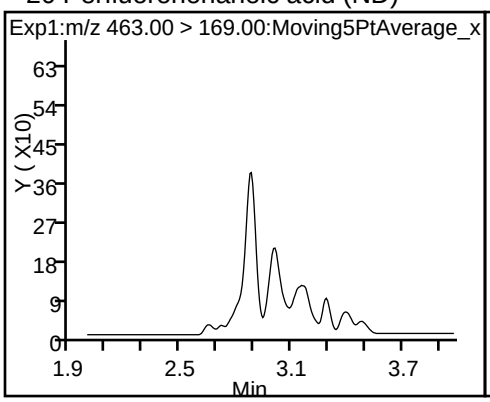
17 Perfluorooctane sulfonic acid (ND)



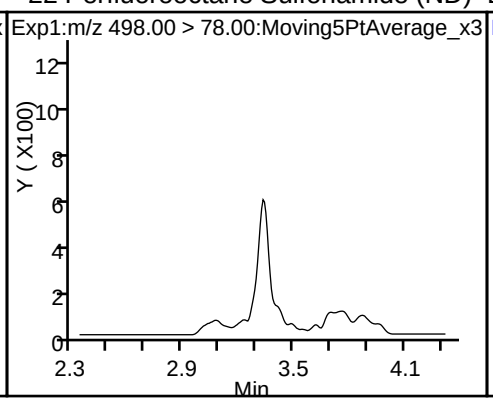
20 Perfluorononanoic acid (ND)



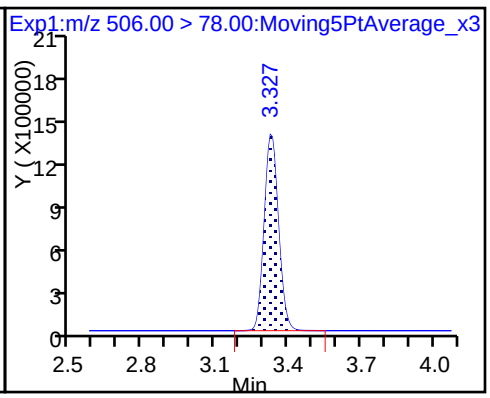
20 Perfluorononanoic acid (ND)



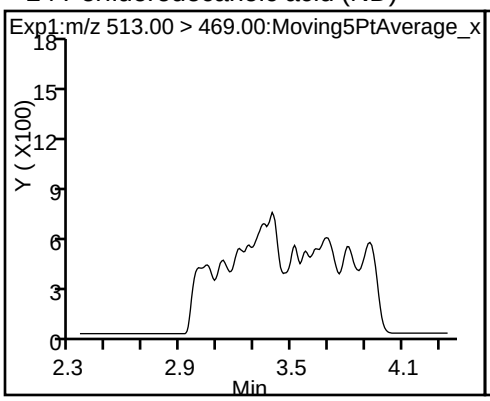
22 Perfluorooctane Sulfonamide (ND)



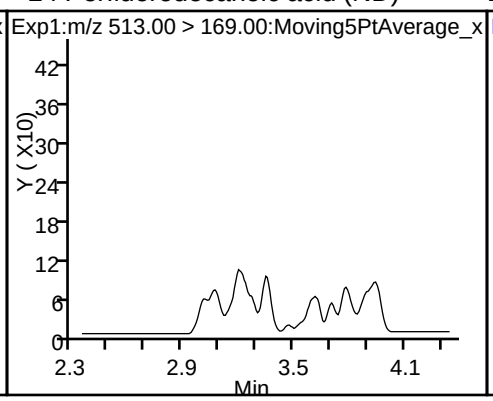
D 21 13C8 FOSA



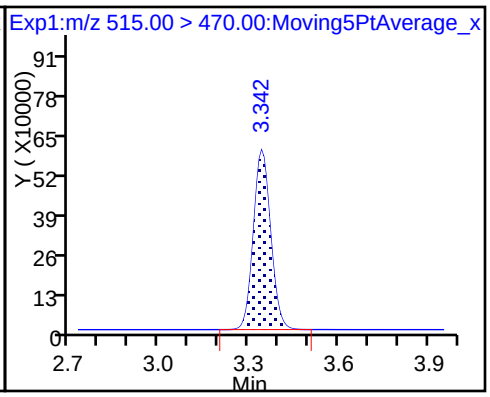
24 Perfluorodecanoic acid (ND)



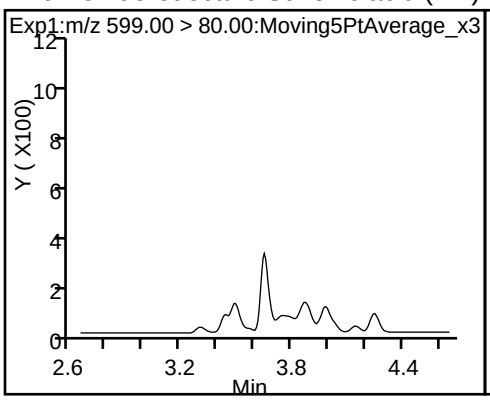
24 Perfluorodecanoic acid (ND)



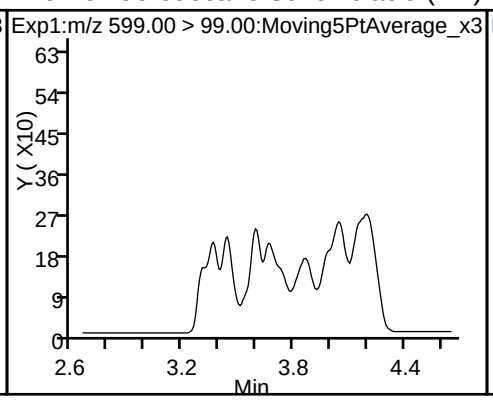
D 23 13C2 PFDA



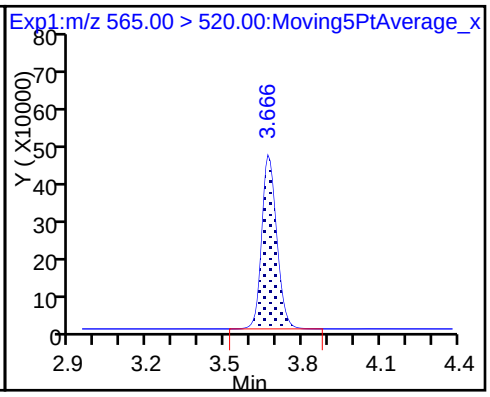
29 Perfluorodecane Sulfonic acid (ND)



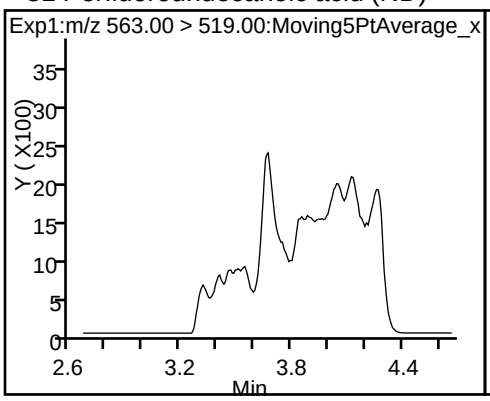
29 Perfluorodecane Sulfonic acid (ND)



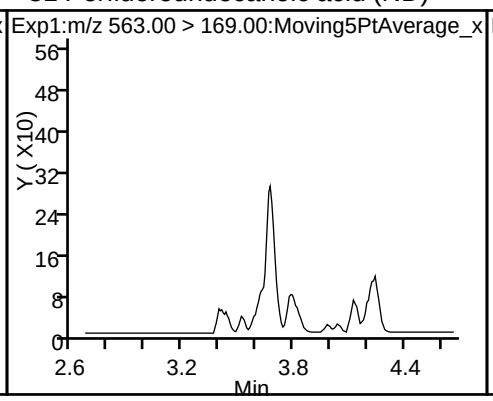
D 30 13C2 PFUnA



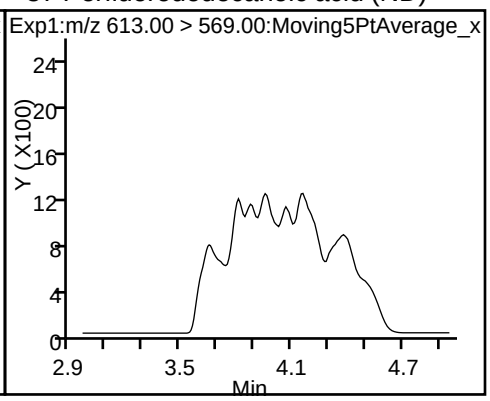
31 Perfluoroundecanoic acid (ND)



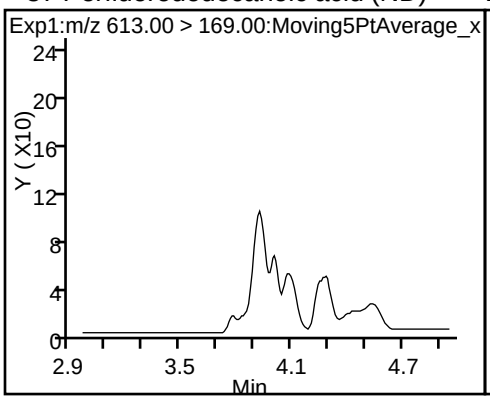
31 Perfluoroundecanoic acid (ND)



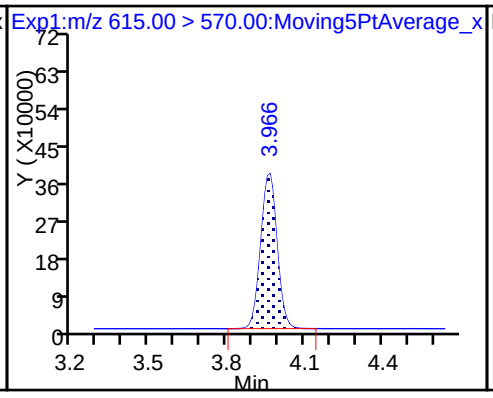
37 Perfluorododecanoic acid (ND)



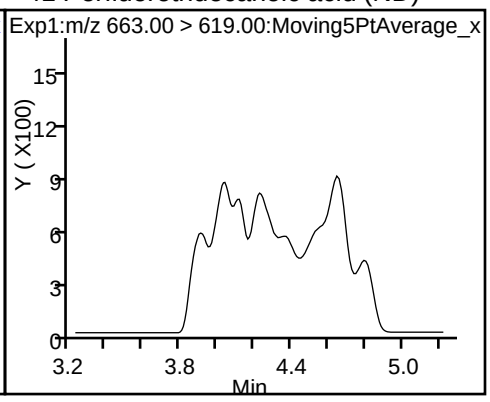
37 Perfluorododecanoic acid (ND)



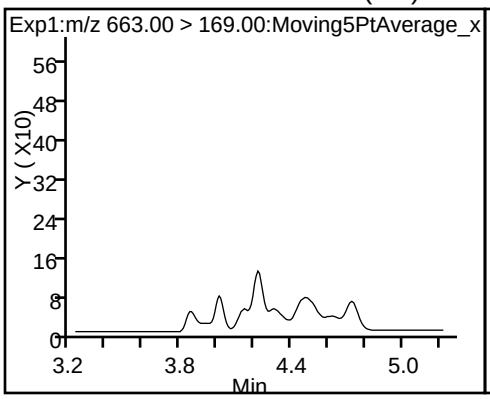
D 36 13C2 PFDoA



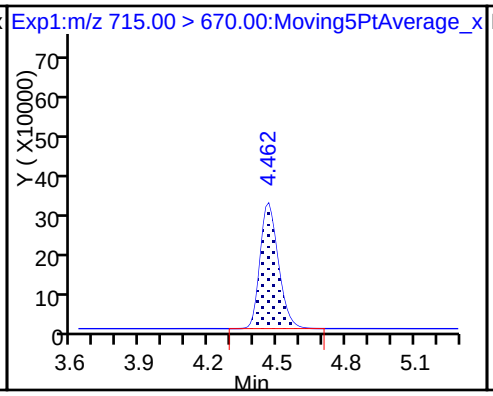
41 Perfluorotridecanoic acid (ND)



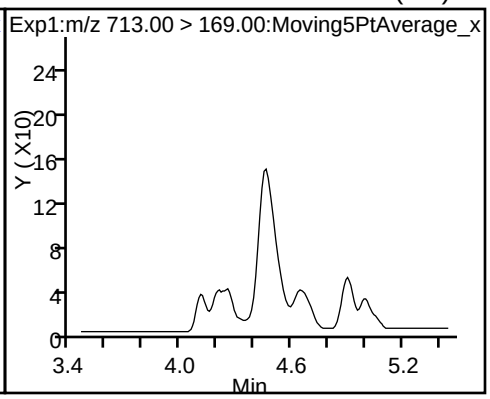
41 Perfluorotridecanoic acid (ND)



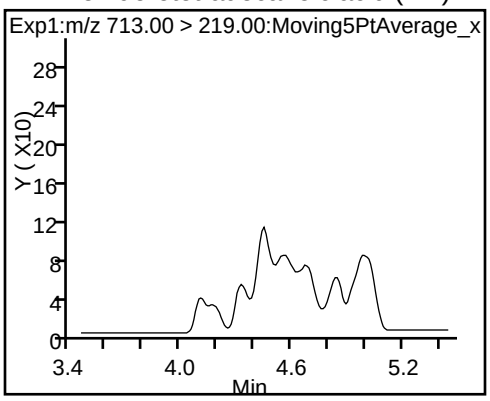
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

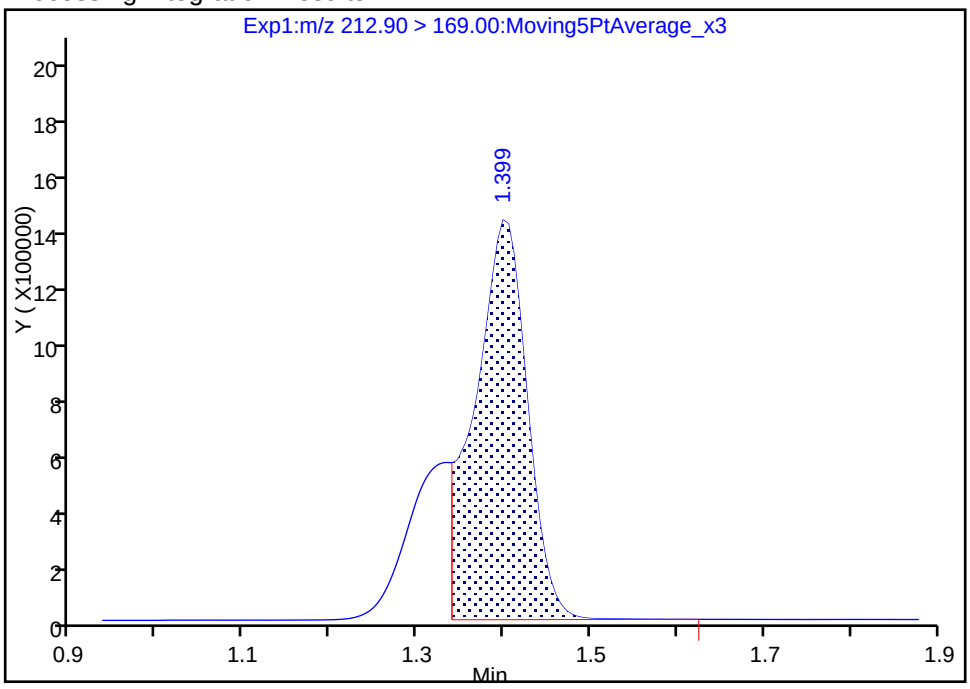
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_012.d				
Injection Date:	16-Feb-2018 16:35:54	Instrument ID:	A8_N		
Lims ID:	320-35682-D-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

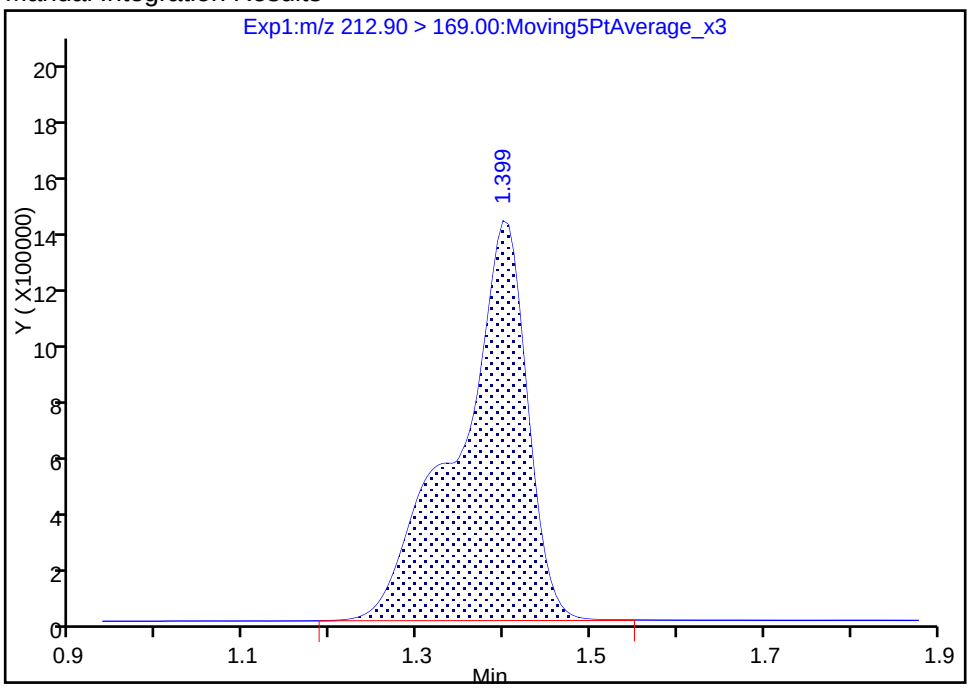
Processing Integration Results

RT: 1.40
Area: 5747638
Amount: 2.792262
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 7607054
Amount: 3.695586
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 12:55:59

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

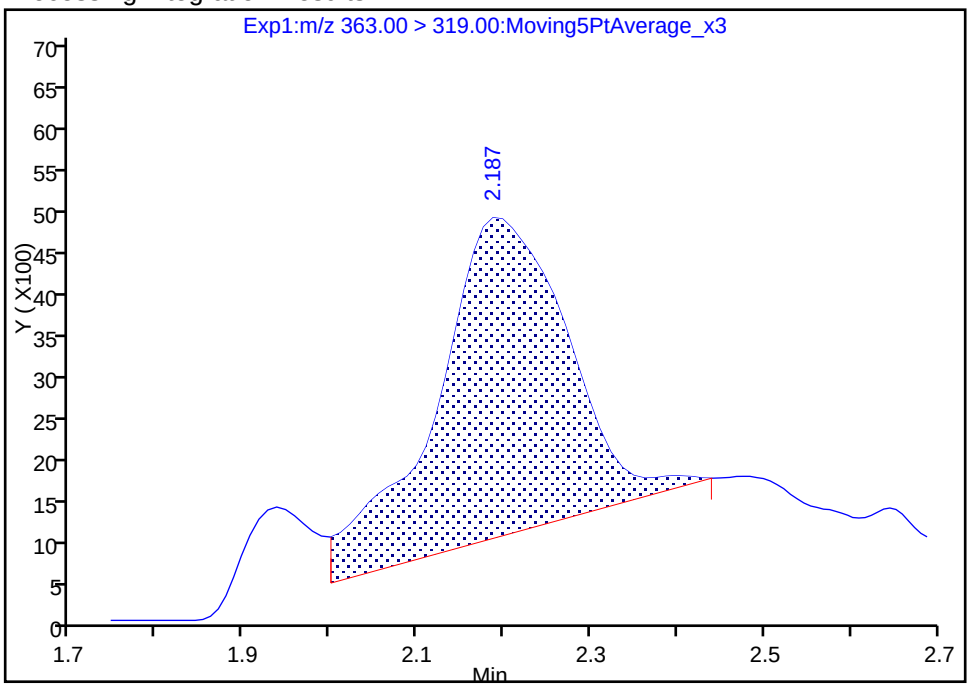
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_012.d				
Injection Date:	16-Feb-2018 16:35:54	Instrument ID:	A8_N		
Lims ID:	320-35682-D-3-A	Lab Sample ID:	320-35682-3		
Client ID:	TP-PFC-026-TPE				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

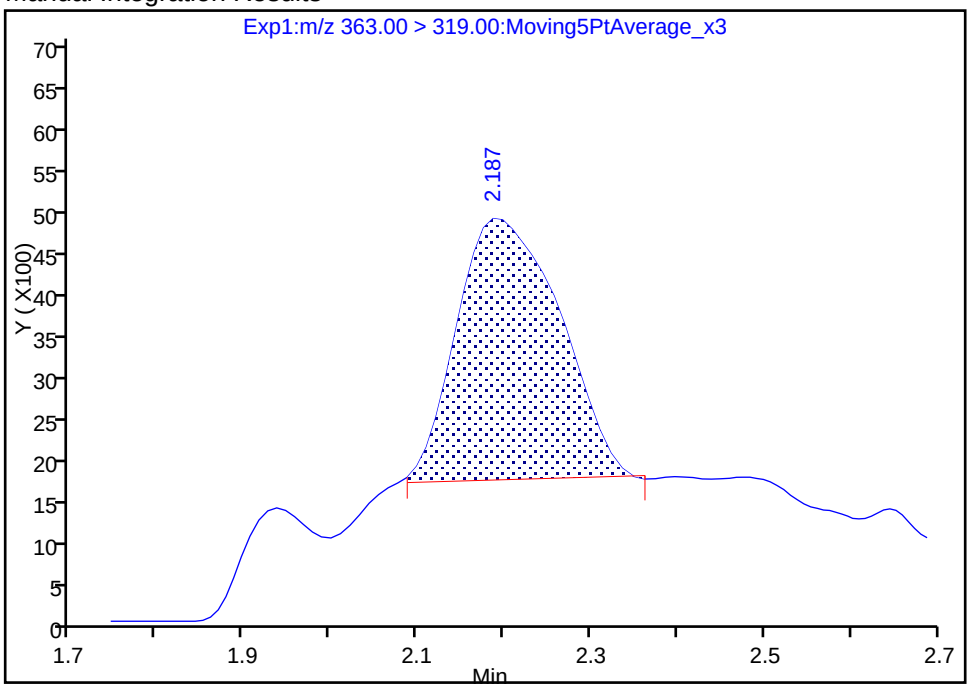
Processing Integration Results

RT: 2.19
Area: 41129
Amount: 0.023341
Amount Units: ng/ml



Manual Integration Results

RT: 2.19
Area: 26080
Amount: 0.014800
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 12:56:23

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D | Lab Sample ID: 320-35682-4

Matrix: Water | Lab File ID: 2018.02.07LLAA_053.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 00:00

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 252.2(mL) | Date Analyzed: 02/07/2018 15:23

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	120	M	2.0	1.5	0.58
2706-90-3	Perfluoropentanoic acid (PFPeA)	130		2.0	0.99	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	33		2.0	0.99	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.82	J	2.0	1.5	0.60
335-67-1	*Perfluorooctanoic acid (PFOA)*	*15*	*M*	*2.0*	1.5	*0.54*
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	0.99	U	2.0	0.99	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.71
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	3.0	0.75
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.82
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.53	J	2.0	0.99	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.99	U	2.0	0.99	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.99	U	2.0	0.99	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D Lab Sample ID: 320-35682-4

Matrix: Water Lab File ID: 2018.02.07LLAA_053.d

Analysis Method: 537 (modified) Date Collected: 02/01/2018 00:00

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 252.2(mL) Date Analyzed: 02/07/2018 15:23

Con. Extract Vol.: 10.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	94		25-150
STL00992	13C4 PFBA	101		25-150
STL00993	13C2 PFHxA	102		25-150
STL00990	13C4 PFOA	100		25-150
STL00995	13C5 PFNA	101		25-150
STL00996	13C2 PFDA	107		25-150
STL00997	13C2 PFUnA	103		25-150
STL00998	13C2 PFDoA	101		25-150
STL00994	18O2 PFHxS	103		25-150
STL00991	13C4 PFOS	96		25-150
STL02116	13C2-PFTeDA	106		25-150
STL01892	13C4-PFHpA	100		25-150
STL01893	13C5 PFPeA	99		25-150
STL02337	13C3-PFBS	96		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_053.d
Lims ID: 320-35682-D-4-A
Client ID: TP-PFC-026-TPE-D
Sample Type: Client
Inject. Date: 07-Feb-2018 15:23:05 ALS Bottle#: 45 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35682-d-4-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:43:00 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 16:40:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.420	1.412	0.008	0.540	6866488	2.54		101	20019	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.420	1.412	0.008	1.000	8114189	3.12			1205	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.663	1.660	0.003	0.995	6217477	3.23			5098	
D 3 13C5-PFPeA										
267.90 > 223.00	1.672	1.660	0.012	0.635	4046394	2.46		98.5	45787	
D 47 13C3-PFBS										
301.90 > 83.00	1.707	1.695	0.012	0.649	81702	2.22		95.7	3179	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.699	1.695	0.003	0.995	35890	0.0133			174	
298.90 > 99.00	1.699	1.695	0.003	0.995	20511		1.75(1.25-3.74)		158	
D 7 13C2 PFHxA										
315.00 > 270.00	1.955	1.930	0.025	0.743	4541496	2.56		102	44207	
6 Perfluorohexanoic acid										R
313.00 > 269.00	1.924	1.940	-0.016	0.984	1555063	0.8277			3362	R
313.00 > 119.00	1.945	1.940	0.005	0.995	72624		21.41(5.03-15.10)		950	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.253	2.262	-0.009	0.988	36861	0.0206			34.8	
363.00 > 169.00	2.266	2.262	0.004	0.994	14372		2.56(1.13-3.40)		70.2	
D 9 13C4-PFHpA										
367.00 > 322.00	2.280	2.262	0.018	0.866	4305562	2.50		100	33305	
D 11 18O2 PFHxS										
403.00 > 84.00	2.293	2.275	0.018	0.871	5171151	2.43		103	41895	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.293	2.275	0.018	1.000	18571	0.007471			102	
399.00 > 99.00	2.293	2.275	0.018	1.000	7648		2.43(1.50-4.49)		49.3	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.631	2.606	0.025	1.000	4208641	2.50		100	40659	
* 62 13C2-PFOA										
415.00 > 370.00	2.631	2.606	0.025		4685030	2.50			46453	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.631	2.606	0.025	1.000	733677	0.3826			409	
413.00 > 169.00	2.631	2.606	0.025	1.000	399125		1.84(0.84-2.52)		3065	M
D 18 13C4 PFOS										
503.00 > 80.00	3.002	2.976	0.026	1.141	3198999	2.29		95.9	21796	
D 19 13C5 PFNA										
468.00 > 423.00	3.002	2.976	0.026	1.141	3461250	2.53		101	38318	
D 21 13C8 FOSA										
506.00 > 78.00	3.349	3.331	0.018	1.273	4520643	2.34		93.6	18014	
D 23 13C2 PFDA										
515.00 > 470.00	3.357	3.331	0.026	1.276	3145186	2.67		107	33988	
D 30 13C2 PFUnA										
565.00 > 520.00	3.673	3.655	0.018	1.396	2361552	2.59		103	28025	
D 36 13C2 PFDoA										
615.00 > 570.00	3.974	3.952	0.022	1.510	2349482	2.52		101	26758	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.443	0.019	1.696	3060860	2.66		106	18856	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

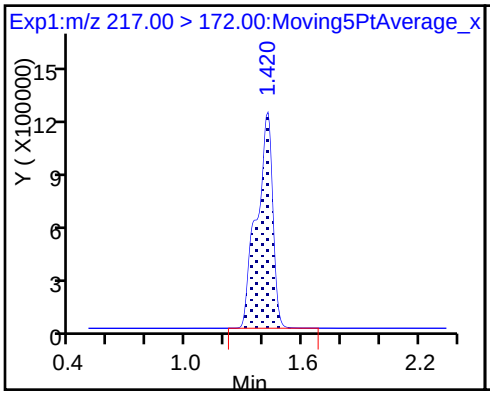
Report Date: 08-Feb-2018 16:43:10 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

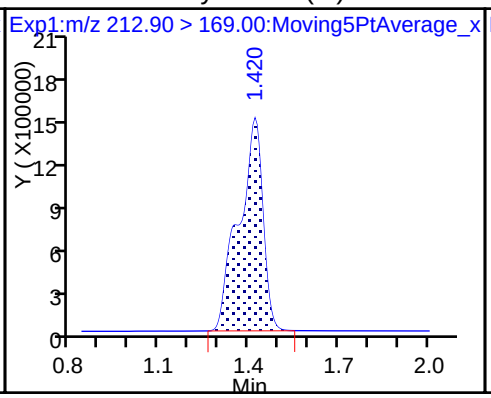
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_053.d

Injection Date:	07-Feb-2018 15:23:05	Instrument ID:	A8_N		
Lims ID:	320-35682-D-4-A	Lab Sample ID:	320-35682-4		
Client ID:	TP-PFC-026-TPE-D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	45	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

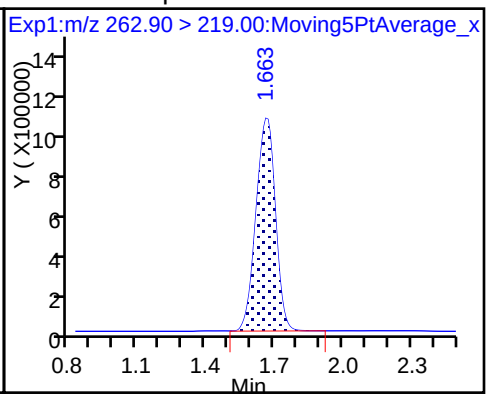
D 1 13C4 PFBA



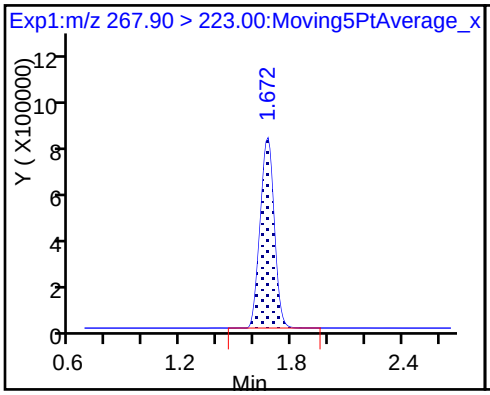
2 Perfluorobutyric acid (M)



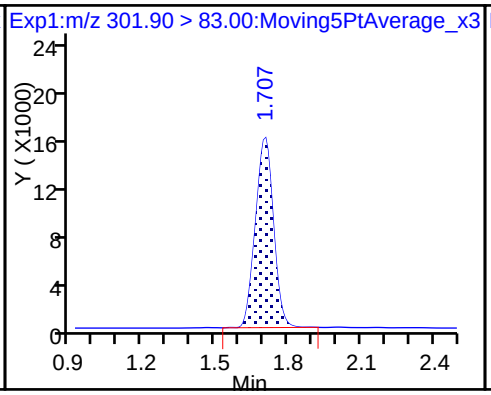
4 Perfluoropentanoic acid



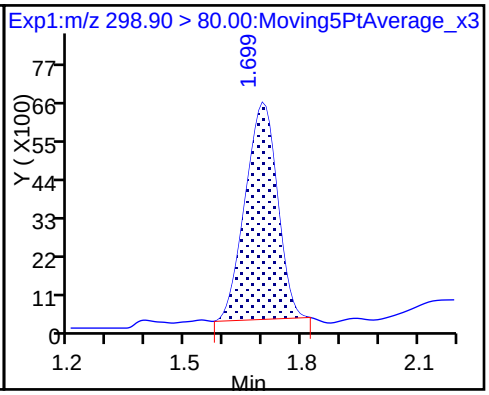
D 3 13C5-PFPeA



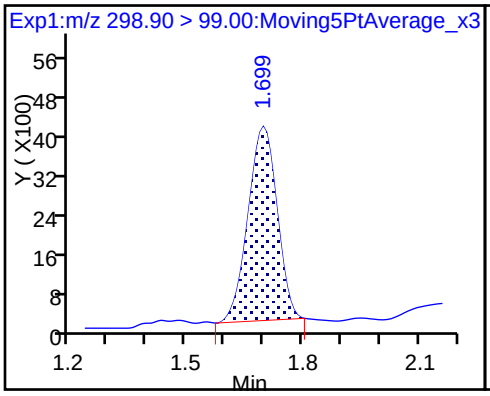
D 47 13C3-PFBS



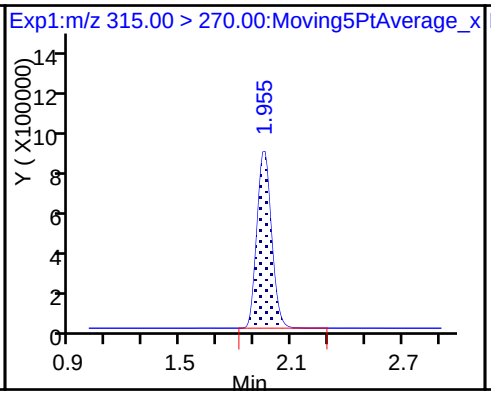
5 Perfluorobutanesulfonic acid



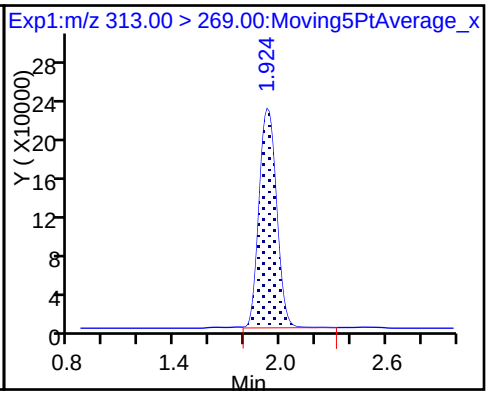
5 Perfluorobutanesulfonic acid



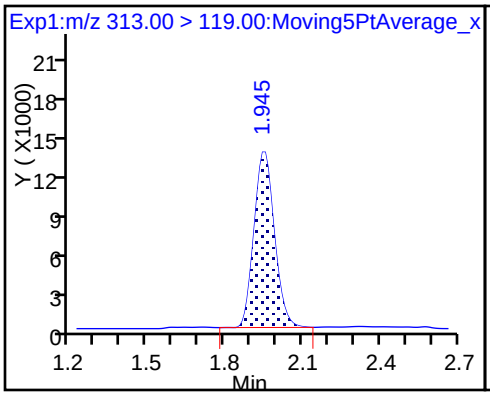
D 7 13C2 PFHxA



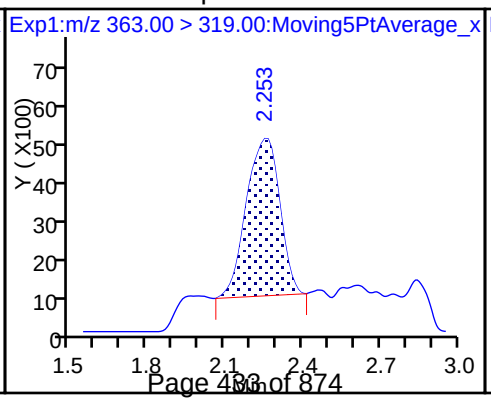
6 Perfluorohexanoic acid



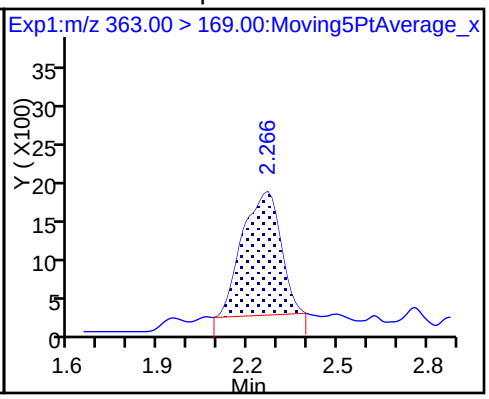
6 Perfluorohexanoic acid



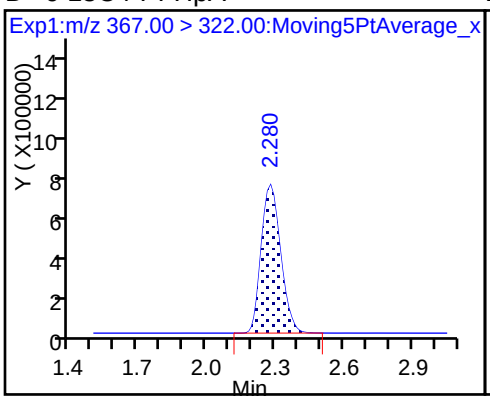
10 Perfluoroheptanoic acid



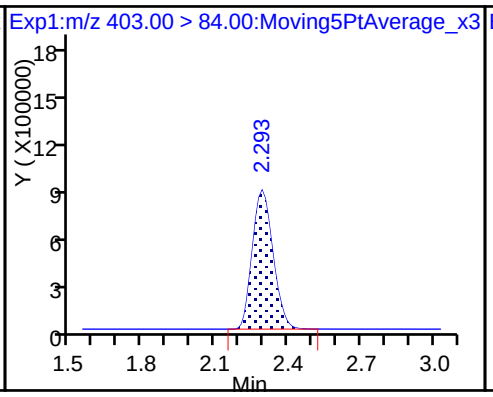
10 Perfluoroheptanoic acid



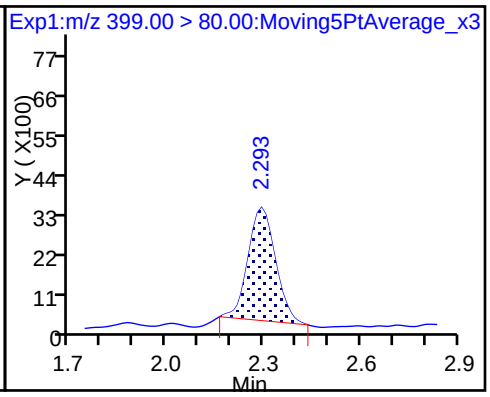
D 9 13C4-PFHpA



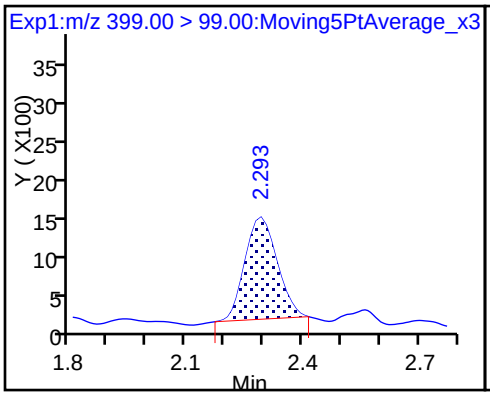
D 11 18O2 PFHxS



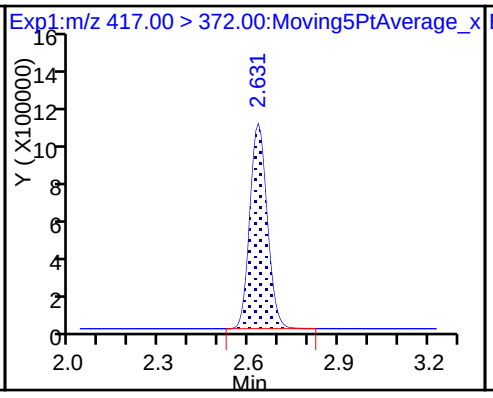
8 Perfluorohexanesulfonic acid



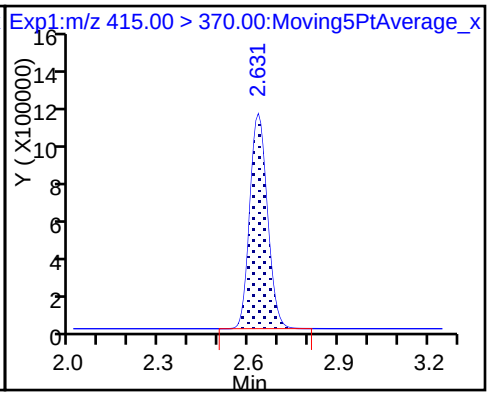
8 Perfluorohexanesulfonic acid



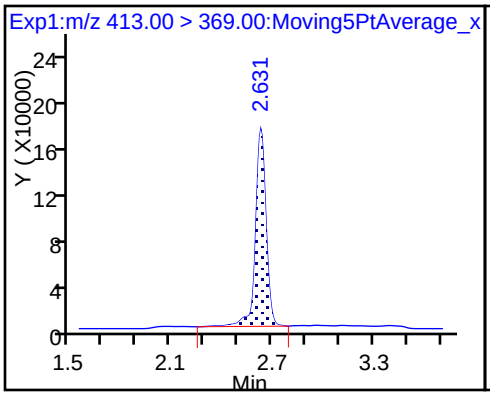
D 14 13C4 PFOA



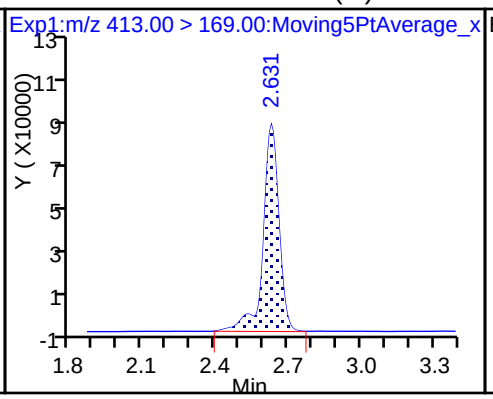
* 62 13C2-PFOA



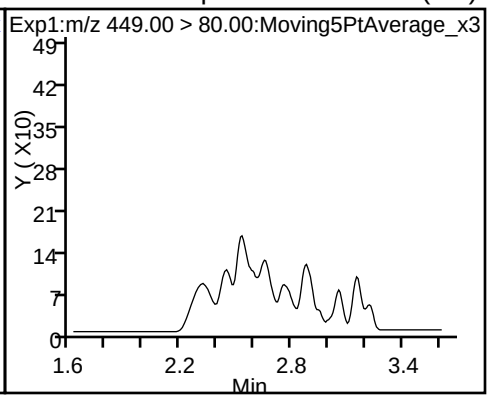
15 Perfluorooctanoic acid



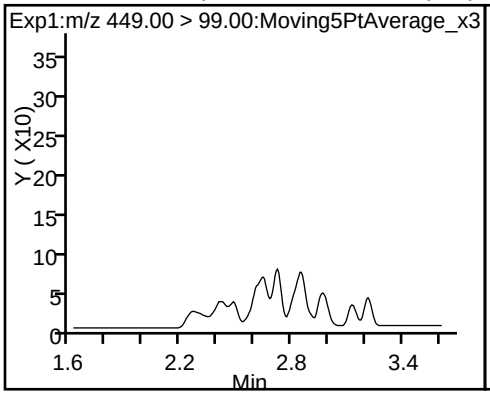
15 Perfluorooctanoic acid (M)



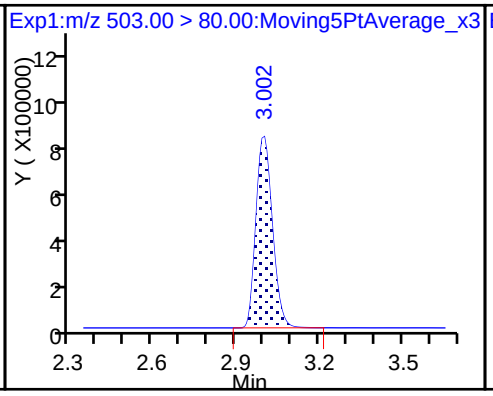
16 Perfluoroheptanesulfonic acid (ND)



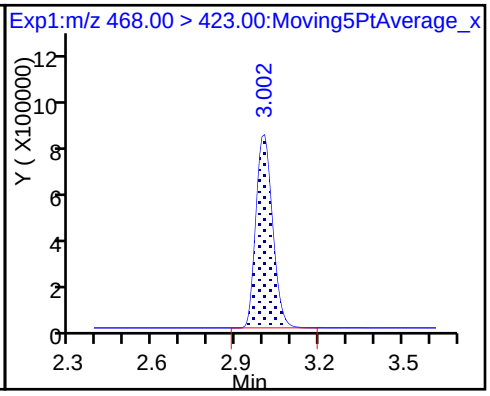
16 Perfluoroheptanesulfonic acid (ND)



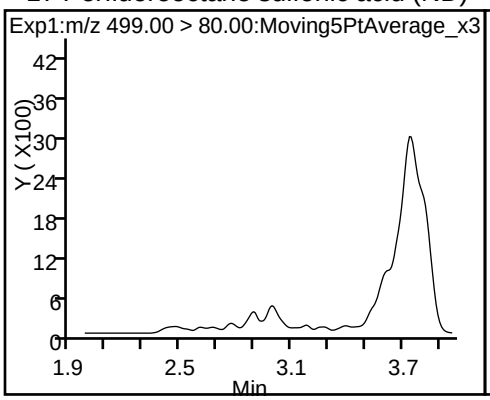
D 18 13C4 PFOS



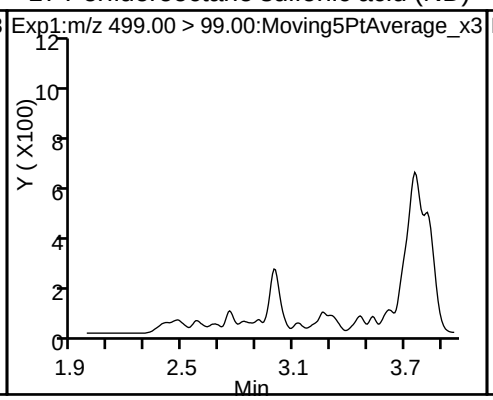
D 19 13C5 PFNA



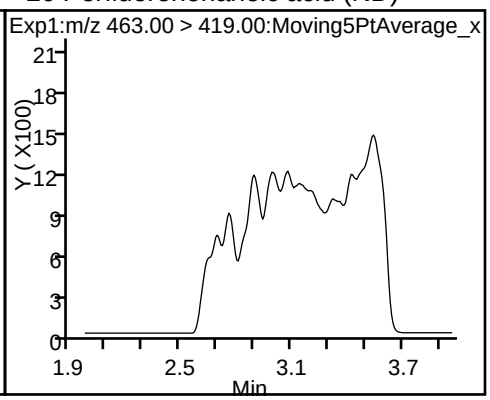
17 Perfluorooctane sulfonic acid (ND)



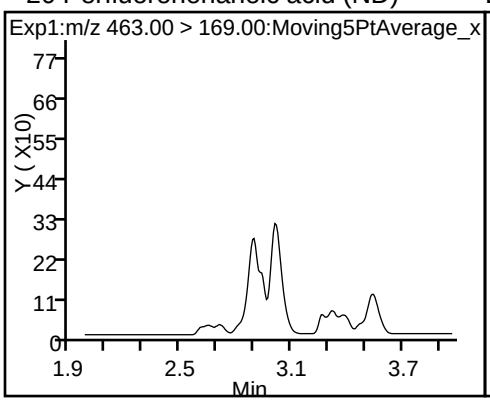
17 Perfluorooctane sulfonic acid (ND)



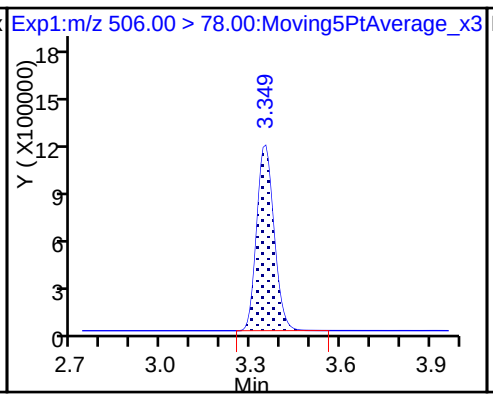
20 Perfluorononanoic acid (ND)



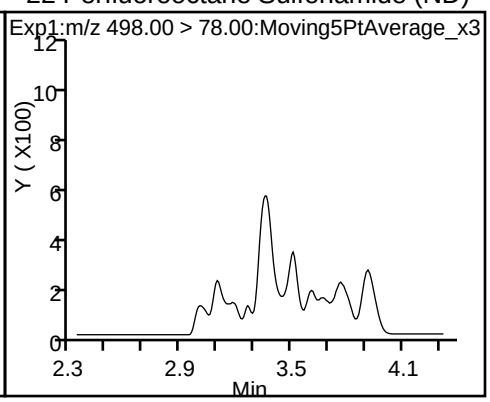
20 Perfluorononanoic acid (ND)



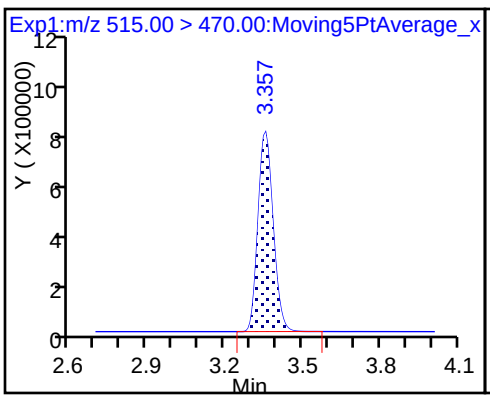
D 21 13C8 FOSA



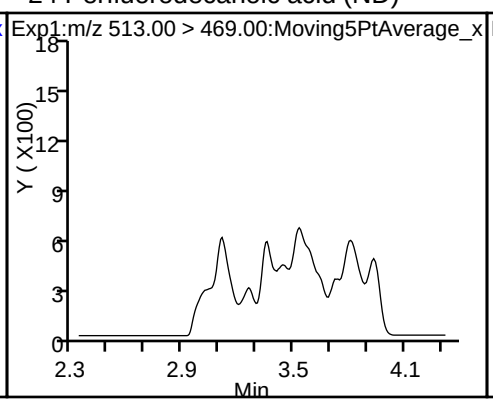
22 Perfluorooctane Sulfonamide (ND)



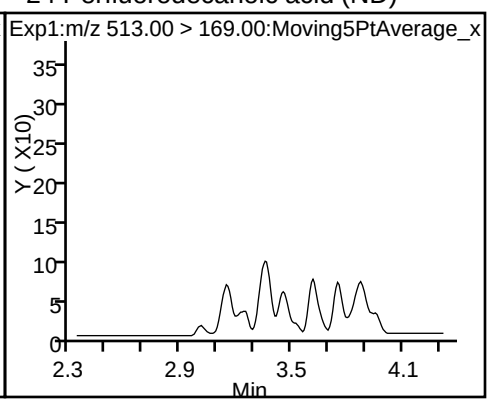
D 23 13C2 PFDA



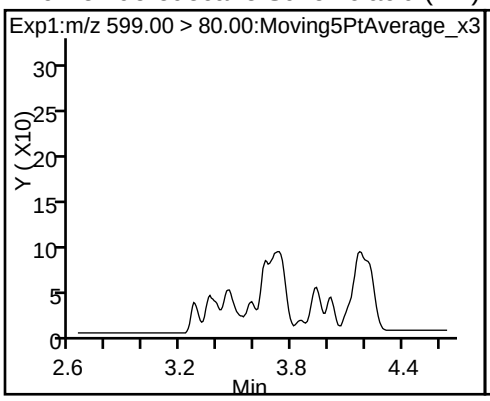
24 Perfluorodecanoic acid (ND)



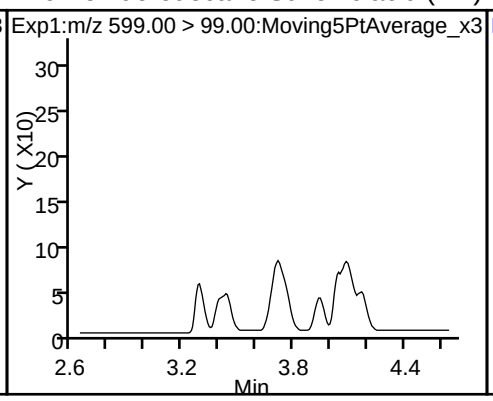
24 Perfluorodecanoic acid (ND)



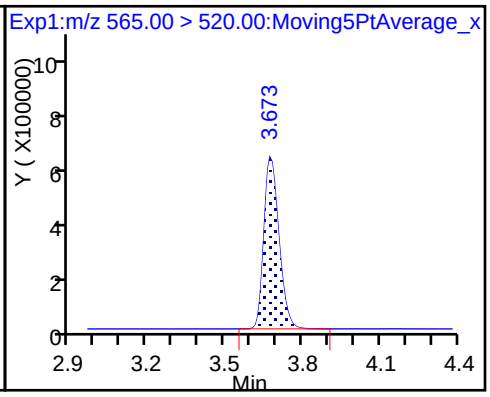
29 Perfluorodecane Sulfonic acid (ND)



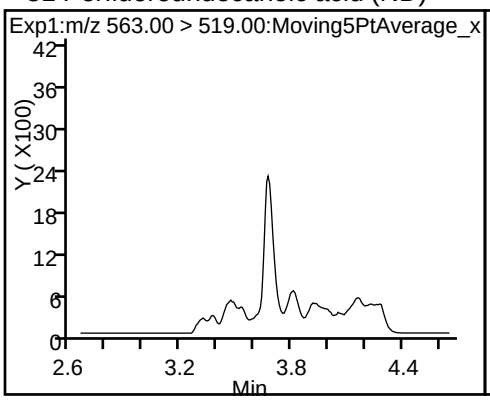
29 Perfluorodecane Sulfonic acid (ND)



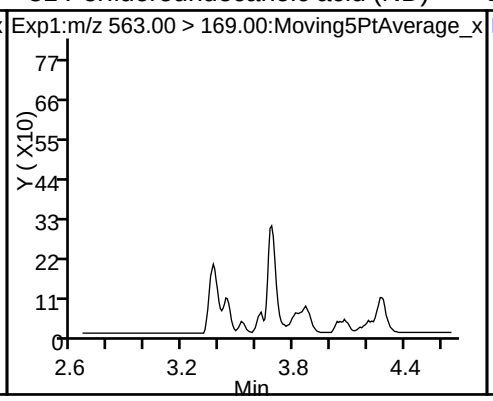
D 30 13C2 PFUnA



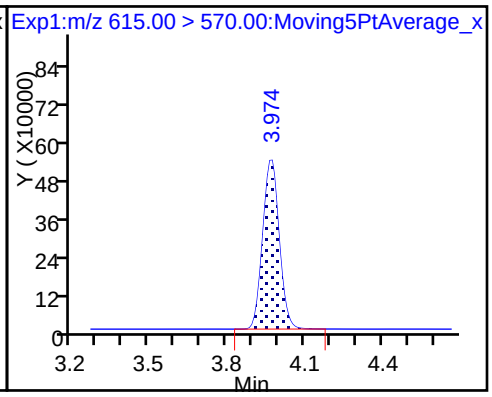
31 Perfluoroundecanoic acid (ND)



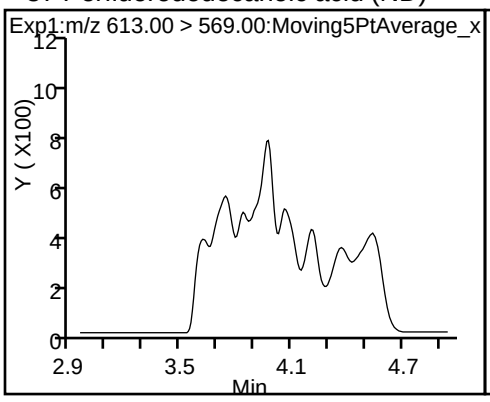
31 Perfluoroundecanoic acid (ND)



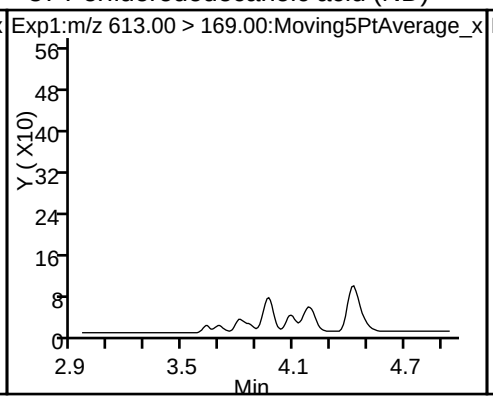
D 36 13C2 PFDoA



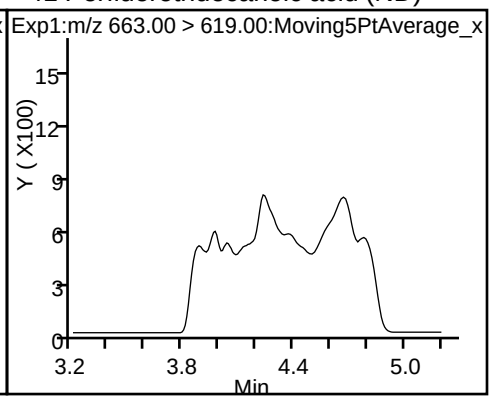
37 Perfluorododecanoic acid (ND)



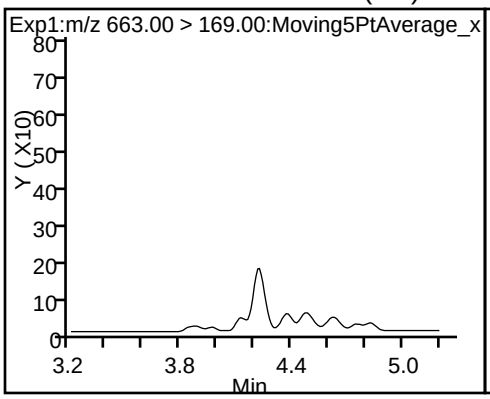
37 Perfluorododecanoic acid (ND)



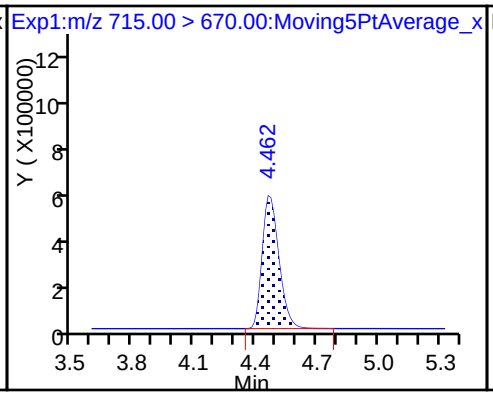
41 Perfluorotridecanoic acid (ND)



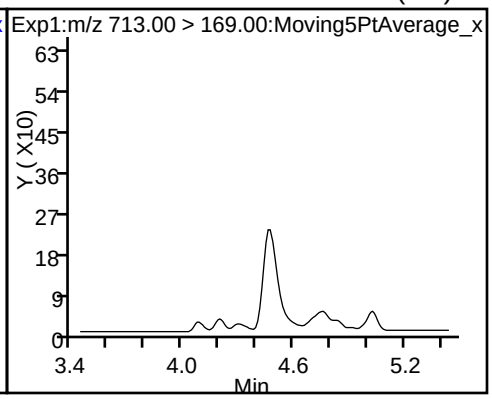
41 Perfluorotridecanoic acid (ND)



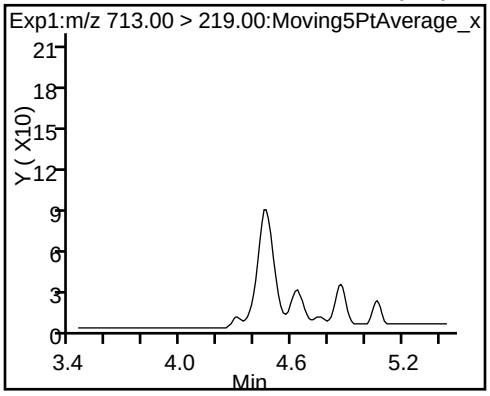
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

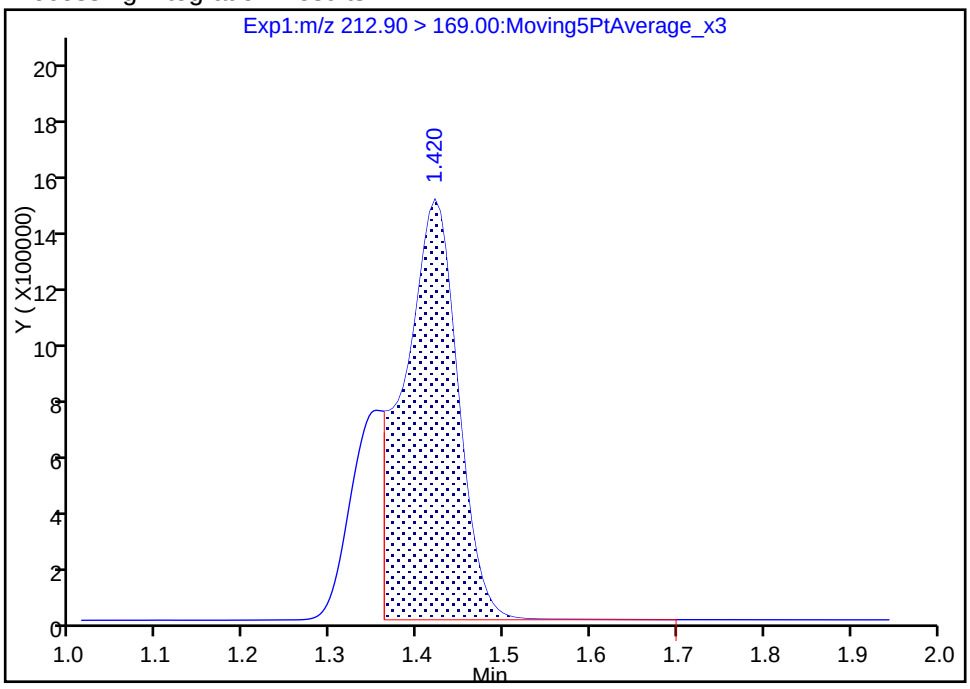
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_053.d				
Injection Date:	07-Feb-2018 15:23:05	Instrument ID:	A8_N		
Lims ID:	320-35682-D-4-A	Lab Sample ID:	320-35682-4		
Client ID:	TP-PFC-026-TPE-D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	45	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

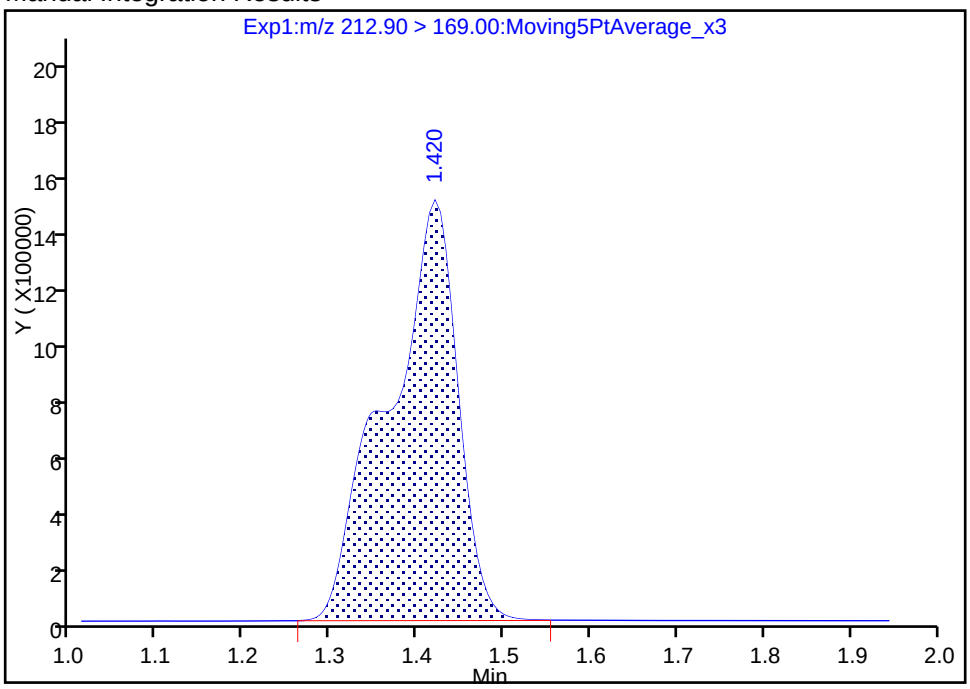
Processing Integration Results

RT: 1.42
Area: 6246456
Amount: 2.400117
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 8114189
Amount: 3.117768
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 16:38:07

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

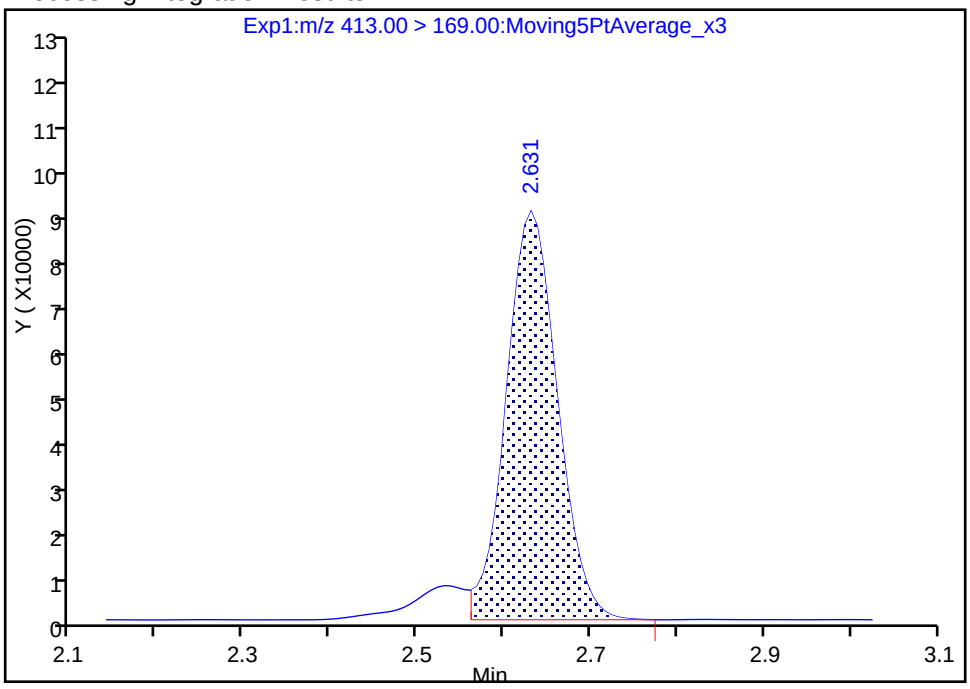
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_053.d				
Injection Date:	07-Feb-2018 15:23:05	Instrument ID:	A8_N		
Lims ID:	320-35682-D-4-A	Lab Sample ID:	320-35682-4		
Client ID:	TP-PFC-026-TPE-D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	45	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

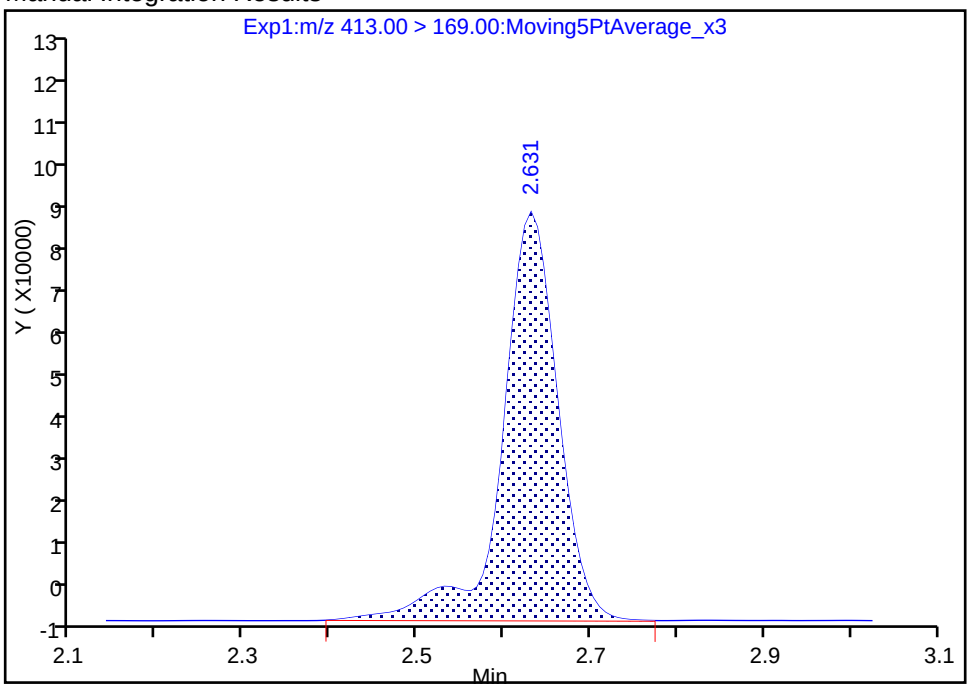
Processing Integration Results

RT: 2.63
Area: 364275
Amount: 0.382612
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 399125
Amount: 0.382612
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 16:38:46

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D RE | Lab Sample ID: 320-35682-4 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_013.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 00:00

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.9(mL) | Date Analyzed: 02/16/2018 16:43

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	*Perfluorobutanoic acid (PFBA)*	*130*	*M*	*1.7*	1.3	*0.50*
2706-90-3	*Perfluoropentanoic acid (PFPeA)*	*130*		*1.7*	0.85	*0.37*
307-24-4	*Perfluorohexanoic acid (PFHxA)*	*33*		*1.7*	0.85	*0.40*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.64*	*J M*	*1.7*	1.3	*0.52*
335-67-1	Perfluorooctanoic acid (PFOA)	0.66	J	1.7	1.3	0.46
375-95-1	*Perfluorononanoic acid (PFNA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
335-76-2	*Perfluorodecanoic acid (PFDA)*	*0.85*	*U*	*1.7*	0.85	*0.41*
2058-94-8	*Perfluoroundecanoic acid (PFUnA)*	*1.3*	*U*	*1.7*	1.3	*0.61*
307-55-1	*Perfluorododecanoic acid (PFDoA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
72629-94-8	*Perfluorotridecanoic Acid (PFTriA)*	*2.6*	*U*	*3.4*	2.6	*0.65*
376-06-7	*Perfluorotetradecanoic acid (PFTeA)*	*2.6*	*U*	*3.4*	2.6	*0.71*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*0.54*	*J*	*1.7*	0.85	*0.39*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*0.85*	*U*	*1.7*	0.85	*0.32*
375-92-8	*Perfluoroheptanesulfonic Acid (PFHpS)*	*0.85*	*U*	*1.7*	0.85	*0.31*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*2.6*	*U*	*3.4*	2.6	*0.94*
335-77-3	*Perfluorodecanesulfonic acid (PFDS)*	*1.3*	*U*	*1.7*	1.3	*0.48*
754-91-6	*Perfluorooctane Sulfonamide (FOSA)*	*2.6*	*U*	*3.4*	2.6	*1.1*

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D RE | Lab Sample ID: 320-35682-4 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_013.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 00:00

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.9(mL) | Date Analyzed: 02/16/2018 16:43

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	57		25-150
STL00992	13C4 PFBA	58		25-150
STL00993	13C2 PFHxA	60		25-150
STL00990	13C4 PFOA	59		25-150
STL00995	13C5 PFNA	59		25-150
STL00996	13C2 PFDA	59		25-150
STL00997	13C2 PFUnA	58		25-150
STL00998	13C2 PFDoA	54		25-150
STL00994	18O2 PFHxS	59		25-150
STL00991	13C4 PFOS	54		25-150
STL02116	13C2-PFTeDA	70		25-150
STL01892	13C4-PFHpA	62		25-150
STL01893	13C5 PFPeA	61		25-150
STL02337	13C3-PFBS	59		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_013.d
Lims ID: 320-35682-B-4-A
Client ID: TP-PFC-026-TPE-D
Sample Type: Client
Inject. Date: 16-Feb-2018 16:43:43 ALS Bottle#: 34 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35682-b-4-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:25 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: barnettj Date: 17-Feb-2018 12:58:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.401	1.401	0.0	0.537	5507604	1.45		58.0	76512	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.401	1.402	-0.001	1.000	7651031	3.71			1468	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.644	1.644	0.0	1.000	7366695	3.75			2060	
D 3 13C5-PFPeA										
267.90 > 223.00	1.644	1.652	-0.008	0.630	4120398	1.52		60.8	89825	
D 47 13C3-PFBS										
301.90 > 83.00	1.679	1.679	0.0	0.644	99922	1.38		59.3	1751	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.679	1.679	0.0	1.000	51191	0.0160			616	
298.90 > 99.00	1.670	1.679	-0.009	0.995	26851		1.91(1.25-3.74)		176	
D 7 13C2 PFHxA										
315.00 > 270.00	1.922	1.922	0.0	0.737	4409319	1.51		60.5	124982	
6 Perfluorohexanoic acid										R
313.00 > 269.00	1.891	1.923	-0.032	0.984	1749718	0.9627			2781	R
313.00 > 119.00	1.922	1.923	-0.001	1.000	83531		20.95(5.03-15.10)		1077	
D 9 13C4-PFHpA										
367.00 > 322.00	2.251	2.252	-0.001	0.863	4264405	1.54		61.8	99502	
10 Perfluoroheptanoic acid										RM
363.00 > 319.00	2.204	2.252	-0.048	0.979	34250	0.0187			22.6	RM
363.00 > 169.00	2.226	2.252	-0.026	0.989	10028		3.42(1.13-3.40)		47.5	
D 11 18O2 PFHxS										
403.00 > 84.00	2.264	2.265	-0.001	0.868	5426608	1.39		59.0	87295	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.264	2.265	-0.001	1.000	22685	0.008965			86.1	
399.00 > 99.00	2.251	2.265	-0.014	0.994	6672		3.40(1.50-4.49)		14.8	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.608	2.614	-0.006	1.000	3878340	1.47		58.6	90839	
* 62 13C2-PFOA										
415.00 > 370.00	2.608	2.615	-0.007		7303023	2.50			129671	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.608	2.615	-0.007	1.000	33096	0.0193			3.7	
413.00 > 169.00	2.608	2.615	-0.007	1.000	27086		1.22(0.84-2.52)		6.9	
D 19 13C5 PFNA										
468.00 > 423.00	2.985	2.984	0.001	1.144	2989269	1.46		58.5	55165	
D 18 13C4 PFOS										
503.00 > 80.00	2.977	2.984	-0.007	1.141	3473158	1.30		54.3	65309	
D 21 13C8 FOSA										
506.00 > 78.00	3.324	3.339	-0.015	1.274	5496313	1.43		57.1	35626	
D 23 13C2 PFDA										
515.00 > 470.00	3.339	3.347	-0.008	1.280	2464189	1.46		58.5	51539	
D 30 13C2 PFUnA										
565.00 > 520.00	3.663	3.663	0.0	1.404	1853257	1.44		57.6	31510	
D 36 13C2 PFDoA										
615.00 > 570.00	3.953	3.962	-0.009	1.515	1659229	1.35		54.1	18888	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.449	4.448	0.001	1.705	1898445	1.75		70.1	31773	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 17-Feb-2018 13:11:39 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_013.d

Injection Date: 16-Feb-2018 16:43:43 Instrument ID: A8_N

Lims ID: 320-35682-B-4-A Lab Sample ID: 320-35682-4

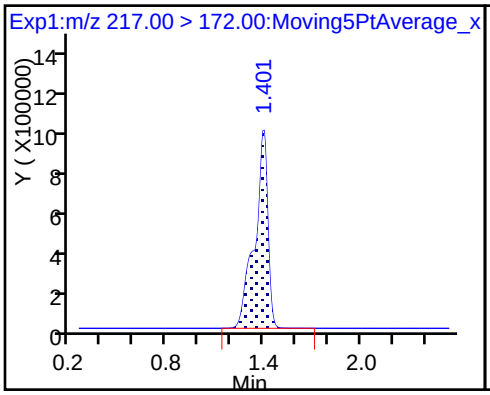
Client ID: TP-PFC-026-TPE-D

Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 6

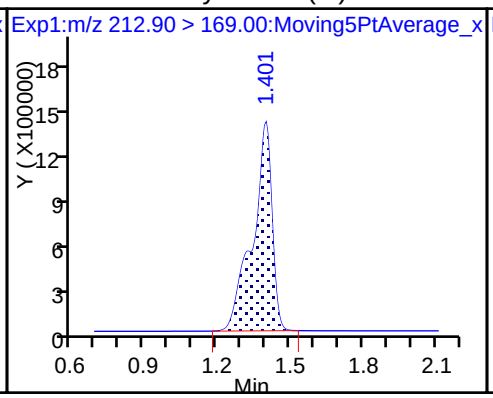
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

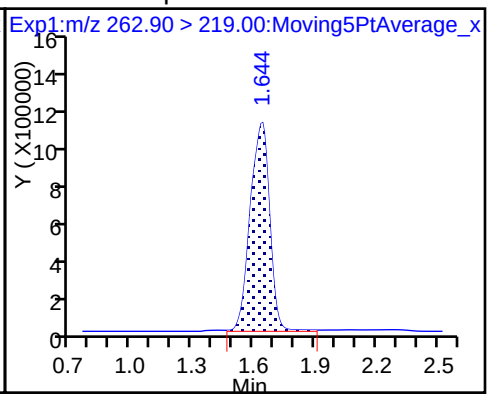
D 1 13C4 PFBA



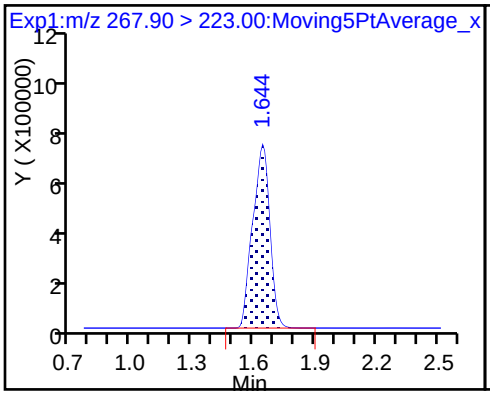
2 Perfluorobutyric acid (M)



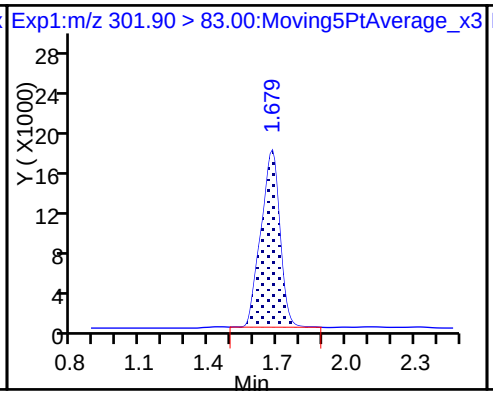
4 Perfluoropentanoic acid



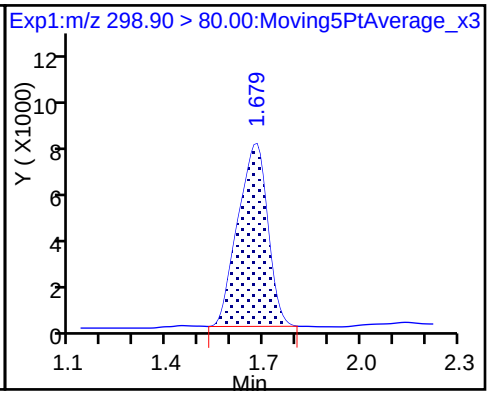
D 3 13C5-PFPeA



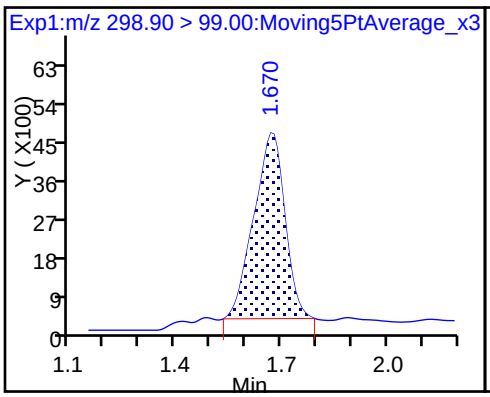
D 47 13C3-PFBS



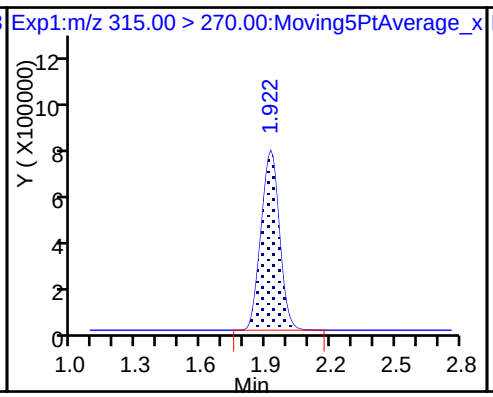
5 Perfluorobutanesulfonic acid



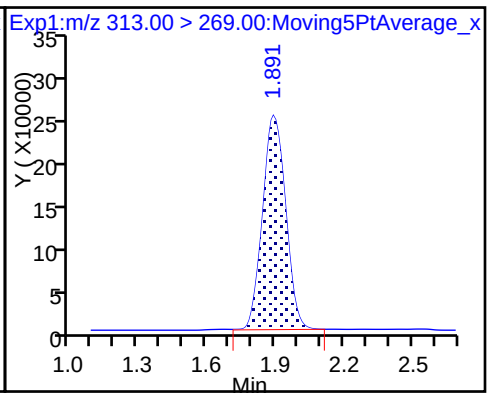
5 Perfluorobutanesulfonic acid



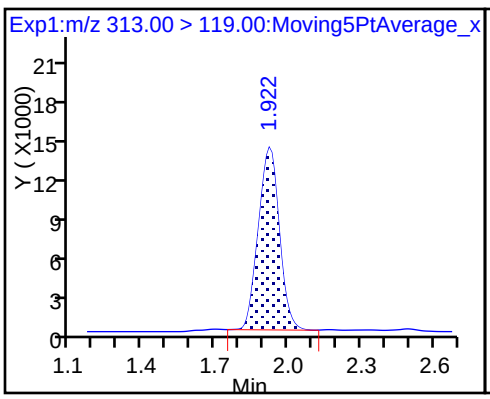
D 7 13C2 PFHxA



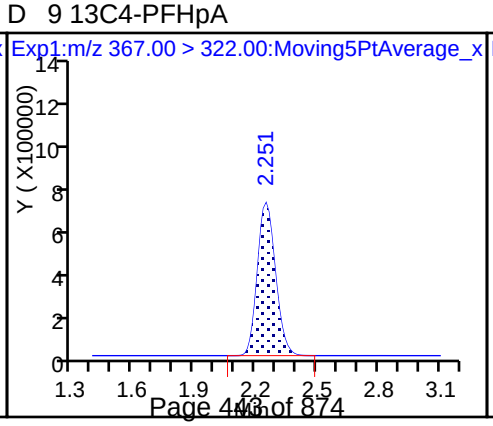
6 Perfluorohexanoic acid



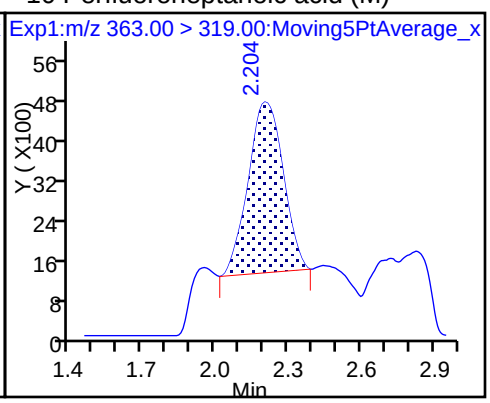
6 Perfluorohexanoic acid



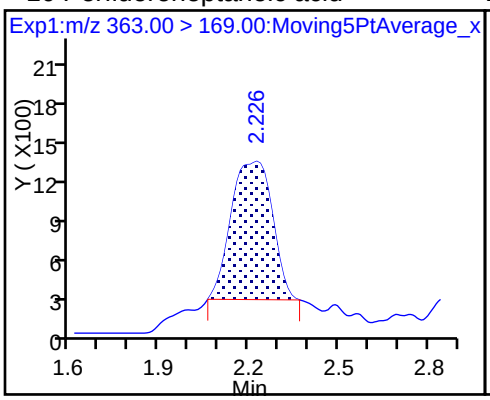
D 9 13C4-PFHpA



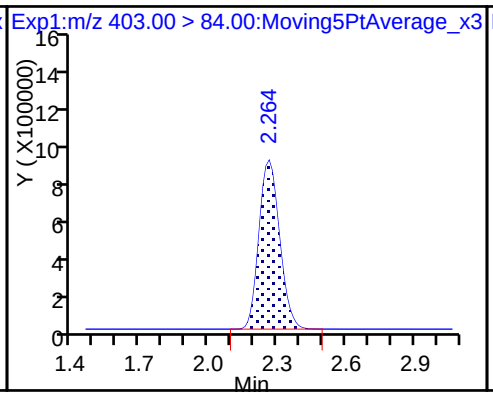
10 Perfluoroheptanoic acid (M)



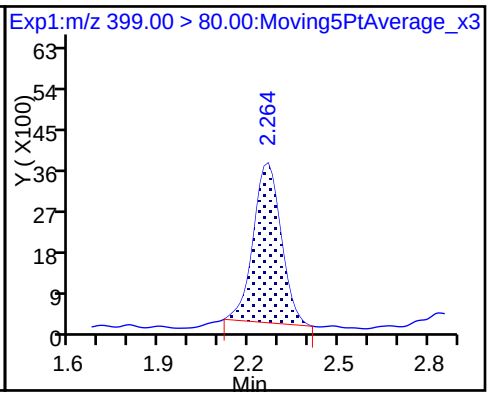
10 Perfluoroheptanoic acid



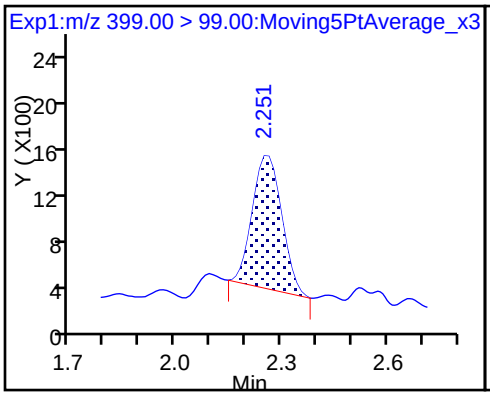
D 11 18O2 PFHxS



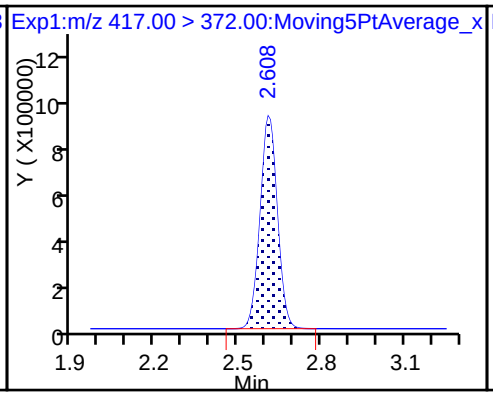
8 Perfluorohexanesulfonic acid



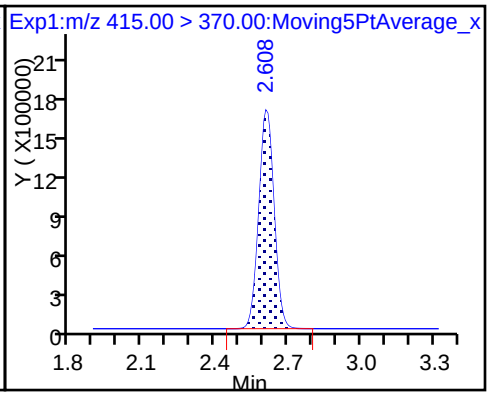
8 Perfluorohexanesulfonic acid



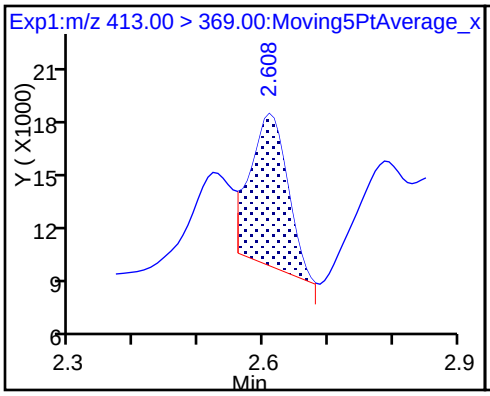
D 14 13C4 PFOA



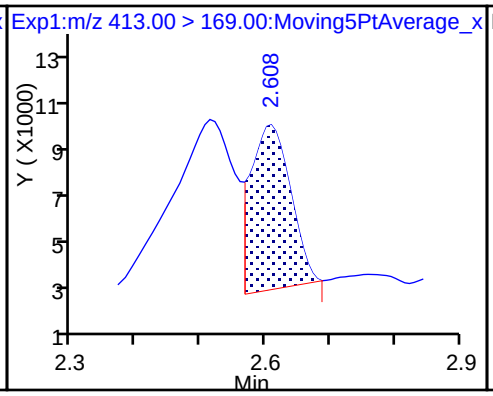
* 62 13C2-PFOA



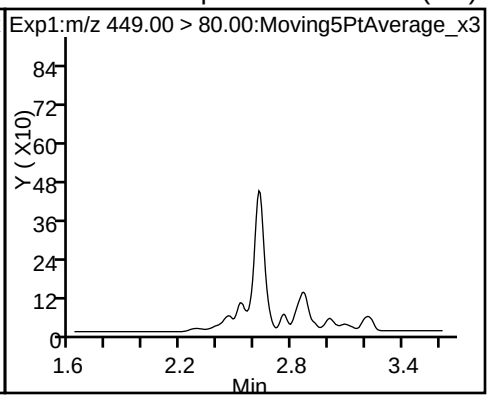
15 Perfluorooctanoic acid



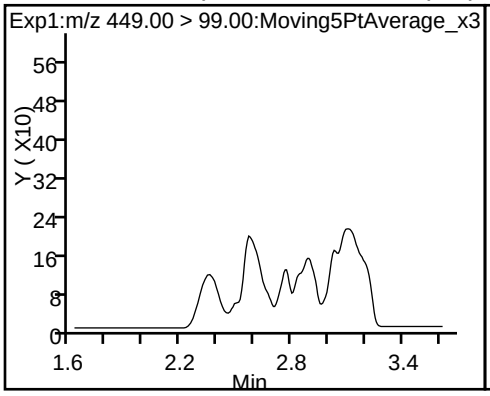
15 Perfluorooctanoic acid



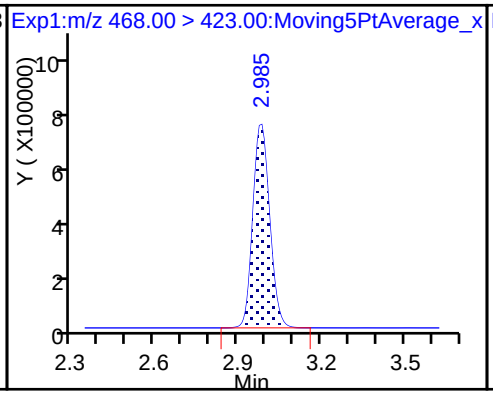
16 Perfluoroheptanesulfonic acid (ND)



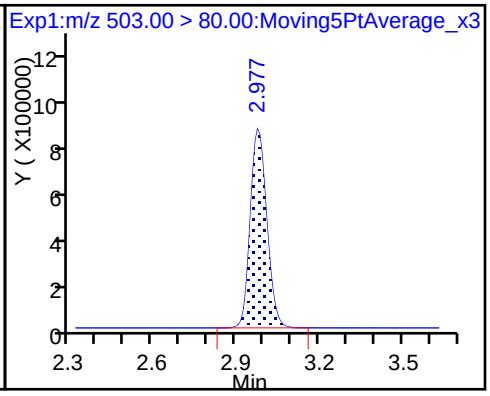
16 Perfluoroheptanesulfonic acid (ND)



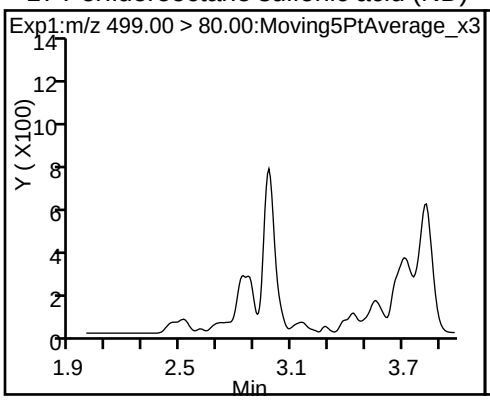
D 19 13C5 PFNA



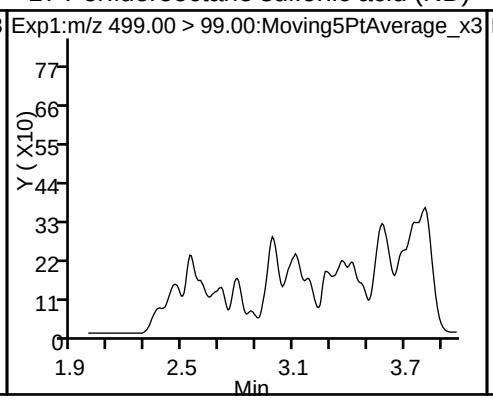
D 18 13C4 PFOS



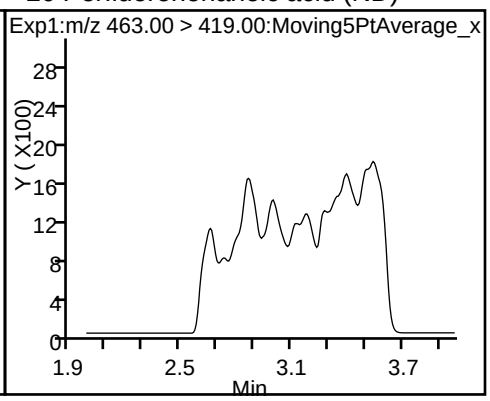
17 Perfluorooctane sulfonic acid (ND)



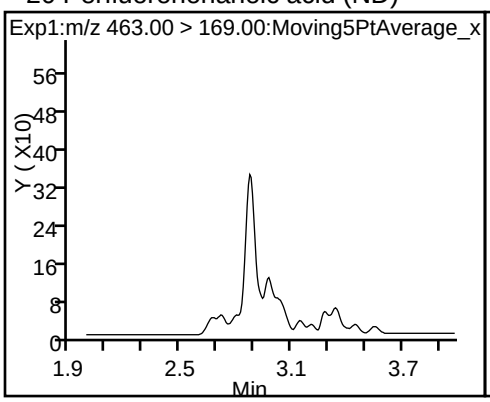
17 Perfluorooctane sulfonic acid (ND)



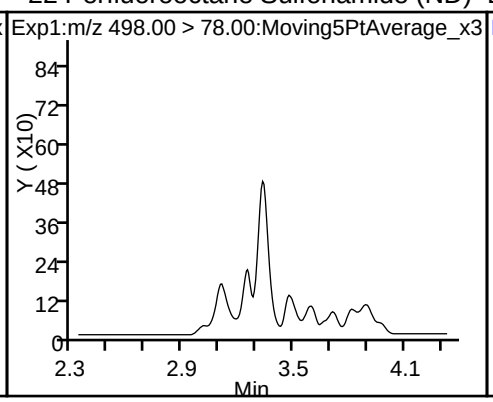
20 Perfluorononanoic acid (ND)



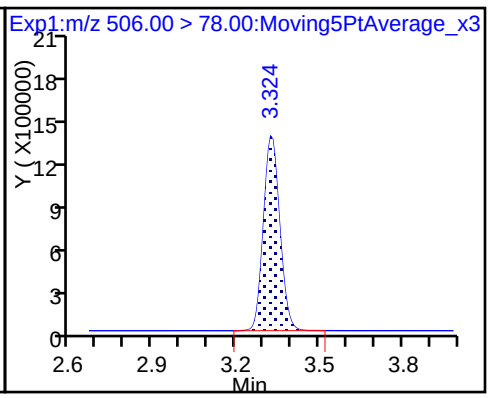
20 Perfluorononanoic acid (ND)



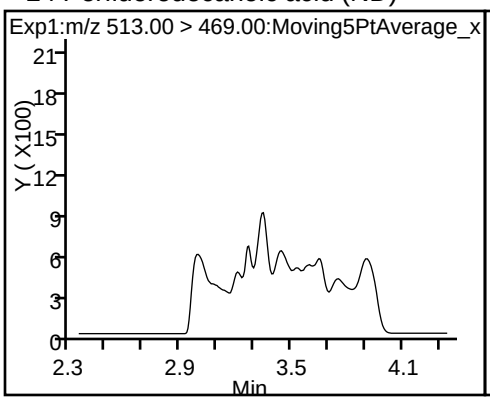
22 Perfluorooctane Sulfonamide (ND)



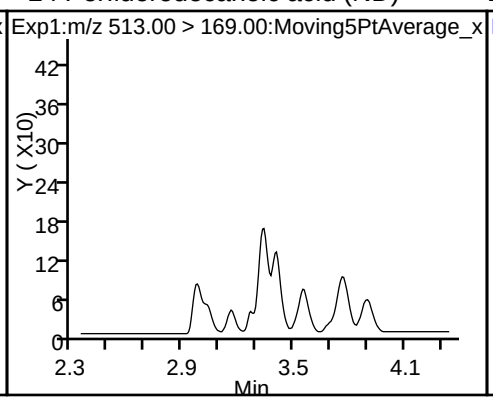
D 21 13C8 FOSA



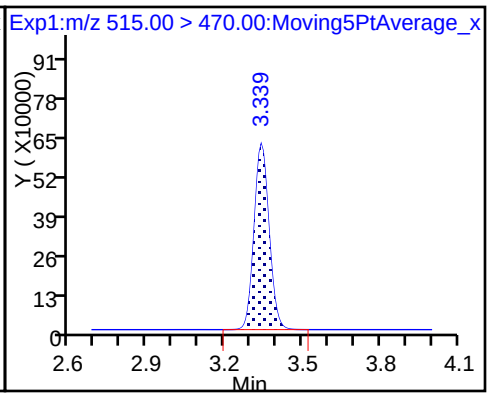
24 Perfluorodecanoic acid (ND)



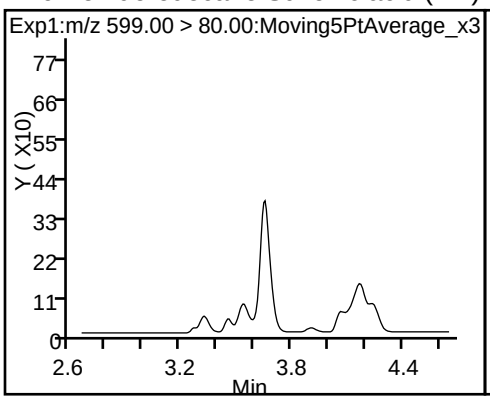
24 Perfluorodecanoic acid (ND)



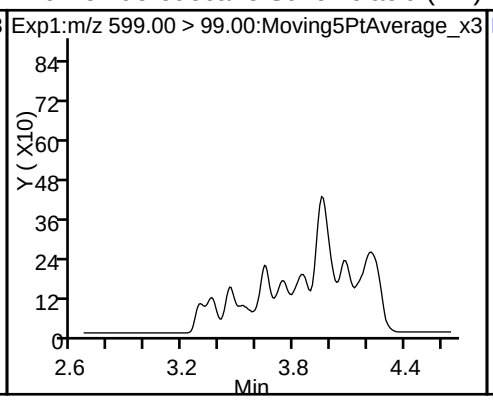
D 23 13C2 PFDA



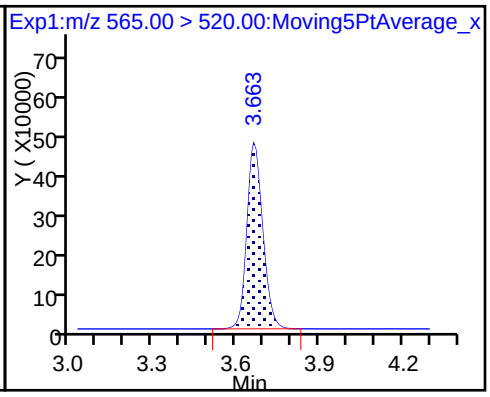
29 Perfluorodecane Sulfonic acid (ND)



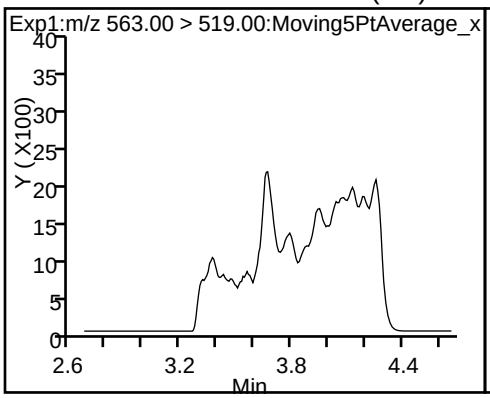
29 Perfluorodecane Sulfonic acid (ND)



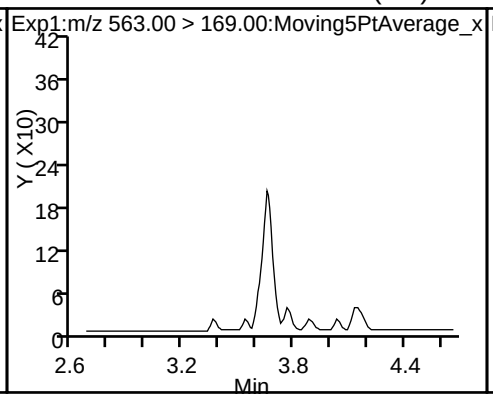
D 30 13C2 PFUnA



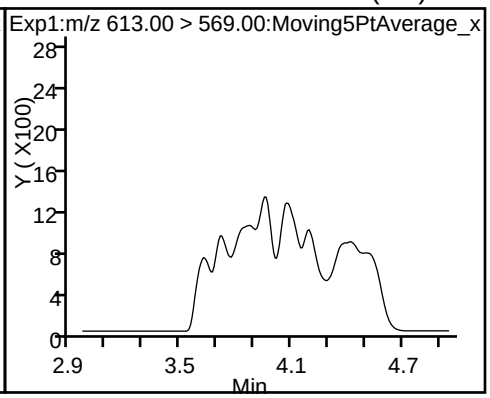
31 Perfluoroundecanoic acid (ND)



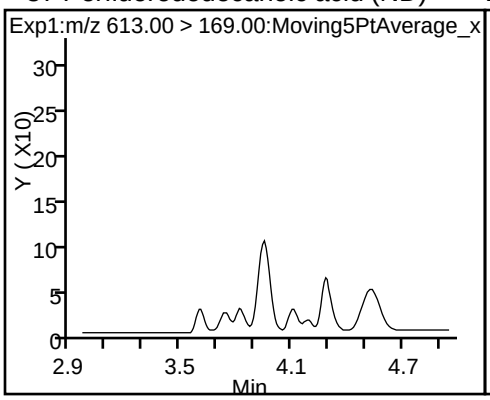
31 Perfluoroundecanoic acid (ND)



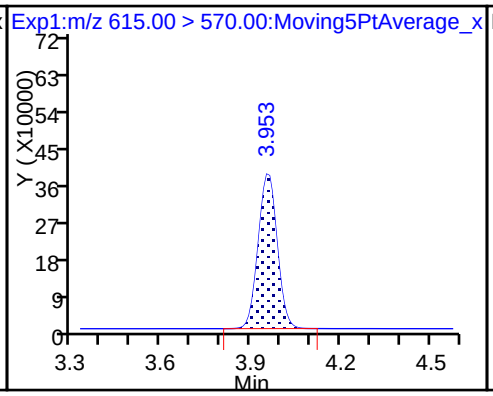
37 Perfluorododecanoic acid (ND)



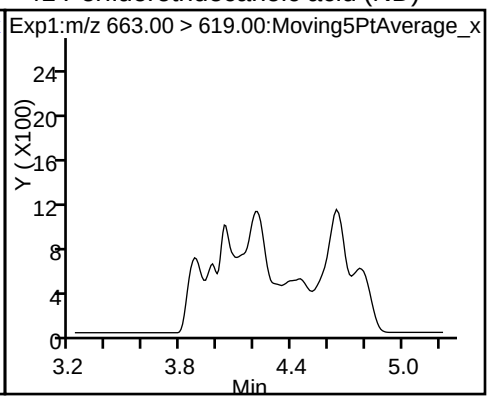
37 Perfluorododecanoic acid (ND)



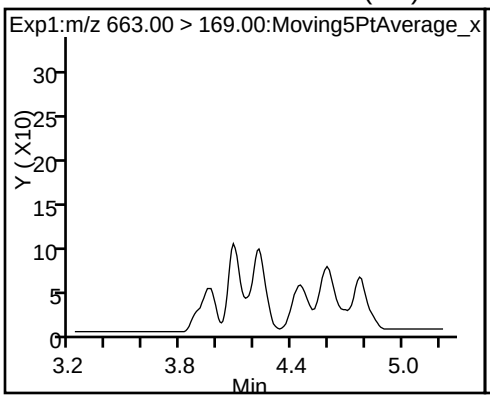
D 36 13C2 PFDoA



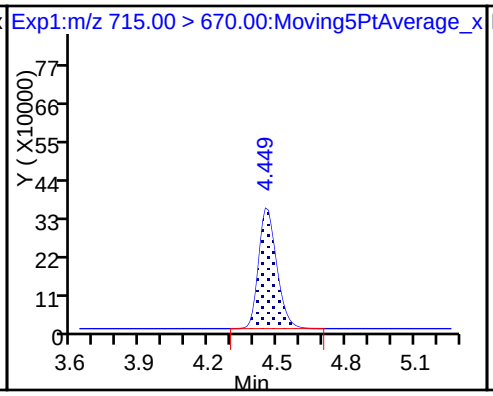
41 Perfluorotridecanoic acid (ND)



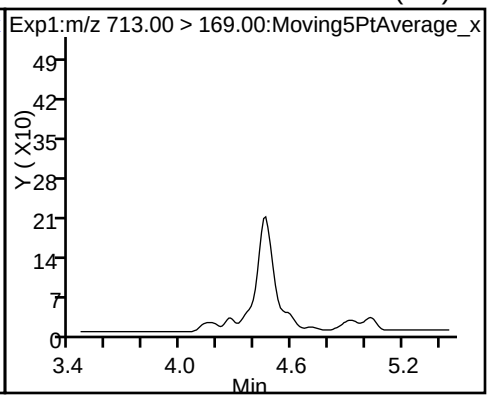
41 Perfluorotridecanoic acid (ND)



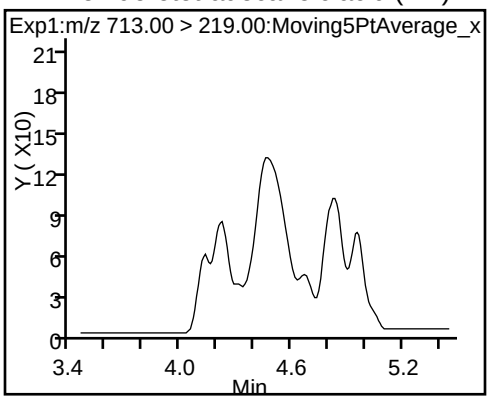
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

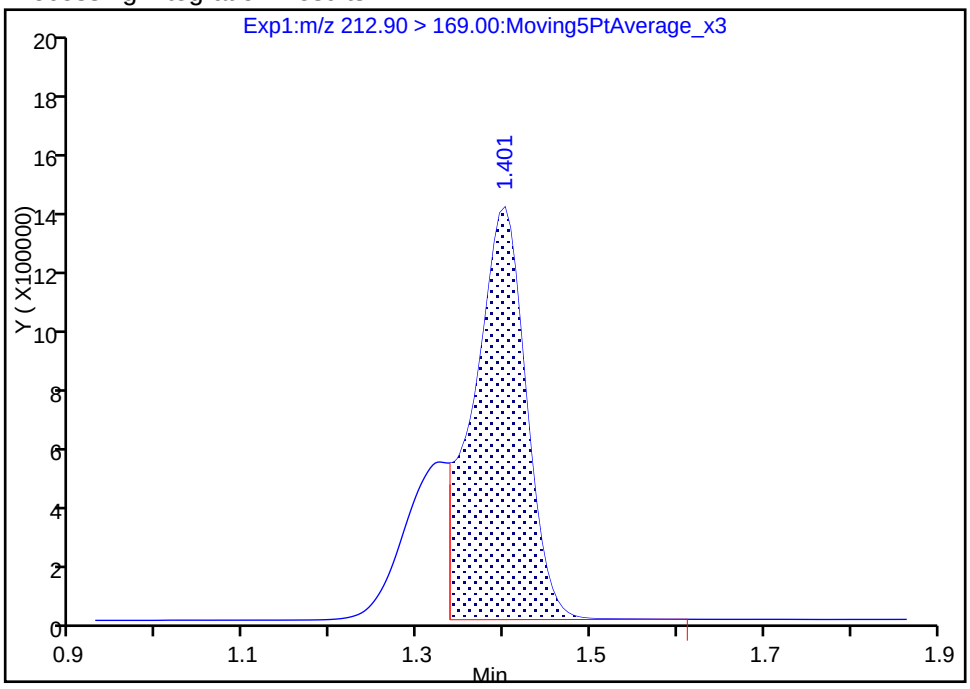
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_013.d				
Injection Date:	16-Feb-2018 16:43:43	Instrument ID:	A8_N		
Lims ID:	320-35682-B-4-A	Lab Sample ID:	320-35682-4		
Client ID:	TP-PFC-026-TPE-D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

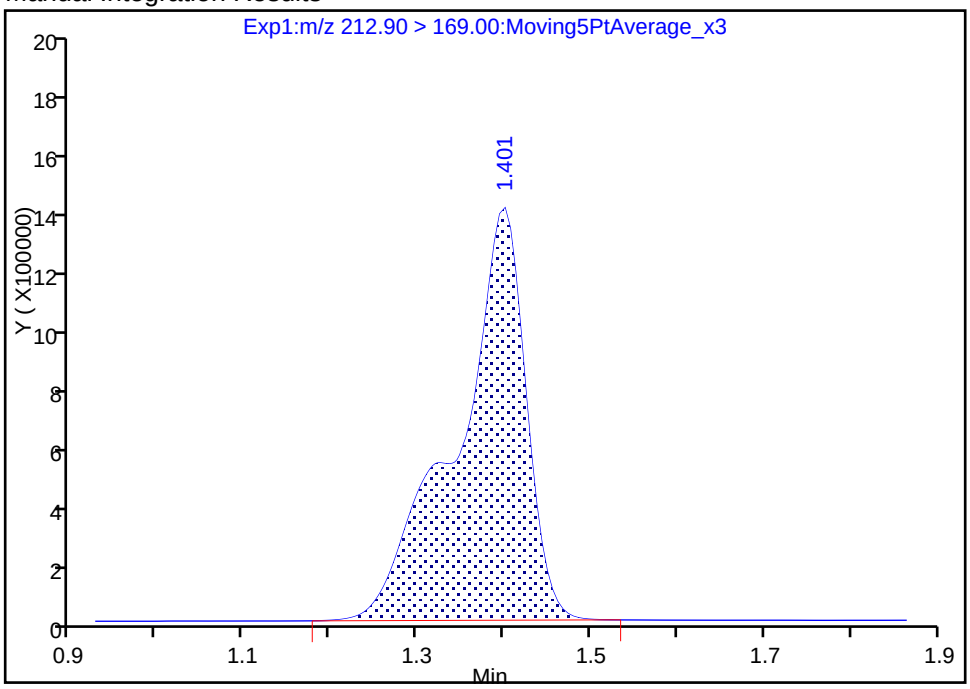
Processing Integration Results

RT: 1.40
Area: 5792467
Amount: 2.807748
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 7651031
Amount: 3.708638
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 12:57:58

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

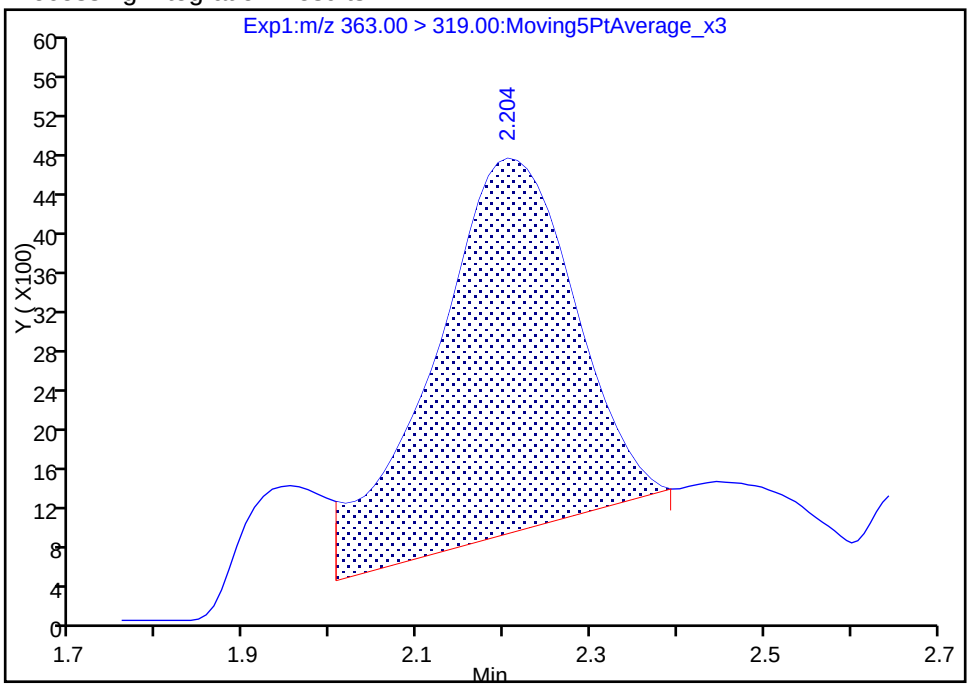
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_013.d				
Injection Date:	16-Feb-2018 16:43:43	Instrument ID:	A8_N		
Lims ID:	320-35682-B-4-A	Lab Sample ID:	320-35682-4		
Client ID:	TP-PFC-026-TPE-D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

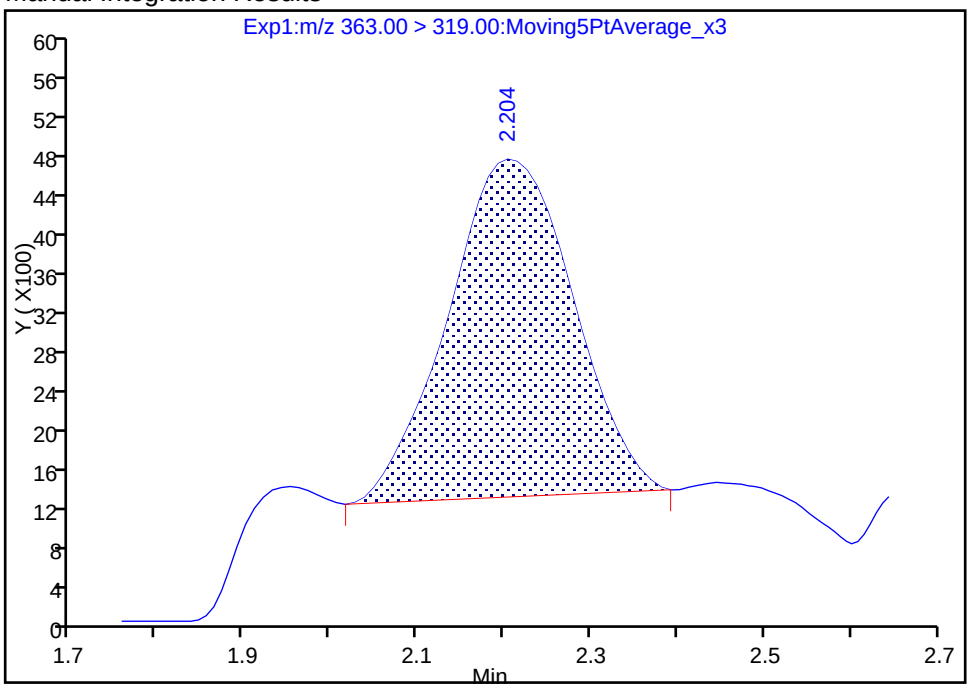
Processing Integration Results

RT: 2.20
Area: 43303
Amount: 0.023701
Amount Units: ng/ml



Manual Integration Results

RT: 2.20
Area: 34250
Amount: 0.018746
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 12:58:20

Audit Action: Manually Integrated Audit Reason: Baseline

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-206706/2	2018.02.01LLICAL_002.d
Level 2	IC 320-206706/3	2018.02.01LLICAL_003.d
Level 3	IC 320-206706/4	2018.02.01LLICAL_004.d
Level 4	IC 320-206706/5	2018.02.01LLICAL_005.d
Level 5	IC 320-206706/6	2018.02.01LLICAL_006.d
Level 6	IC 320-206706/7	2018.02.01LLICAL_007.d
Level 7	IC 320-206706/8	2018.02.01LLICAL_008.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.0196 0.9529	0.9507 0.9304	0.9288	0.9074	0.9431	AveID		0.9476				3.7		35.0			
Perfluoropentanoic acid (PFPeA)	1.4376 1.1584	1.1320 1.1437	1.1500	1.1134	1.1888	AveID		1.1891				9.4		35.0			
Perfluorobutanesulfonic acid (PFBS)	77.986 78.517	71.471 73.883	76.768	79.629	79.800	AveID		76.865				4.1		50.0			
4:2 FTS	16.522 16.717	16.108 15.507	16.125	16.172	15.596	AveID		16.107				2.7		35.0			
Perfluorohexanoic acid (PFHxA)	1.1236 0.9814	1.0710 1.0034	1.0296	0.9776	1.0534	AveID		1.0343				5.1		35.0			
Perfluoroheptanoic acid (PFHpA)	1.0250 1.0441	0.9677 1.0515	1.1169	1.0397	1.0360	AveID		1.0401				4.2		35.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4392 1.0748	1.1878 1.0160	1.0786	1.0088	1.1533	AveID		1.1369				13.1		35.0			
6:2FTS	2.0655 1.7070	1.5245 1.6899	1.7616	1.9320	1.9024	AveID		1.7976				10.1		35.0			
Perfluorooctanoic acid (PFOA)	1.3325 1.1003	1.1286 1.1331	1.0916	1.0700	1.1174	AveID		1.1391				7.7		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.3157 1.3729	1.3553 1.3427	1.3339	1.3227	1.4896	AveID		1.3618				4.4		50.0			
Perfluorooctanesulfonic acid (PFOS)	1.1621 1.0905	1.1054 1.0834	1.0630	1.0965	1.1257	AveID		1.1038				2.9		35.0			
Perfluorononanoic acid (PFNA)	0.9778 1.0564	0.9200 1.0891	0.9927	1.0230	1.0661	AveID		1.0179				5.8		35.0			
Perfluorooctane Sulfonamide (FOSA)	1.0359 0.9838	0.9320 1.0070	0.9356	0.9690	1.0691	AveID		0.9903				5.1		35.0			
8:2FTS	1.2748 1.2384	1.1604 1.2427	1.2442	1.2270	1.2105	AveID		1.2283				2.9		35.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	1.1928 0.9885	0.9507 1.0128	0.9921	1.0017	1.0116	AveID		1.0215				7.7		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0523 1.0398	1.1249 1.1269	1.0023	1.0466	1.1105	AveID		1.0719				4.5		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.6087 0.6854	0.6848 0.6520	0.6388	0.6378	0.7140	AveID		0.6602				5.5		50.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.8645 0.9241	0.8975 0.9801	0.9373	0.9414	0.9537	AveID		0.9284				4.1		35.0			
Perfluoroundecanoic acid (PFUnA)	1.1539 1.0221	1.1171 0.9940	1.0316	0.9073	0.9816	AveID		1.0297				8.1		35.0			
Perfluorododecanoic acid (PFDoA)	1.0160 1.0929	1.0539 1.0294	0.9941	1.0573	1.1114	AveID		1.0507				4.0		35.0			
Perfluorotridecanoic Acid (PFTriA)	1.1446 1.1413	1.0877 1.1303	1.1233	1.0615	1.1219	AveID		1.1158				2.7		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.2644 0.2462	0.2265 0.2566	0.2515	0.2536	0.2353	AveID		0.2477				5.2		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++ 0.9617	1.2240 0.9517	1.0548	0.9595	0.9586	L2ID	0.0135	0.9604							0.9990		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	1.0741 1.0976	1.0050 1.1721	1.1315	1.1300	1.1529	AveID		1.1090				5.1		50.0			
13C4 PFBA	1.4193 1.4632	1.4340 1.4755	1.4111	1.4775	1.4295	Ave		1.4443				1.9		50.0			
13C5 PFPeA	0.8415 0.8831	0.8703 0.9286	0.8608	0.8918	0.8617	Ave		0.8768				3.2		50.0			
13C3-PFBS	0.0194 0.0199	0.0195 0.0209	0.0192	0.0190	0.0193	Ave		0.0196				3.2		50.0			
13C2 PFHxA	0.9040 0.9898	0.9564 0.9677	0.9161	0.9635	0.9318	Ave		0.9470				3.2		50.0			
13C4-PFHpA	0.9050 0.9673	0.9149 0.9168	0.8800	0.9267	0.9156	Ave		0.9180				2.9		50.0			
18O2 PFHxS	1.0986 1.1679	1.1257 1.2030	1.0926	1.1791	1.0691	Ave		1.1337				4.4		50.0			
M2-6:2FTS	0.1916 0.2022	0.2024 0.1820	0.1909	0.2042	0.1901	Ave		0.1948				4.3		50.0			
13C4 PFOA	0.8694 0.9172	0.8969 0.8919	0.9001	0.9268	0.8848	Ave		0.8982				2.1		50.0			
13C4 PFOS	0.7565 0.7658	0.7189 0.7604	0.7412	0.7576	0.7145	Ave		0.7450				2.8		50.0			
13C5 PFNA	0.7251 0.7255	0.7541 0.6994	0.7365	0.7618	0.7153	Ave		0.7311				3.0		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C8 FOSA	1.0149 1.0510	1.0551 0.9842	1.0489	1.0623	0.9960	Ave		1.0303				3.1		50.0			
M2-8:2FTS	0.2157 0.2299	0.2123 0.2207	0.2119	0.2192	0.2088	Ave		0.2169				3.3		50.0			
13C2 PFDA	0.6190 0.6569	0.6287 0.6197	0.6415	0.6339	0.6083	Ave		0.6297				2.6		50.0			
d3-NMeFOSAA	0.3350 0.3543	0.3357 0.3418	0.3398	0.3497	0.3242	Ave		0.3401				2.9		50.0			
d5-NEtFOSAA	0.3573 0.3491	0.3516 0.3321	0.3537	0.3565	0.3416	Ave		0.3488				2.6		50.0			
13C2 PFUnA	0.4828 0.4988	0.4850 0.4732	0.4833	0.5103	0.4765	Ave		0.4871				2.7		50.0			
13C2 PFDoA	0.4966 0.4991	0.5042 0.5062	0.4962	0.4938	0.4881	Ave		0.4977				1.2		50.0			
13C2-PFTeDA	0.6208 0.6323	0.5756 0.5686	0.6267	0.6337	0.6388	Ave		0.6138				4.7		50.0			
13C2-PFHxDA	1.0812 1.0146	1.1341 1.0099	1.0287	1.0893	1.0696	Ave		1.0611				4.3		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-206706/2	2018.02.01LLICAL_002.d
Level 2	IC 320-206706/3	2018.02.01LLICAL_003.d
Level 3	IC 320-206706/4	2018.02.01LLICAL_004.d
Level 4	IC 320-206706/5	2018.02.01LLICAL_005.d
Level 5	IC 320-206706/6	2018.02.01LLICAL_006.d
Level 6	IC 320-206706/7	2018.02.01LLICAL_007.d
Level 7	IC 320-206706/8	2018.02.01LLICAL_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	71084 12224394	127844 23861766	622238	2499458	6229773	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	59426 8968873	92384 18460860	469959	1851126	4733420	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	65637 12131833	115731 23701562	620082	2487038	6291747	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	14692 2729145	27559 5256121	137615	533657	1299241	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	49895 8517033	96050 16877303	447807	1756038	4535539	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	45563 8855043	83030 16755882	466605	1796078	4383188	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	70676 10015084	114107 19331920	509116	2017855	5184901	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
6:2FTS		AveID	18432 2868374	27424 5067031	151335	697301	1584503	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	56903 8848932	94919 17566083	466479	1848801	4568465	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	46546 8776049	86979 16893479	446839	1778356	4682387	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanesulfonic acid (PFOS)		AveID	40074 6794840	69154 13287777	347107	1437074	3449216	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	34825 6720258	65059 13238546	347087	1452902	3523797	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctane Sulfonamide (FOSA)		AveID	51644 9065432	92223 17226340	465839	1919094	4920353	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2FTS		AveID	12942 2390917	22134 4567339	119880	480437	1118867	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorodecanoic acid (PFDA)		AveID	36271 5692957	56051 10909295	302131	1183817	2843548	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	17318 3230498	35409 6693985	161696	682339	1663688	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	21804 4436222	44504 8307600	216689	868374	2272625	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	15171 2828787	29589 5657049	157389	625696	1505408	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid (PFUnA)		AveID	27364 4470571	50811 8175731	236687	863121	2161204	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid (PFDoA)		AveID	24782 4782436	49829 9057396	234155	973391	2506575	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic Acid (PFTriA)		AveID	27920 4994151	51429 9944697	264606	977236	2530301	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	8062 1365222	12225 2535540	74825	299575	694531	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	+++++ 8554866	130172 16705853	515166	1948660	4737919	+++++ 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	57043 9764233	106883 20575557	552620	2294769	5698308	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PFOA	Ave	6971534 6414466	6723718 6411782	6699155	6886461	6605515	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PFOA	Ave	4133630 3871216	4080606 4035315	4086431	4156327	3981793	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3-PFBS	13PFOA	Ave	88545 81276	85177 84373	84977	82145	82947	2.33 2.33	2.33 2.33	2.33	2.33	2.33
13C2 PFHxA	13PFOA	Ave	4440586 4339018	4484315 4205074	4349144	4490722	4305749	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4-PFHpA	13PFOA	Ave	4445271 4240463	4289980 3983850	4177772	4318903	4231077	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PFOA	Ave	5105020 4843508	4993230 4945223	4907017	5198616	4673525	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2FTS	13PFOA	Ave	894268 841952	901347 751178	860903	904201	834642	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PFOA	Ave	4270544 4021101	4205294 3875824	4273175	4319700	4088575	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PFOA	Ave	3552612 3209575	3222402 3158762	3363862	3375435	3156492	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PFOA	Ave	3561575 3180614	3535863 3038951	3496534	3550460	3305211	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PFOA	Ave	4985368 4607275	4947355 4276710	4979259	4951275	4602356	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2FTS	13PFOA	Ave	1015248 965340	953712 918849	963549	978889	924312	2.40 2.40	2.40 2.40	2.40	2.40	2.40

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	3040750 2879595	2947731 2692900	3045445	2954400	2811010	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	1645748 1553365	1573808 1485046	1613276	1629965	1498134	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	1754863 1530625	1648421 1443022	1679163	1661617	1578507	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2371378 2186881	2274146 2056325	2294383	2378270	2201724	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	2439210 2187885	2364129 2199580	2355519	2301620	2255382	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFTeDA	13PF OA	Ave	3049294 2772145	2698781 2470800	2975377	2953360	2951842	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFHxDA	13PF OA	Ave	5310945 4447904	5317511 4388543	4883792	5077137	4942588	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-206706/2	2018.02.01LLICAL_002.d
Level 2	IC 320-206706/3	2018.02.01LLICAL_003.d
Level 3	IC 320-206706/4	2018.02.01LLICAL_004.d
Level 4	IC 320-206706/5	2018.02.01LLICAL_005.d
Level 5	IC 320-206706/6	2018.02.01LLICAL_006.d
Level 6	IC 320-206706/7	2018.02.01LLICAL_007.d
Level 7	IC 320-206706/8	2018.02.01LLICAL_008.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanoic acid (PFBA)	-1.8	0.3	-2.0	-4.2	-0.5	0.6	25	25	25	25	25	25
Perfluoropentanoic acid (PFPeA)	-3.8	-4.8	-3.3	-6.4	0.0	-2.6	25	25	25	25	25	25
Perfluorobutanesulfonic acid (PFBS)	-3.9	-7.0	-0.1	3.6	3.8	2.1	25	25	25	25	25	25
4:2 FTS	-3.7	0.0	0.1	0.4	-3.2	3.8	25	25	25	25	25	25
Perfluorohexanoic acid (PFHxA)	-3.0	3.5	-0.4	-5.5	1.8	-5.1	25	25	25	25	25	25
Perfluoroheptanoic acid (PFHpA)	1.1	-7.0	7.4	0.0	-0.4	0.4	25	25	25	25	25	25
Perfluorohexanesulfonic acid (PFHxS)	-10.6	4.5	-5.1	-11.3	1.4	-5.5	25	25	25	25	25	25
6:2FTS	-6.0	-15.2	-2.0	7.5	5.8	-5.0	25	25	25	25	25	25
Perfluorooctanoic acid (PFOA)	-0.5	-0.9	-4.2	-6.1	-1.9	-3.4	25	25	25	25	25	25
Perfluoroheptanesulfonic Acid (PFHpS)	-1.4	-0.5	-2.0	-2.9	9.4	0.8	25	25	25	25	25	25
Perfluorooctanesulfonic acid (PFOS)	-1.8	0.1	-3.7	-0.7	2.0	-1.2	25	25	25	25	25	25
Perfluorononanoic acid (PFNA)	7.0	-9.6	-2.5	0.5	4.7	3.8	25	25	25	25	25	25
Perfluorooctane Sulfonamide (FOSA)	1.7	-5.9	-5.5	-2.2	8.0	-0.7	25	25	25	25	25	25
8:2FTS	1.2	-5.5	1.3	-0.1	-1.4	0.8	25	25	25	25	25	25
Perfluorodecanoic acid (PFDA)	-0.8	-6.9	-2.9	-1.9	-1.0	-3.2	25	25	25	25	25	25

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	5.1	4.9	-6.5	-2.4	3.6	-3.0	25	25	25	25	25	25
Perfluorodecanesulfonic acid (PFDS)	-1.2	3.7	-3.2	-3.4	8.1	3.8	25	25	25	25	25	25
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	5.6	-3.3	1.0	1.4	2.7	-0.5	25	25	25	25	25	25
Perfluoroundecanoic acid (PFUnA)	-3.5	8.5	0.2	-11.9	-4.7	-0.7	25	25	25	25	25	25
Perfluorododecanoic acid (PFDoA)	-2.0	0.3	-5.4	0.6	5.8	4.0	25	25	25	25	25	25
Perfluorotridecanoic Acid (PFTriA)	1.3	-2.5	0.7	-4.9	0.5	2.3	25	25	25	25	25	25
Perfluorotetradecanoic acid (PFTeA)	3.6	-8.6	1.5	2.4	-5.0	-0.6	25	25	25	25	25	25
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++ -1.1		4.2	-1.5	-0.8	-0.1	25		25	25	25	25
Perfluoro-n-octadecanoic acid (PFODA)	5.7	-9.4	2.0	1.9	4.0	-1.0	25	25	25	25	25	25

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_002.d
Lims ID: IC L1 Full
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 01-Feb-2018 21:14:36 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L1-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:44:45 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:03:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.418	1.416	0.002	0.538	6971534	2.46		98.3	23977	
2 Perfluorobutyric acid										
212.90 > 169.00	1.418	1.419	-0.001	1.000	71084	0.0269		108	11.5	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.667	1.663	0.004	1.000	59426	0.0302		121	37.4	
D 3 13C5-PFPeA										
267.90 > 223.00	1.667	1.663	0.004	0.633	4133630	2.40		96.0	48834	
D 47 13C3-PFBS										
301.90 > 83.00	1.703	1.696	0.007	0.647	88545	2.30		98.9	2395	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.703	1.698	0.005	1.000	65637	0.0224		101	211	
298.90 > 99.00	1.712	1.698	0.014	1.005	28133		2.33(1.25-3.74)	101	108	
D 60 M2-4:2FTS										
329.00 > 81.00	1.908	1.902	0.006	0.725	624422	NC			5489	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.918	1.904	0.014	1.000	14692	0.0240		103	903	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.949	1.937	0.012	1.000	49895	0.0272		109	96.6	M
313.00 > 119.00	1.959	1.937	0.022	1.005	5263		9.48(5.03-15.10)	109	79.2	
D 7 13C2 PFHxA										
315.00 > 270.00	1.949	1.937	0.012	0.740	4440586	2.39		95.5	35979	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.273	2.268	0.005	1.000	45563	0.0246		98.5	62.0	
363.00 > 169.00	2.273	2.268	0.005	1.000	17819		2.56(1.13-3.40)	98.5	120	
D 9 13C4-PFHpA										
367.00 > 322.00	2.273	2.268	0.005	0.863	4445271	2.46		98.6	25205	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.286	2.281	0.005	0.868	5105020	2.29		96.9	23052	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.286	2.281	0.005	1.000	70676	0.0288		127	104	
399.00 > 99.00	2.286	2.281	0.005	1.000	21643		3.27(1.50-4.49)	127	59.8	
D 12 M2-6:2FTS										
429.00 > 81.00	2.604	2.598	0.006	0.989	894268	2.34		98.4	13420	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.604	2.598	0.006	1.000	18432	0.0272		115	555	
D 14 13C4 PFOA										
417.00 > 372.00	2.632	2.622	0.010	1.000	4270544	2.42		96.8	32082	
* 62 13C2-PFOA										
415.00 > 370.00	2.632	2.623	0.009		4912035	2.50			38140	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.632	2.626	0.006	1.000	56903	0.0292		117	19.8	M
413.00 > 169.00	2.632	2.626	0.006	1.000	28272		2.01(0.84-2.52)	117	297	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.640	2.632	0.008	1.000	46546	0.0230		96.6	1224	
449.00 > 99.00	2.640	2.632	0.008	1.000	11977		3.89(1.94-5.82)	96.6	169	
D 18 13C4 PFOS										
503.00 > 80.00	2.996	2.993	0.003	1.138	3552612	2.43		102	20281	
D 19 13C5 PFNA										
468.00 > 423.00	3.004	2.994	0.010	1.141	3561575	2.48		99.2	28375	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.004	2.995	0.009	1.003	40074	0.0244		105	66.2	
499.00 > 99.00	2.996	2.995	0.001	1.000	8316		4.82(2.31-6.93)	105	41.8	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.004	2.997	0.007	1.000	34825	0.0240		96.1	52.5	
463.00 > 169.00	3.004	2.997	0.007	1.000	8417		4.14(1.90-5.69)	96.1	176	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.334	0.001	1.267	4985368	2.46		98.5	22852	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.343	3.337	0.006	1.002	51644	0.0262		105	1406	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.350	3.345	0.005	1.000	12942	0.0249		104	258	
D 26 M2-8:2FTS										
529.00 > 81.00	3.350	3.345	0.005	1.273	1015248	2.38		99.5	14592	
24 Perfluorodecanoic acid										R
513.00 > 469.00	3.358	3.354	0.004	1.000	36271	0.0292		117	158	R
513.00 > 169.00	3.350	3.354	-0.004	0.998	5019		7.23(2.36-7.09)	117	155	
D 23 13C2 PFDA										
515.00 > 470.00	3.358	3.354	0.004	1.275	3040750	2.46		98.3	26189	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.510	3.508	0.002	1.333	1645748	2.46		98.5	11775	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.510	3.513	-0.003	1.000	17318	0.0245		98.2	155	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.665	3.666	-0.001	1.000	21804	0.0222		92.2	930	
599.00 > 99.00	3.665	3.666	-0.001	1.000	6206		3.51(1.39-4.16)	92.2	226	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.681	3.676	0.005	1.398	1754863	2.56		102	8106	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.681	3.682	-0.001	1.000	15171	0.0233		93.1	358	
D 30 13C2 PFUnA										
565.00 > 520.00	3.681	3.682	-0.001	1.398	2371378	2.48		99.1	26163	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.681	3.682	-0.001	1.000	27364	0.0280		112	104	
563.00 > 169.00	3.690	3.682	0.008	1.002	4442		6.16(0.00-0.00)	112	243	
D 36 13C2 PFDoA										
615.00 > 570.00	3.982	3.980	0.002	1.513	2439210	2.49		99.8	20412	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.982	3.980	0.002	1.000	24782	0.0242		96.7	104	
613.00 > 169.00	3.982	3.980	0.002	1.000	6692		3.70(2.13-6.40)	96.7	277	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.244	4.245	-0.001	1.000	27920	0.0256		103	65.7	
663.00 > 169.00	4.244	4.245	-0.001	1.000	8149		3.43(1.25-3.76)	103	378	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.487	4.485	0.002	1.705	3049294	2.53		101	20569	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.487	4.485	0.002	1.000	8062	0.0267		107	290	
713.00 > 219.00	4.473	4.485	-0.012	0.997	5077		1.59(0.71-2.13)	107	185	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.905	4.905	0.0	1.000	88709	0.0294		118	55.0	
813.00 > 169.00	4.905	4.905	0.0	1.000	16030		5.53(2.86-8.58)	118	514	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.905	4.905	0.0	1.863	5310945	2.55		102	15623	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.261	5.257	0.004	1.000	57043	0.0242		96.8	14.4	
913.00 > 169.00	5.261	5.257	0.004	1.000	7075		8.06(0.00-0.00)	96.8	117	

QC Flag Legend

Processing Flags

NC - Not Calibrated

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL1_00003 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:44:46 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_002.d

Injection Date: 01-Feb-2018 21:14:36 Instrument ID: A8_N

Lims ID: IC L1 Full

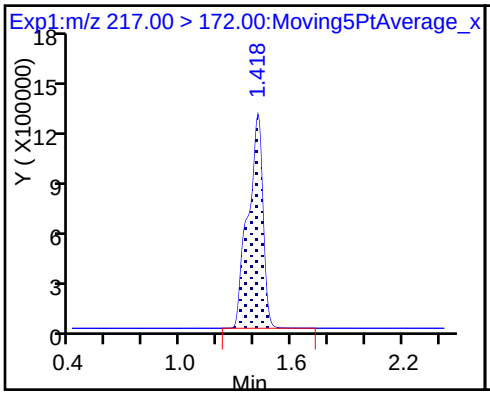
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2

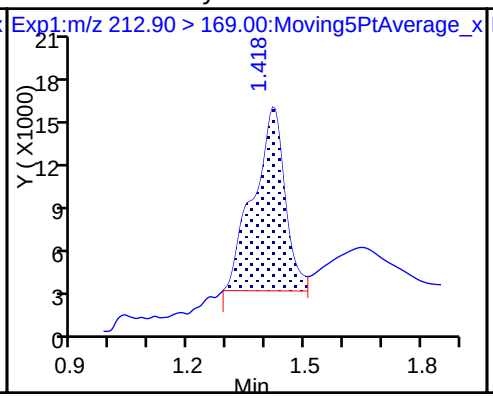
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

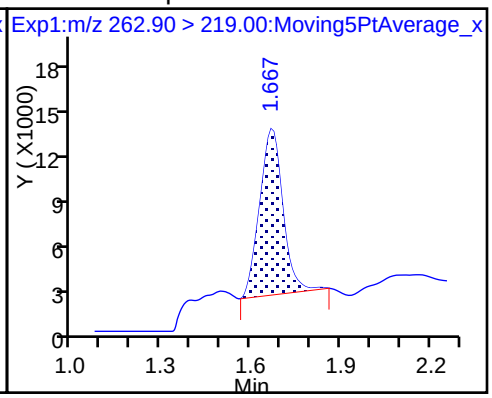
D 1 13C4 PFBA



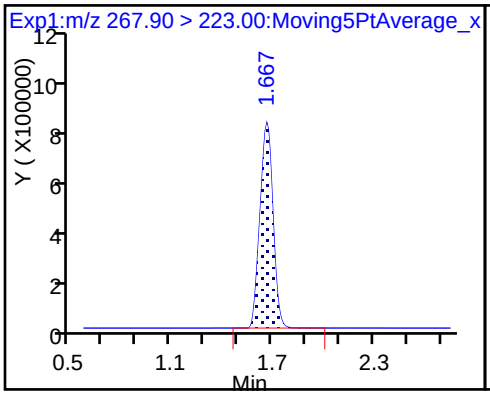
2 Perfluorobutyric acid



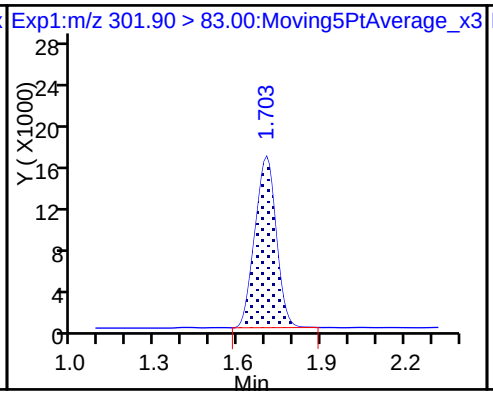
4 Perfluoropentanoic acid



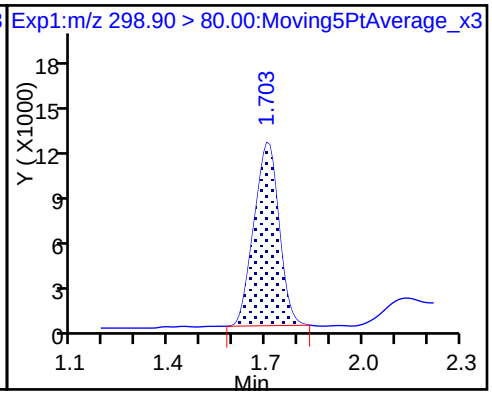
D 3 13C5-PFPeA



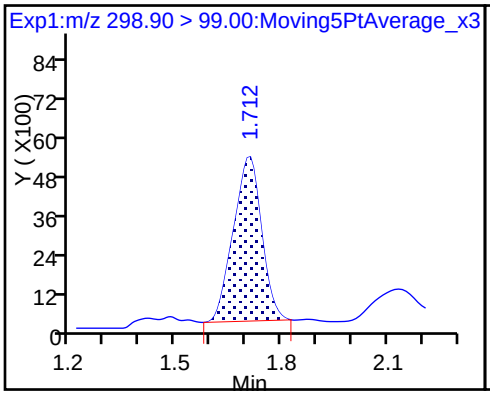
D 47 13C3-PFBS



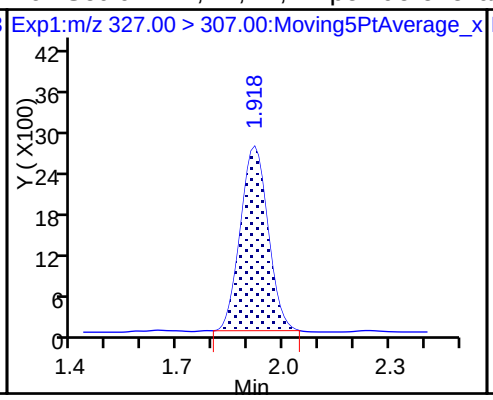
5 Perfluorobutanesulfonic acid



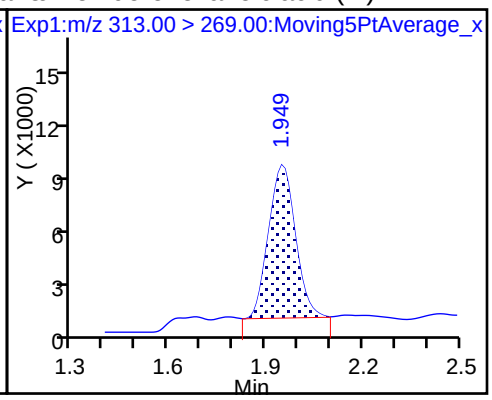
5 Perfluorobutanesulfonic acid



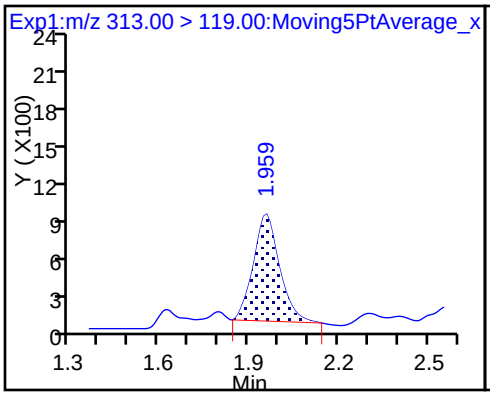
61 Sodium 1H,1H,2H,2H-perfluorohexane



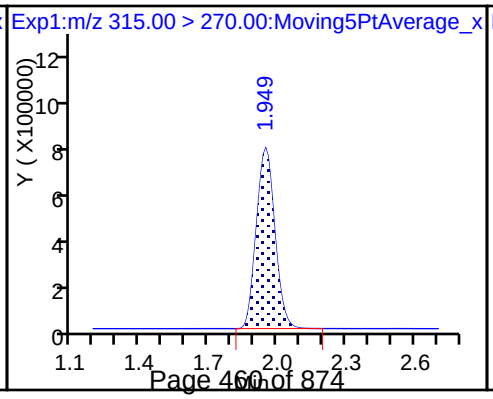
6 Perfluorohexanoic acid (M)



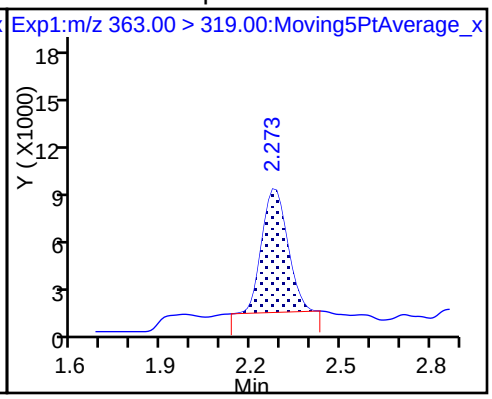
6 Perfluorohexanoic acid



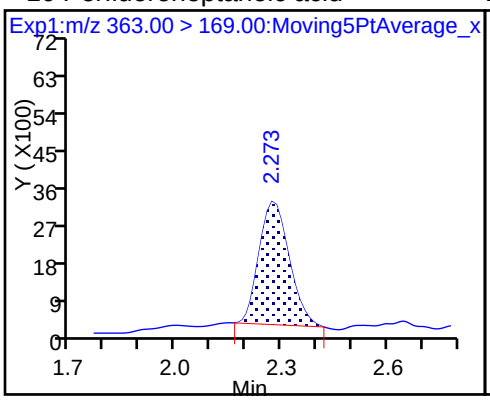
D 7 13C2 PFHxA



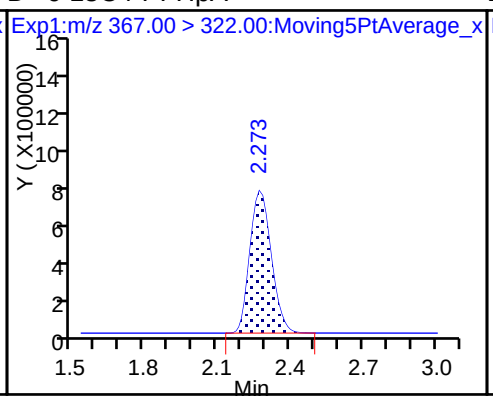
10 Perfluoroheptanoic acid



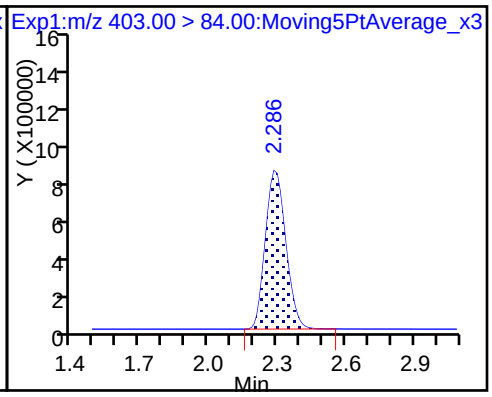
10 Perfluoroheptanoic acid



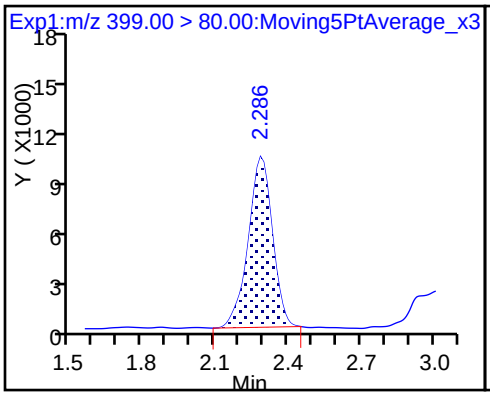
D 9 13C4-PFHpA



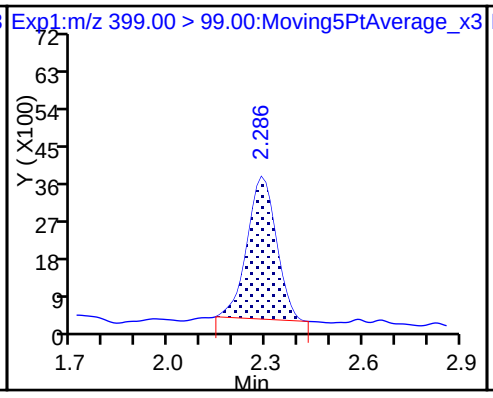
D 11 18O2 PFHxS



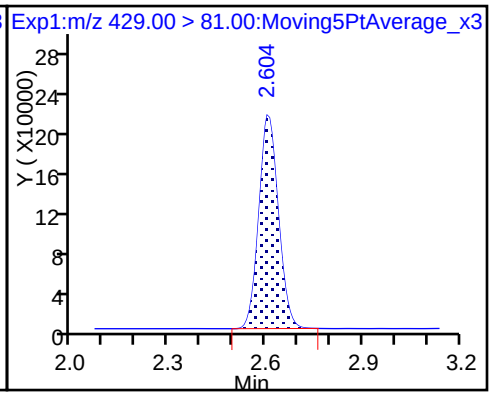
8 Perfluorohexanesulfonic acid



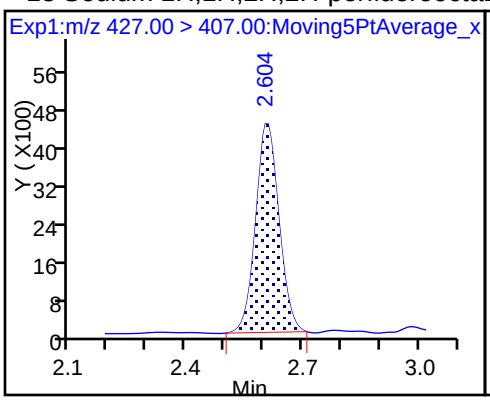
8 Perfluorohexanesulfonic acid



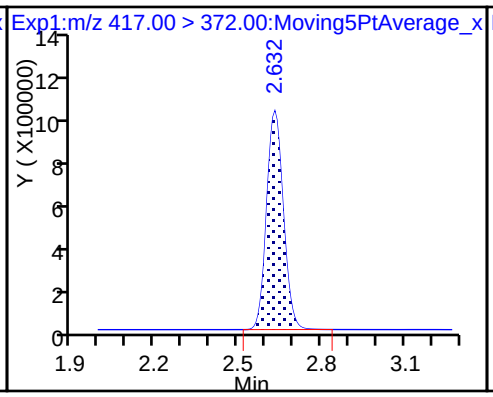
D 12 M2-6:2FTS



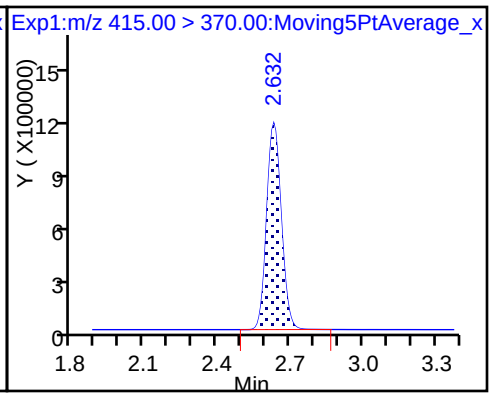
13 Sodium 1H,1H,2H,2H-perfluorooctane



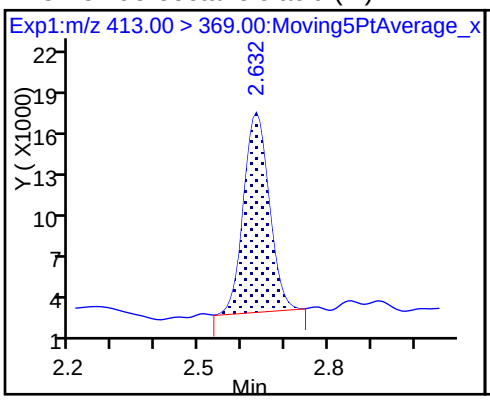
D 14 13C4 PFOA



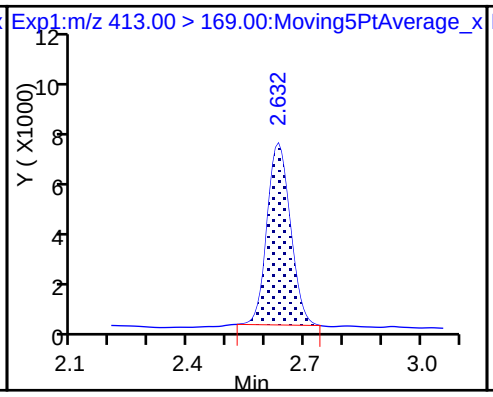
* 62 13C2-PFOA



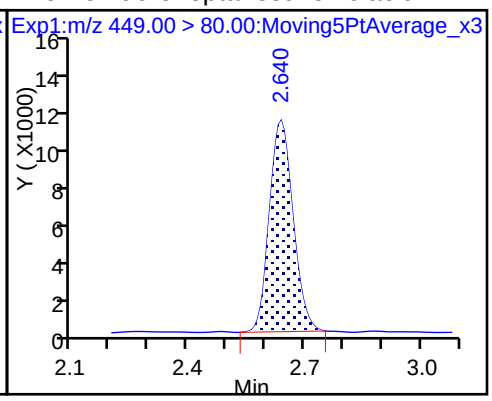
15 Perfluorooctanoic acid (M)



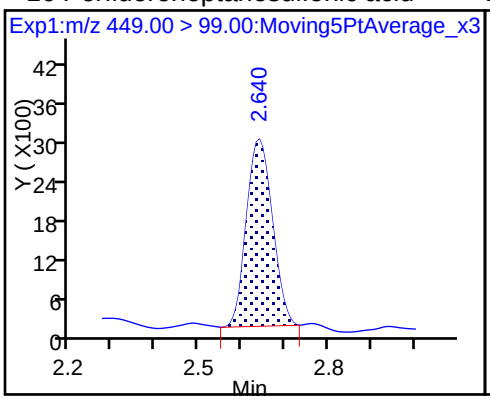
15 Perfluorooctanoic acid



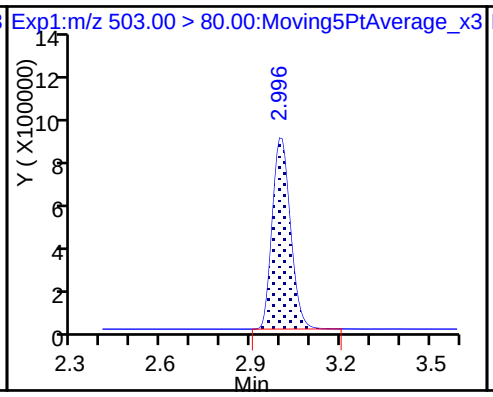
16 Perfluoroheptanesulfonic acid



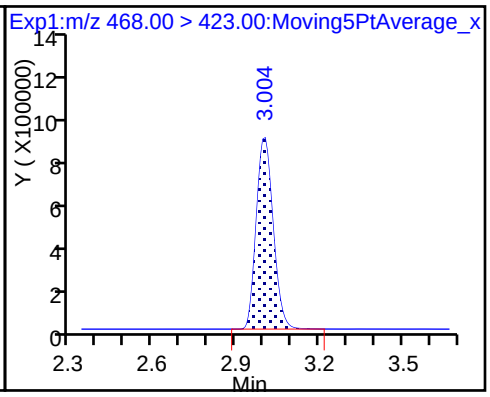
16 Perfluoroheptanesulfonic acid



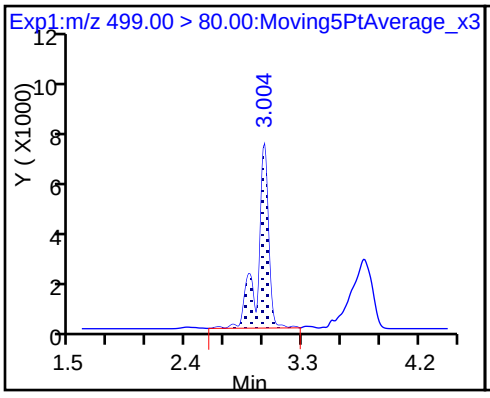
D 18 13C4 PFOS



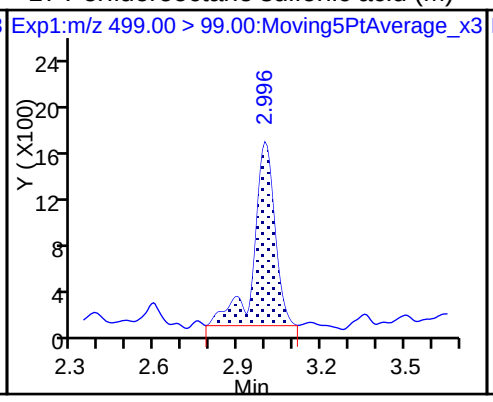
D 19 13C5 PFNA



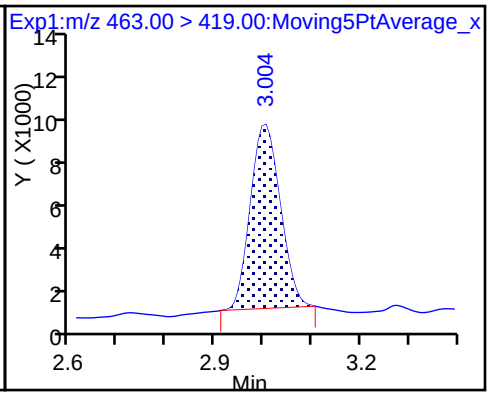
17 Perfluorooctane sulfonic acid



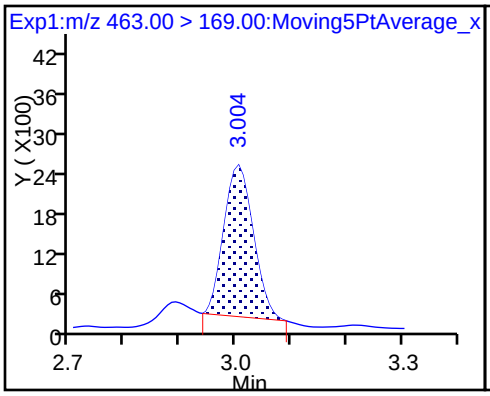
17 Perfluorooctane sulfonic acid (M)



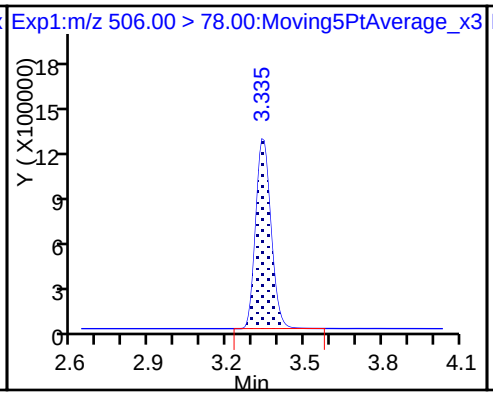
20 Perfluorononanoic acid



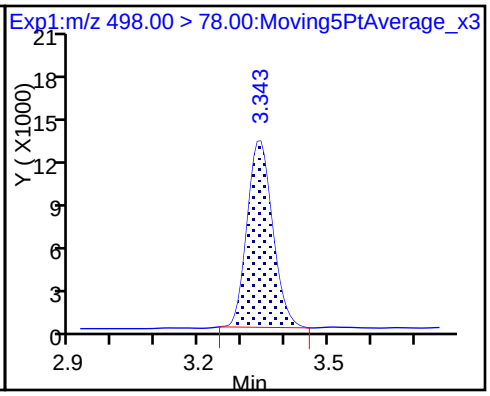
20 Perfluorononanoic acid



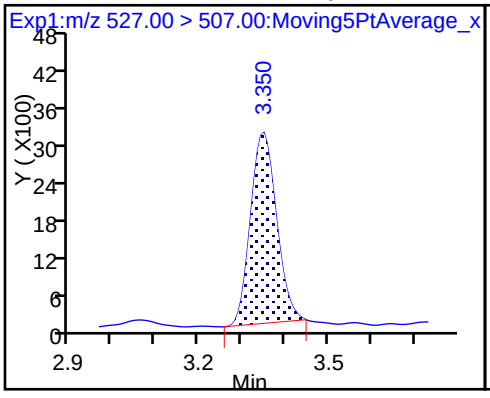
D 21 13C8 FOSA



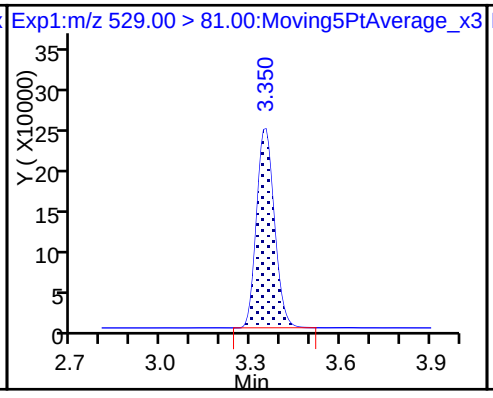
22 Perfluorooctane Sulfonamide



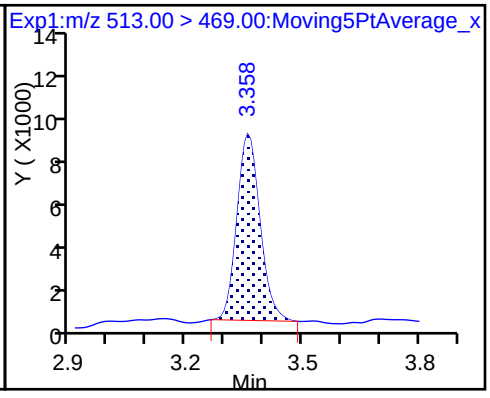
25 Sodium 1H,1H,2H,2H-perfluorodecane



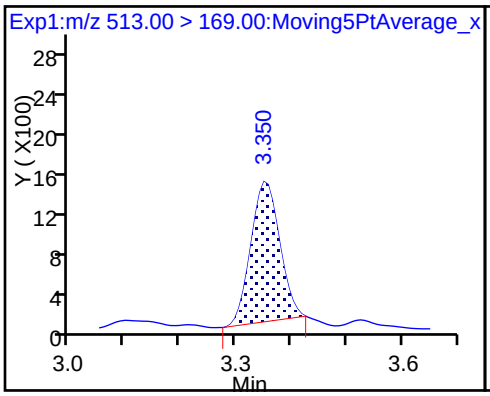
D 26 M2-8:2FTS



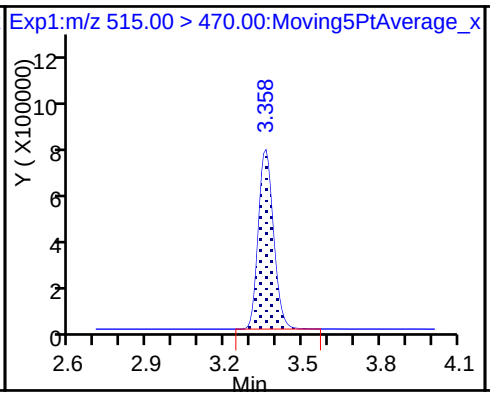
24 Perfluorodecanoic acid



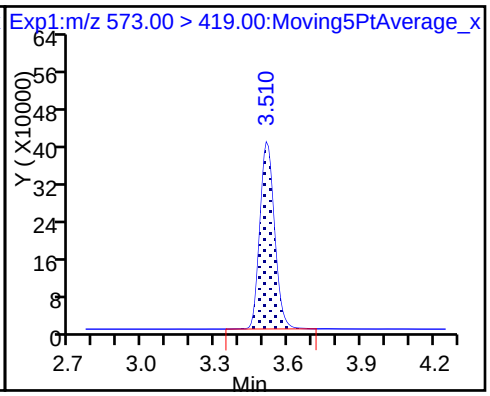
24 Perfluorodecanoic acid



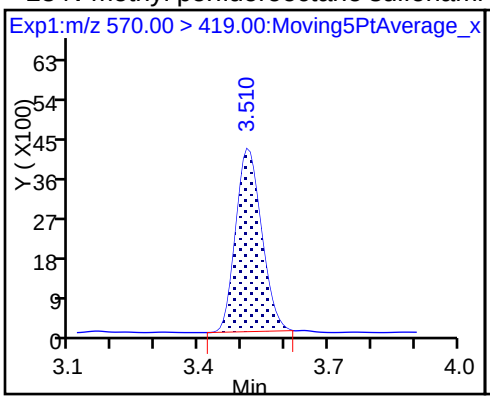
D 23 13C2 PFDA



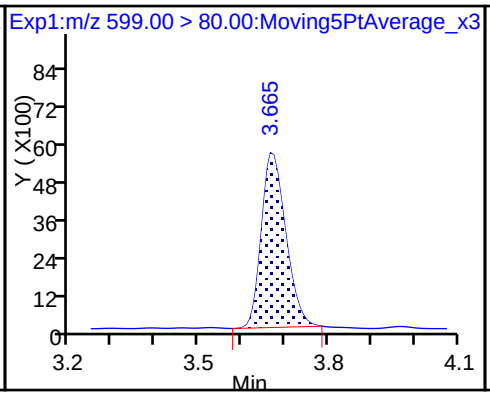
D 27 d3-NMeFOSAA



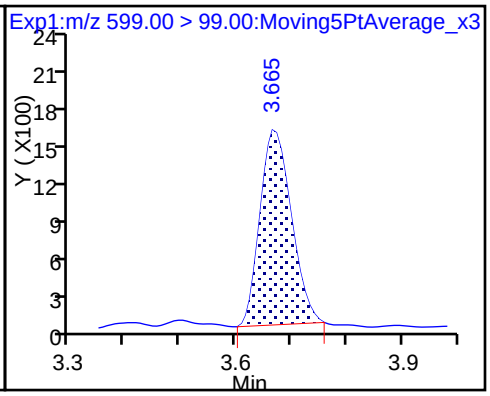
28 N-methyl perfluorooctane sulfonami



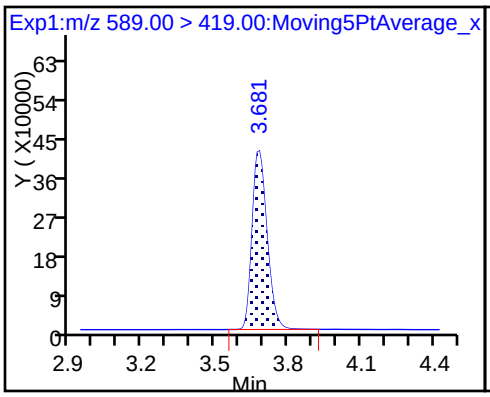
29 Perfluorodecane Sulfonic acid



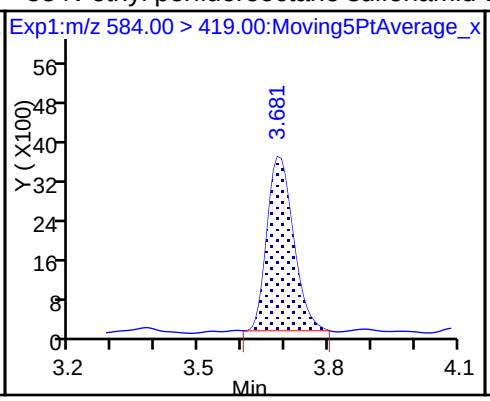
29 Perfluorodecane Sulfonic acid



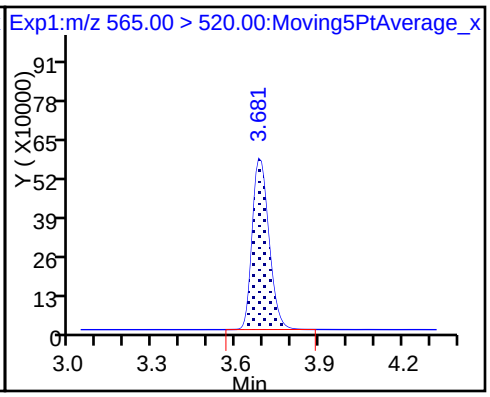
D 32 d5-NEtFOSAA



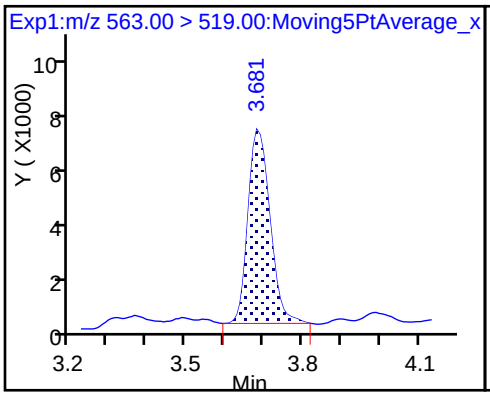
33 N-ethyl perfluorooctane sulfonamid



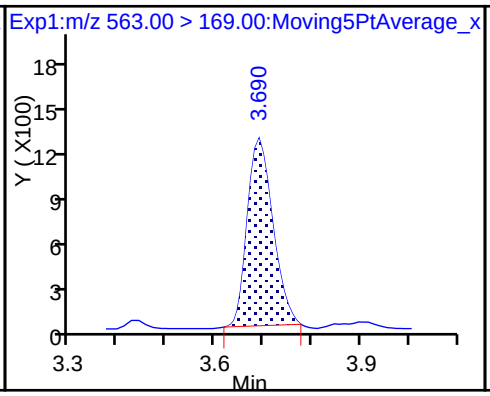
D 30 13C2 PFUnA



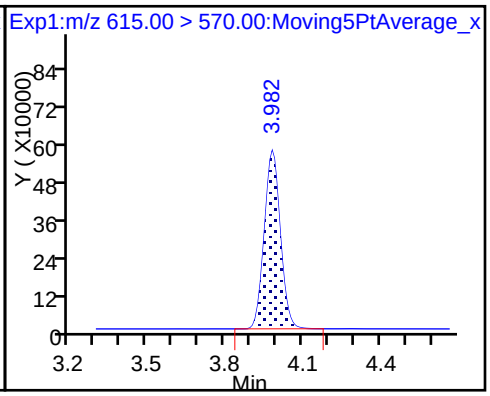
31 Perfluoroundecanoic acid



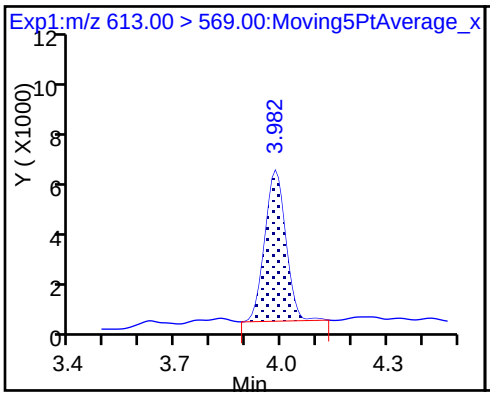
31 Perfluoroundecanoic acid



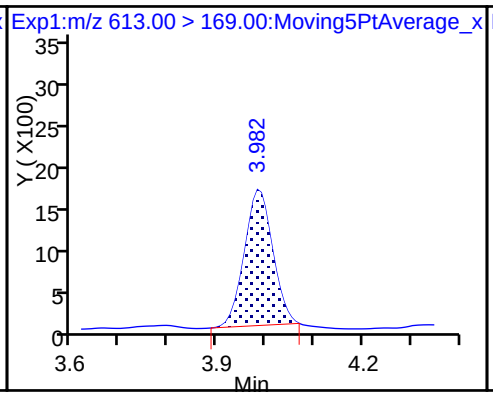
D 36 13C2 PFDoA



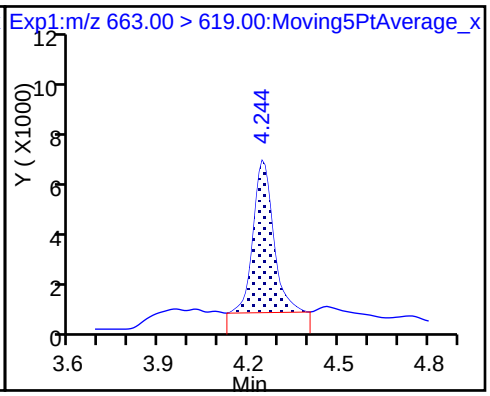
37 Perfluorododecanoic acid



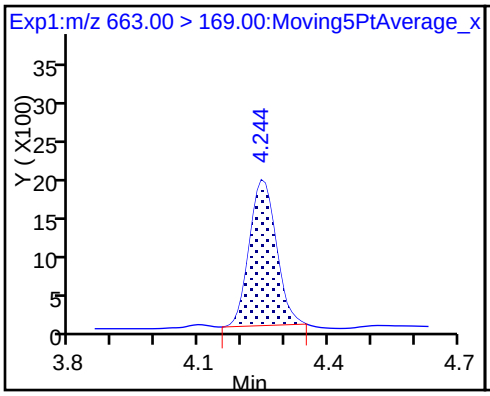
37 Perfluorododecanoic acid



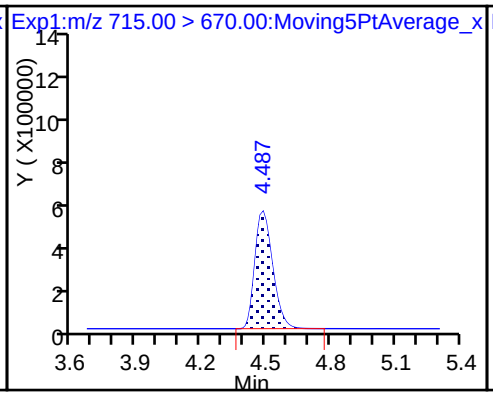
41 Perfluorotridecanoic acid



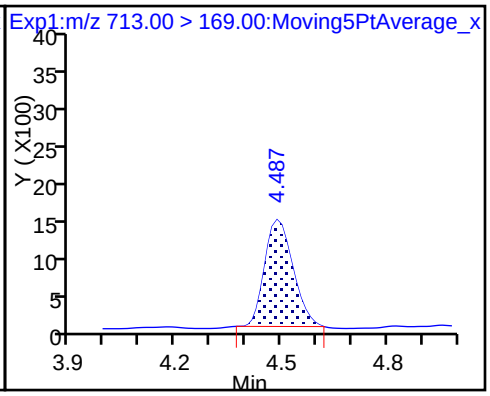
41 Perfluorotridecanoic acid



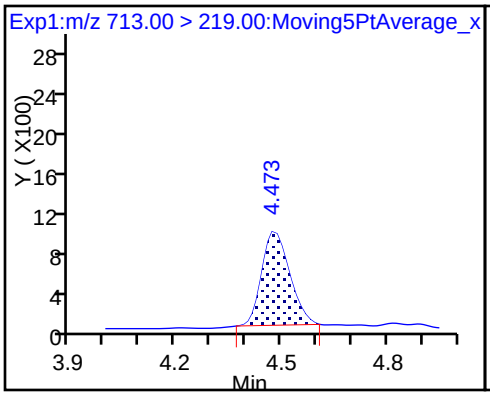
D 43 13C2-PFTeDA



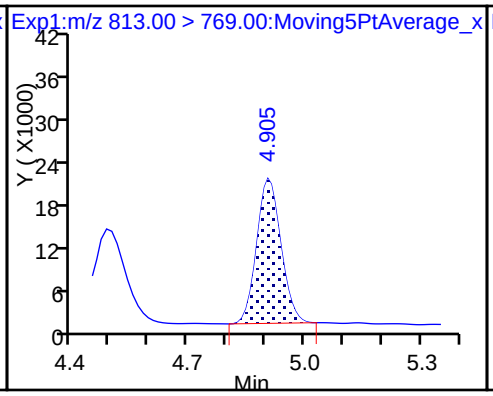
42 Perfluorotetradecanoic acid



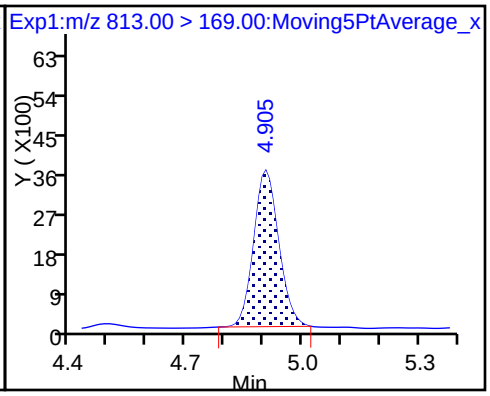
42 Perfluorotetradecanoic acid



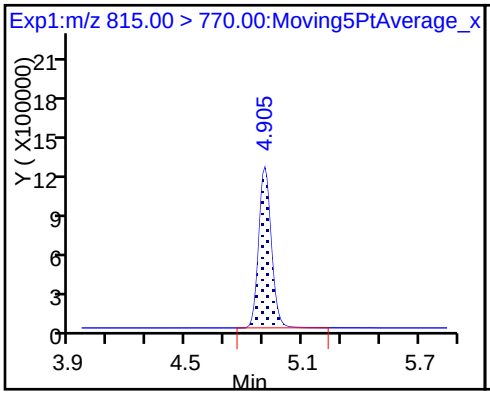
45 Perfluorohexadecanoic acid



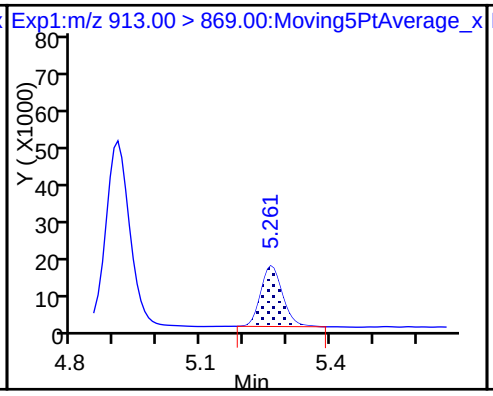
45 Perfluorohexadecanoic acid



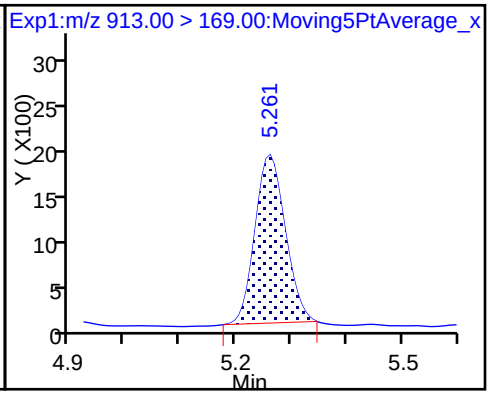
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

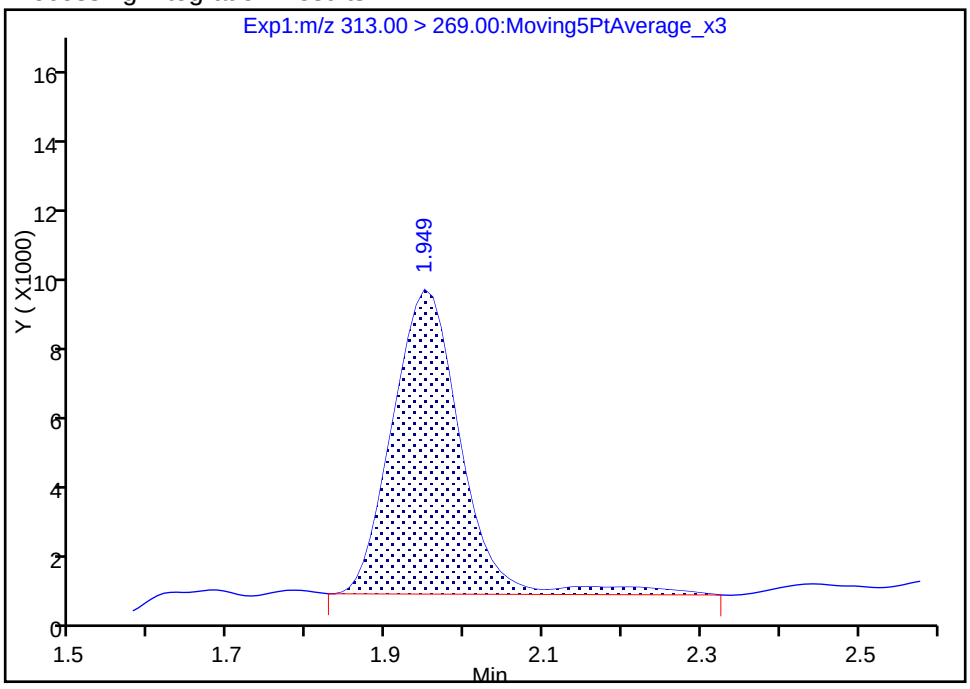
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_002.d
Injection Date: 01-Feb-2018 21:14:36 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

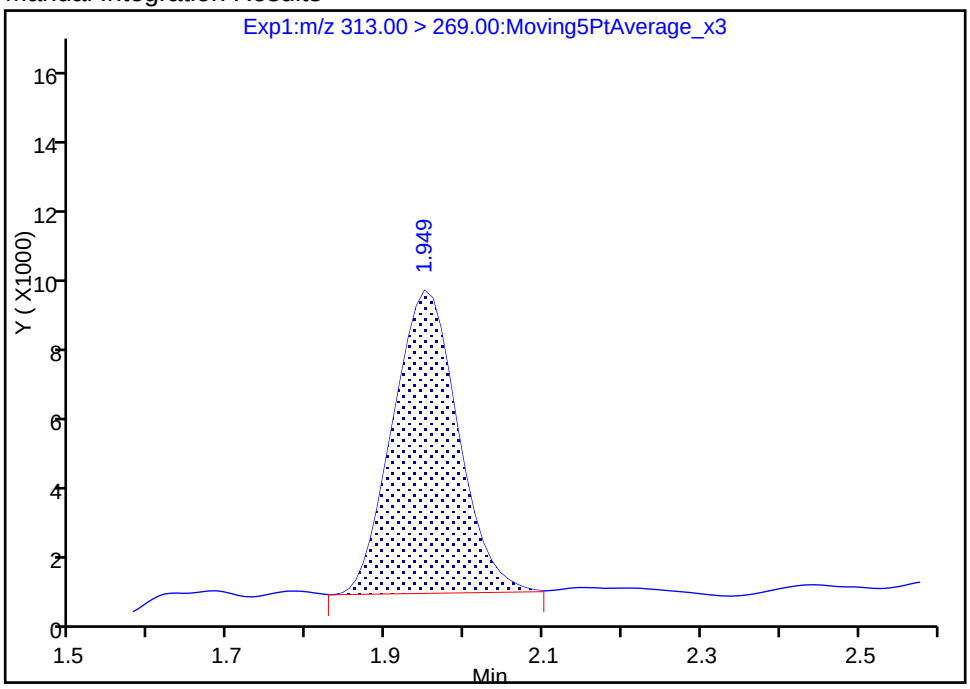
Processing Integration Results

RT: 1.95
Area: 52878
Amount: 0.028518
Amount Units: ng/ml



Manual Integration Results

RT: 1.95
Area: 49895
Amount: 0.027159
Amount Units: ng/ml



Reviewer: hannigana, 02-Feb-2018 15:02:09
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

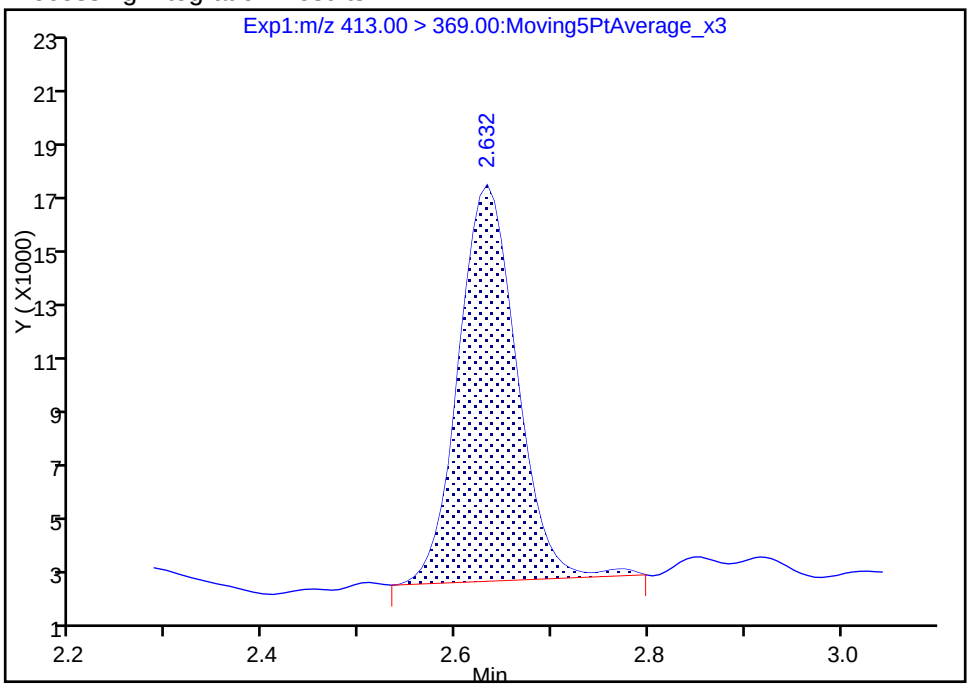
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_002.d
Injection Date: 01-Feb-2018 21:14:36 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

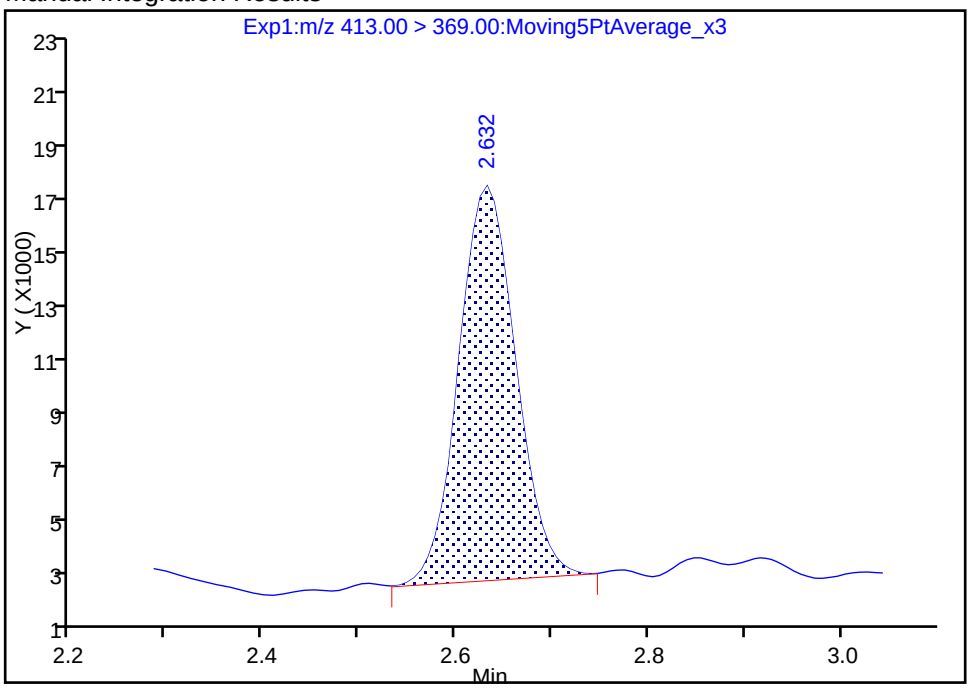
Processing Integration Results

RT: 2.63
Area: 58138
Amount: 0.029771
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 56903
Amount: 0.029245
Amount Units: ng/ml



Reviewer: hannigana, 02-Feb-2018 15:02:28
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

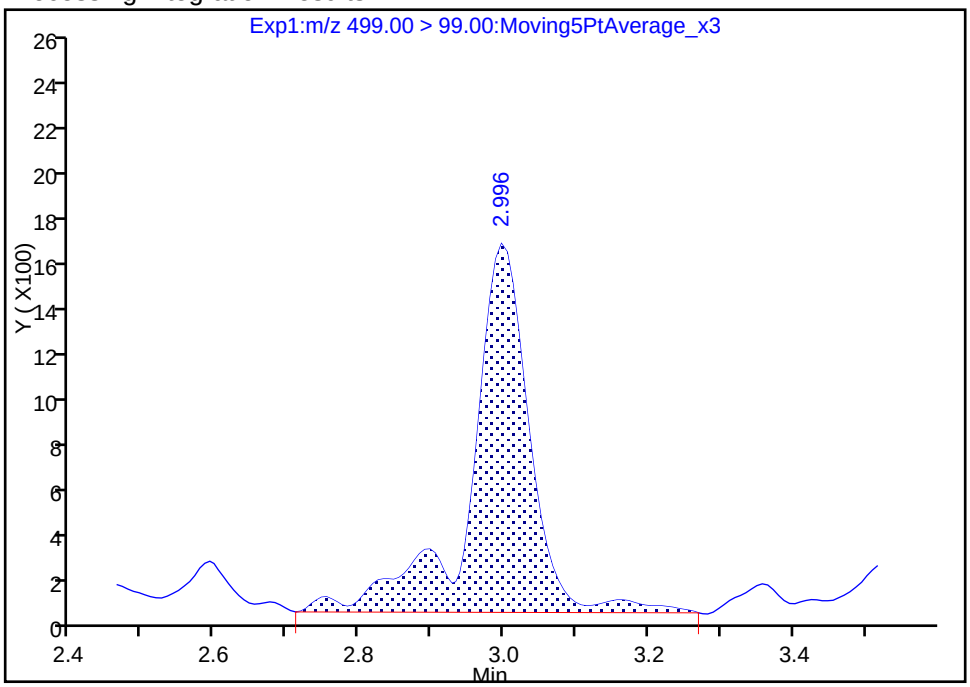
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_002.d
Injection Date: 01-Feb-2018 21:14:36 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

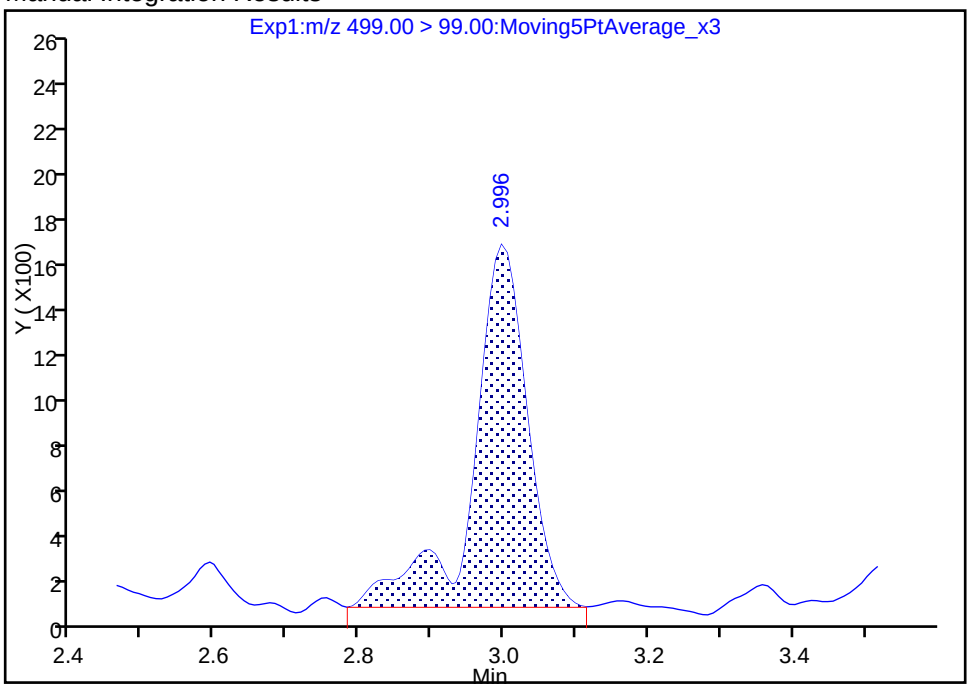
Processing Integration Results

RT: 3.00
Area: 9295
Amount: 0.025278
Amount Units: ng/ml



Manual Integration Results

RT: 3.00
Area: 8316
Amount: 0.024425
Amount Units: ng/ml



Reviewer: hannigana, 02-Feb-2018 15:02:58
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_003.d
Lims ID: IC L2 Full
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 01-Feb-2018 21:22:23 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L2-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:44:48 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:04:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.413	1.416	-0.003	0.537	6723718	2.48		99.3	30213	
2 Perfluorobutyric acid										
212.90 > 169.00	1.419	1.419	0.0	1.004	127844	0.0502		100	16.3	
D 3 13C5-PFPeA										
267.90 > 223.00	1.670	1.663	0.007	0.635	4080606	2.48		99.3	50849	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.670	1.663	0.007	1.000	92384	0.0476		95.2	55.3	
D 47 13C3-PFBS										
301.90 > 83.00	1.705	1.696	0.009	0.648	85177	2.32		99.6	2239	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.705	1.698	0.007	1.000	115731	0.0411		93.0	388	
298.90 > 99.00	1.705	1.698	0.007	1.000	49624		2.33(1.25-3.74)	93.0	206	
D 60 M2-4:2FTS										
329.00 > 81.00	1.912	1.902	0.010	0.727	628968	NC			5066	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.912	1.904	0.008	1.000	27559	0.0467		100	1237	
D 7 13C2 PFHxA										
315.00 > 270.00	1.943	1.937	0.006	0.739	4484315	2.52		101	41994	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.943	1.937	0.006	1.000	96050	0.0518		104	184	
313.00 > 119.00	1.953	1.937	0.016	1.005	9628		9.98(5.03-15.10)	104	183	
D 9 13C4-PFHpA										
367.00 > 322.00	2.278	2.268	0.010	0.866	4289980	2.49		99.7	27240	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.278	2.268	0.010	1.000	83030	0.0465		93.0	112	
363.00 > 169.00	2.278	2.268	0.010	1.000	33085		2.51(1.13-3.40)	93.0	270	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.291	2.281	0.010	1.000	114107	0.0475		104	181	
399.00 > 99.00	2.291	2.281	0.010	1.000	38600		2.96(1.50-4.49)	104	99.5	
D 11 18O2 PFHxS										
403.00 > 84.00	2.291	2.281	0.010	0.871	4993230	2.35		99.3	23986	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.601	2.598	0.003	1.000	27424	0.0402		84.8	845	
D 12 M2-6:2FTS										
429.00 > 81.00	2.601	2.598	0.003	0.989	901347	2.47		104	19572	
D 14 13C4 PFOA										
417.00 > 372.00	2.630	2.622	0.008	1.000	4205294	2.50		99.9	37009	
* 62 13C2-PFOA										
415.00 > 370.00	2.630	2.623	0.007		4688795	2.50			35010	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.630	2.626	0.004	1.000	94919	0.0495		99.1	31.8	
413.00 > 169.00	2.630	2.626	0.004	1.000	51488		1.84(0.84-2.52)	99.1	509	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.637	2.632	0.005	1.000	86979	0.0474		99.5	2289	
449.00 > 99.00	2.637	2.632	0.005	1.000	22647		3.84(1.94-5.82)	99.5	330	
D 18 13C4 PFOS										
503.00 > 80.00	3.001	2.993	0.008	1.141	3222402	2.31		96.5	18934	
D 19 13C5 PFNA										
468.00 > 423.00	3.001	2.994	0.007	1.141	3535863	2.58		103	29211	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.001	2.995	0.006	1.000	69154	0.0465		100	131	
499.00 > 99.00	3.001	2.995	0.006	1.000	16464		4.20(2.31-6.93)	100	83.6	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.001	2.997	0.004	1.000	65059	0.0452		90.4	91.9	
463.00 > 169.00	3.001	2.997	0.004	1.000	17262		3.77(1.90-5.69)	90.4	394	
D 21 13C8 FOSA										
506.00 > 78.00	3.340	3.334	0.006	1.270	4947355	2.56		102	19877	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.340	3.337	0.003	1.000	92223	0.0471		94.1	2570	
D 26 M2-8:2FTS										
529.00 > 81.00	3.347	3.345	0.002	1.273	953712	2.34		97.9	16848	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.347	3.345	0.002	1.000	22134	0.0453		94.5	502	
D 23 13C2 PFDA										
515.00 > 470.00	3.355	3.354	0.001	1.276	2947731	2.50		99.8	20302	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.355	3.354	0.001	1.000	56051	0.0465		93.1	252	
513.00 > 169.00	3.355	3.354	0.001	1.000	10284		5.45(2.36-7.09)	93.1	260	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.514	3.508	0.006	1.336	1573808	2.47		98.7	13161	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.514	3.513	0.001	1.000	35409	0.0525		105	349	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.671	3.666	0.005	1.000	44504	0.0500		104	1889	
599.00 > 99.00	3.671	3.666	0.005	1.000	15321		2.90(1.39-4.16)	104	638	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.678	3.676	0.002	1.399	1648421	2.52		101	7101	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.687	3.682	0.005	1.000	50811	0.0542		108	220	
563.00 > 169.00	3.687	3.682	0.005	1.000	9834		5.17(0.00-0.00)	108	415	
D 30 13C2 PFUnA										
565.00 > 520.00	3.687	3.682	0.005	1.402	2274146	2.49		99.6	18847	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.687	3.682	0.005	1.002	29589	0.0483		96.7	649	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.979	3.980	-0.001	1.000	49829	0.0501		100	207	
613.00 > 169.00	3.979	3.980	-0.001	1.000	11021		4.52(2.13-6.40)	100	494	
D 36 13C2 PFDoA										
615.00 > 570.00	3.979	3.980	-0.001	1.513	2364129	2.53		101	25345	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.241	4.245	-0.004	1.000	51429	0.0487		97.5	127	
663.00 > 169.00	4.241	4.245	-0.004	1.000	15594		3.30(1.25-3.76)	97.5	576	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.486	4.485	0.001	1.000	12225	0.0457		91.4	362	
713.00 > 219.00	4.471	4.485	-0.014	0.997	10112		1.21(0.71-2.13)	91.4	460	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.486	4.485	0.001	1.705	2698781	2.34		93.8	16154	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.904	4.905	-0.001	1.864	5317511	2.67		107	12374	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.904	4.905	-0.001	1.000	130172	0.0496		99.3	85.1	
813.00 > 169.00	4.904	4.905	-0.001	1.000	24354		5.34(2.86-8.58)	99.3	627	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.260	5.257	0.003	1.000	106883	0.0453		90.6	28.0	
913.00 > 169.00	5.260	5.257	0.003	1.000	12450		8.58(0.00-0.00)	90.6	206	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL2_00003 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:44:49 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_003.d

Injection Date: 01-Feb-2018 21:22:23 Instrument ID: A8_N

Lims ID: IC L2 Full

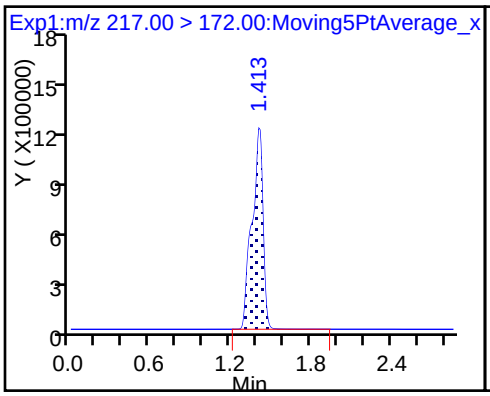
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3

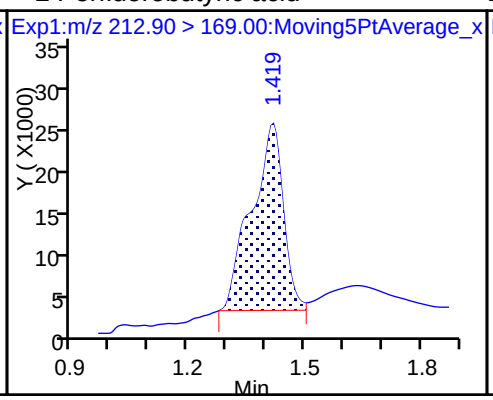
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

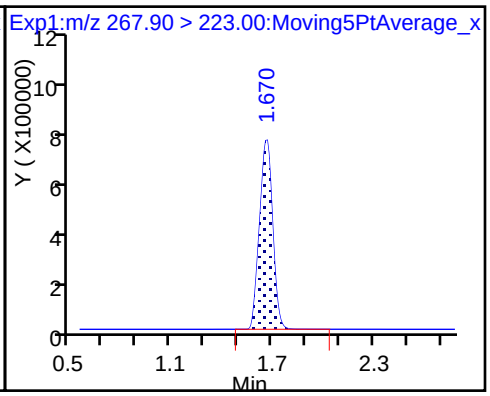
D 1 13C4 PFBA



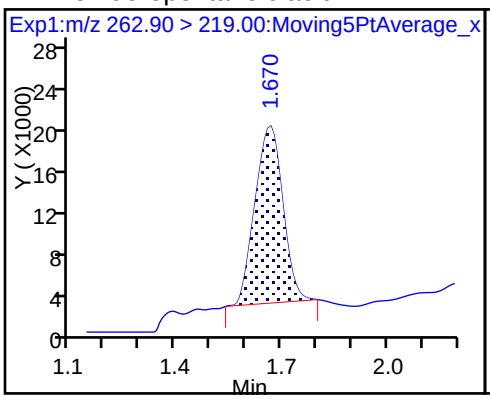
2 Perfluorobutyric acid



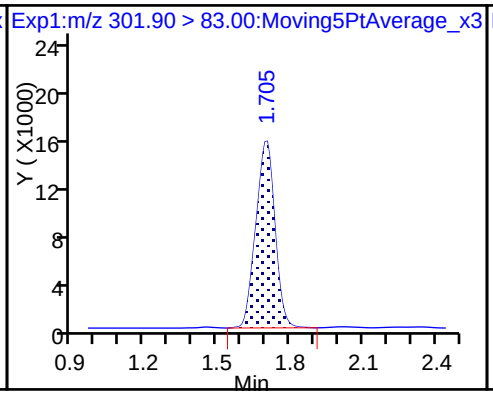
D 3 13C5-PFPeA



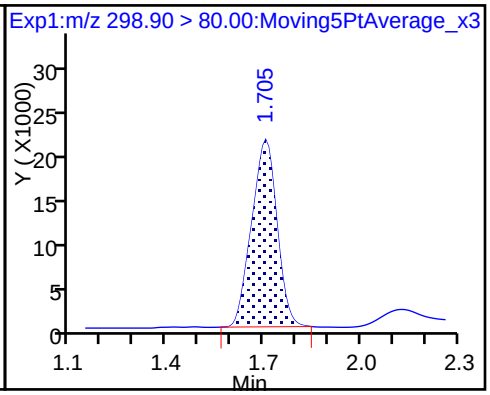
4 Perfluoropentanoic acid



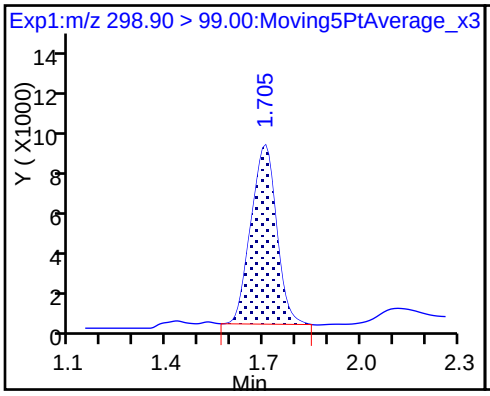
D 47 13C3-PFBS



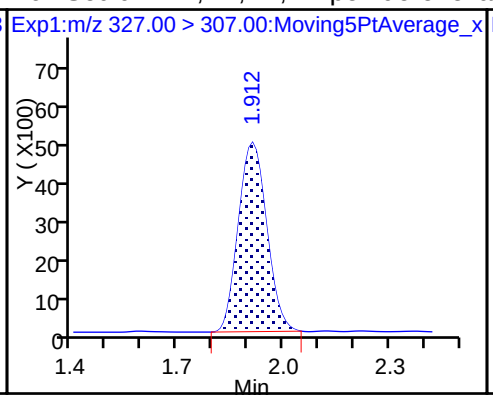
5 Perfluorobutanesulfonic acid



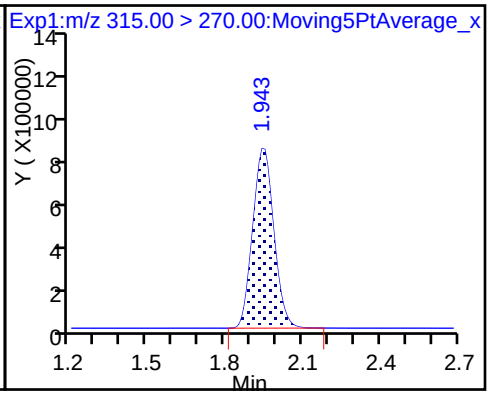
5 Perfluorobutanesulfonic acid



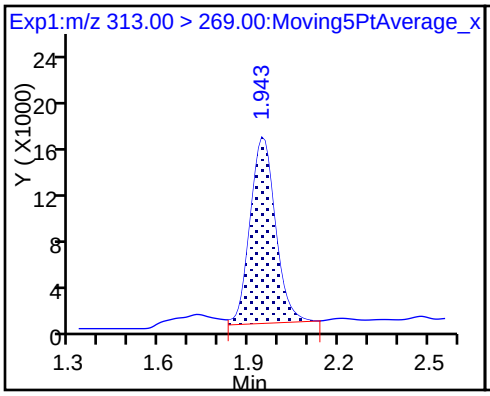
61 Sodium 1H,1H,2H,2H-perfluorohexa



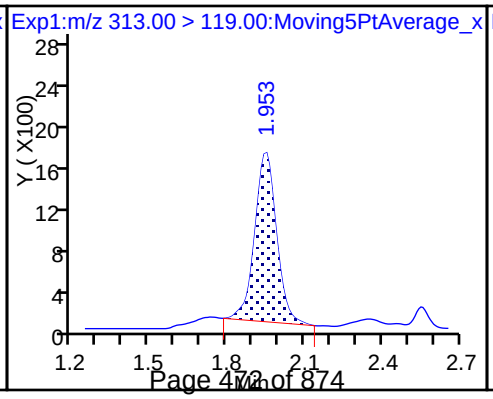
D 7 13C2 PFHxA



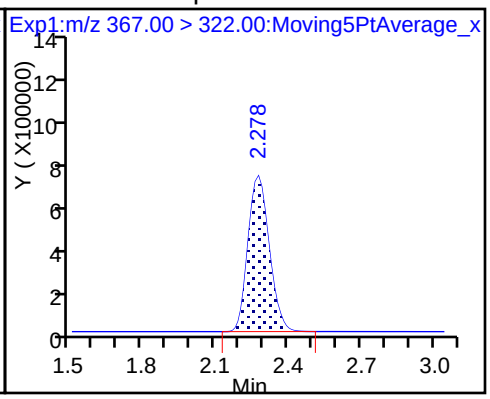
6 Perfluorohexanoic acid



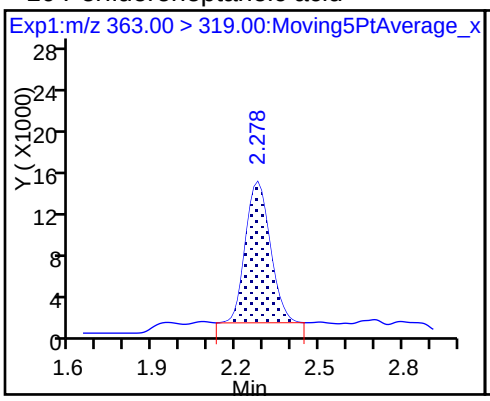
6 Perfluorohexanoic acid



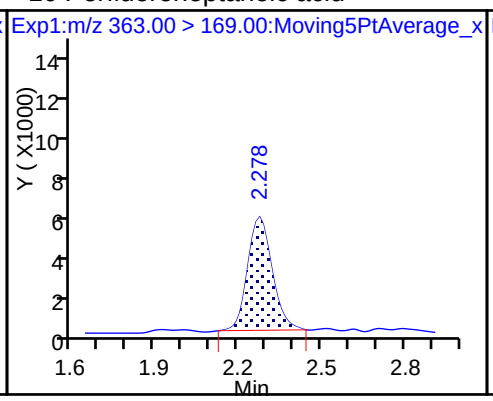
D 9 13C4-PFHpA



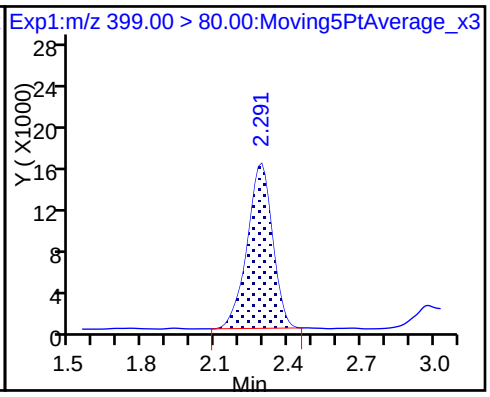
10 Perfluoroheptanoic acid



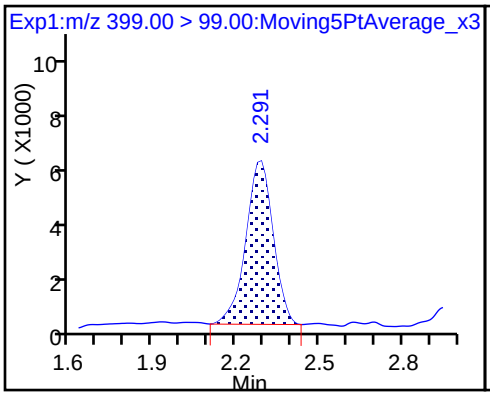
10 Perfluoroheptanoic acid



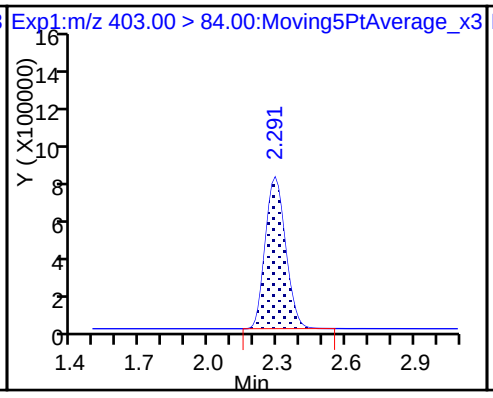
8 Perfluorohexanesulfonic acid



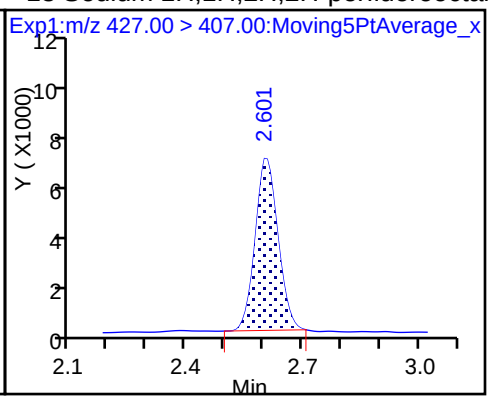
8 Perfluorohexanesulfonic acid



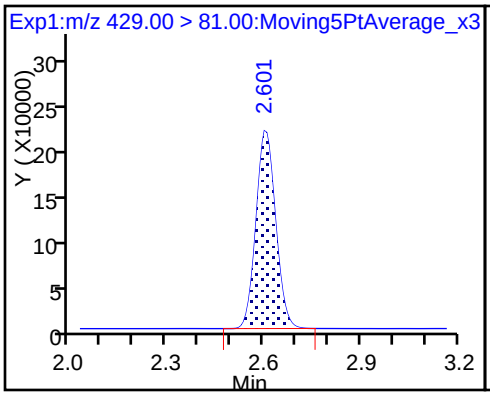
D 11 18O2 PFHxS



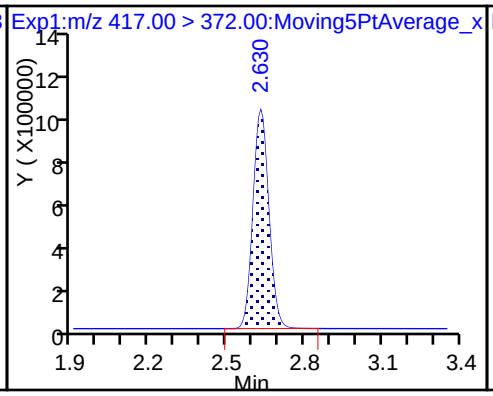
13 Sodium 1H,1H,2H,2H-perfluorooctane



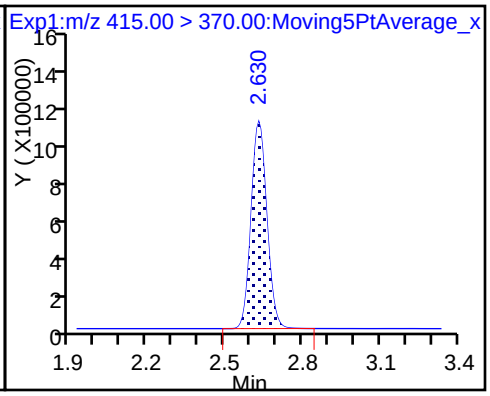
D 12 M2-6:2FTS



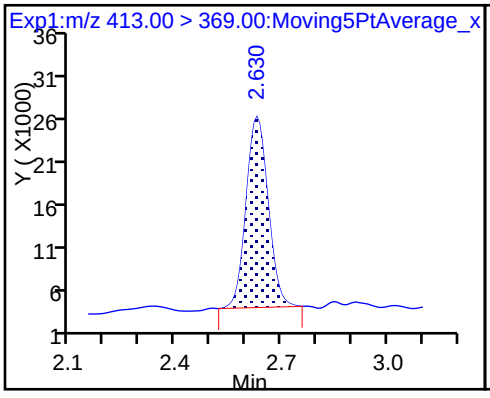
D 14 13C4 PFOA



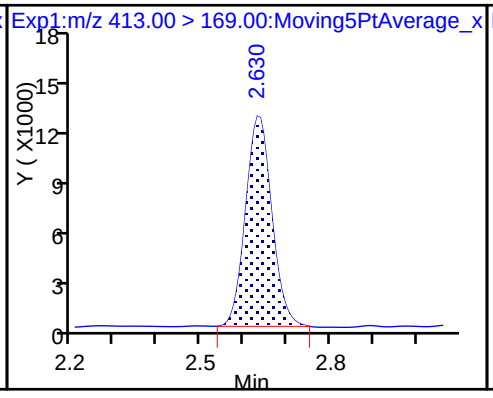
* 62 13C2-PFOA



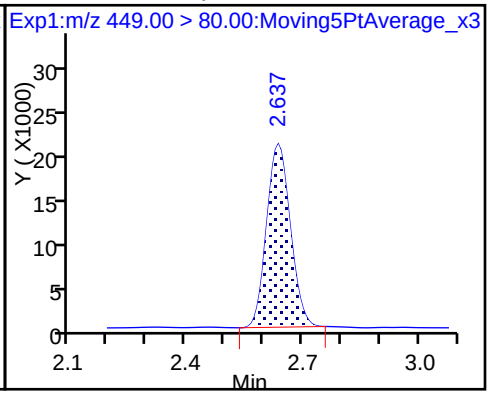
15 Perfluorooctanoic acid



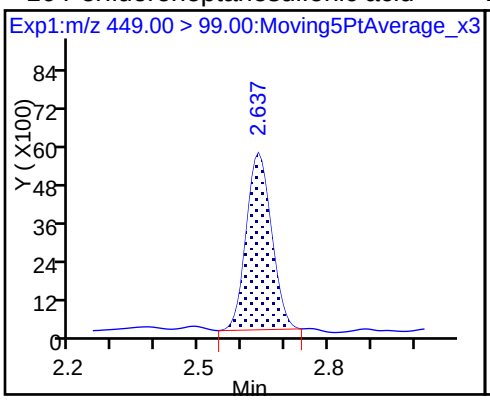
15 Perfluorooctanoic acid



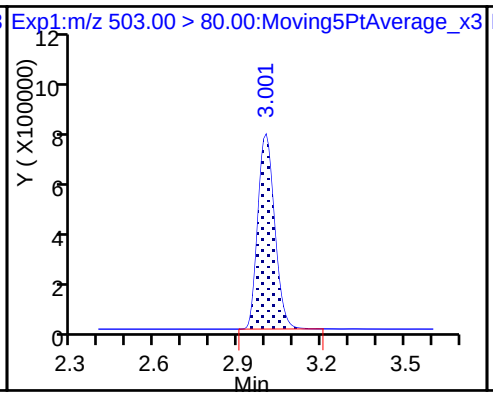
16 Perfluoroheptanesulfonic acid



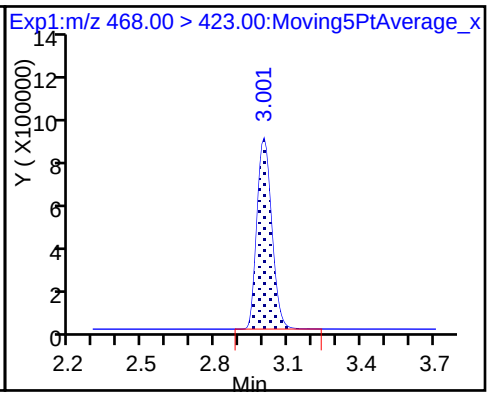
16 Perfluoroheptanesulfonic acid



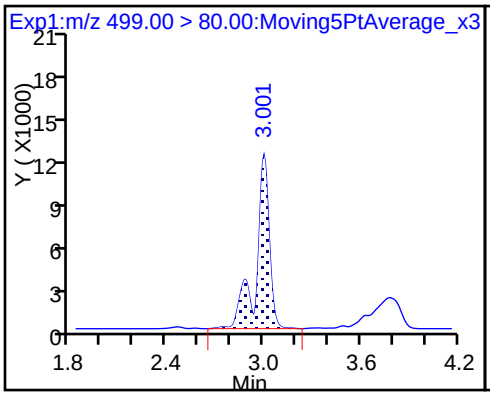
D 18 13C4 PFOS



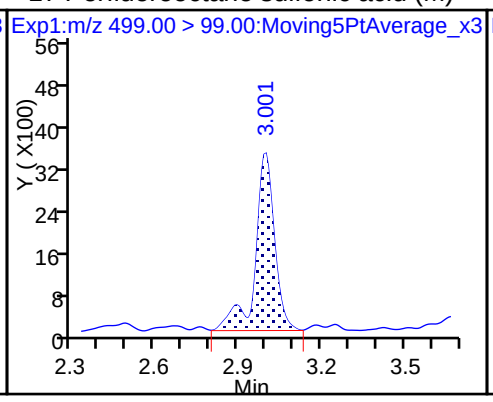
D 19 13C5 PFNA



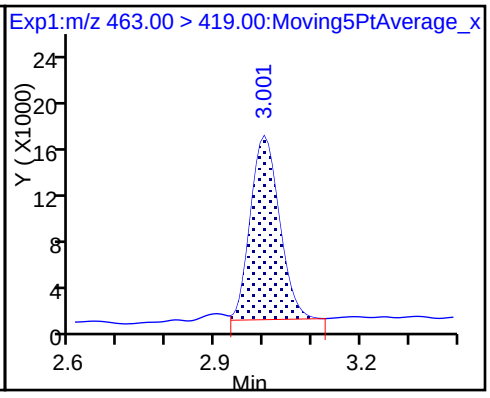
17 Perfluorooctane sulfonic acid



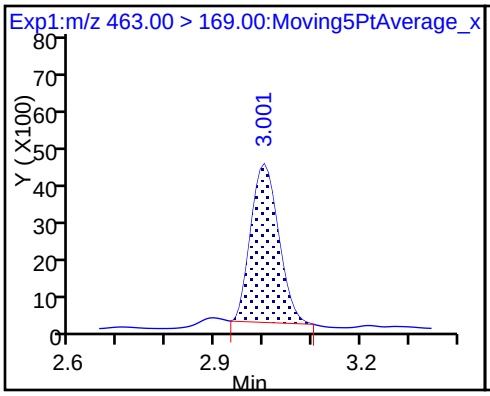
17 Perfluorooctane sulfonic acid (M)



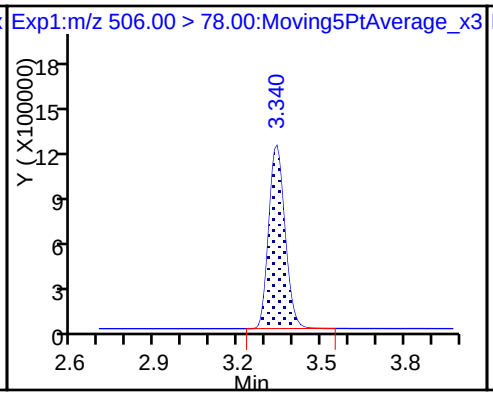
20 Perfluorononanoic acid



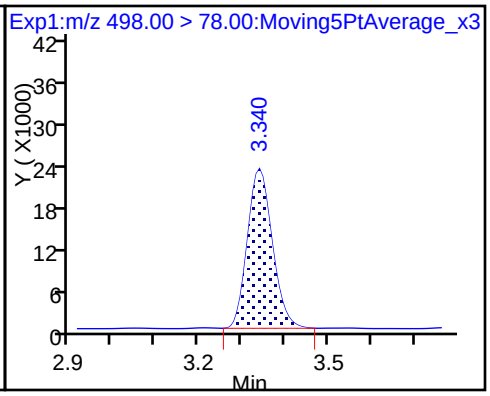
20 Perfluorononanoic acid



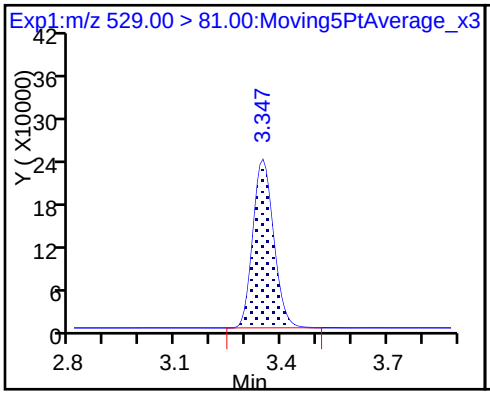
D 21 13C8 FOSA



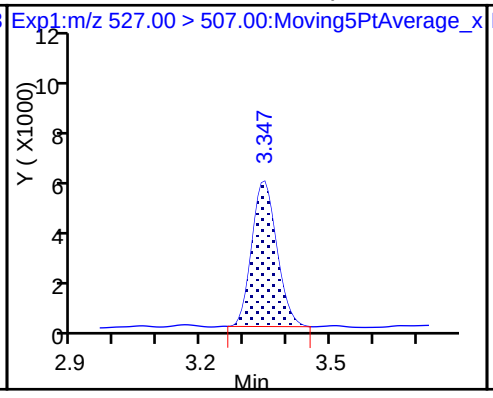
22 Perfluorooctane Sulfonamide



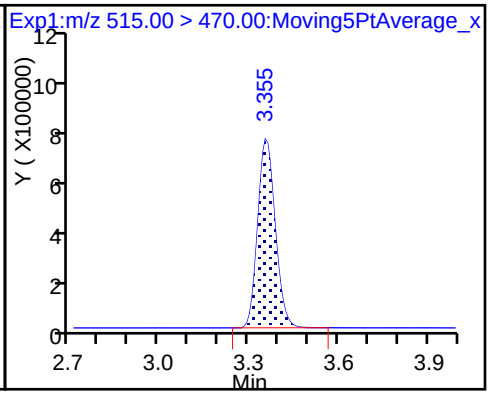
D 26 M2-8:2FTS



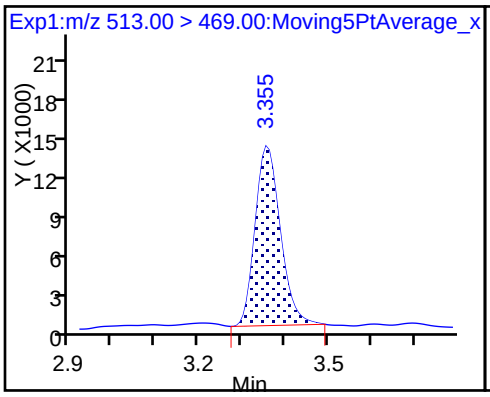
25 Sodium 1H,1H,2H,2H-perfluorodecane



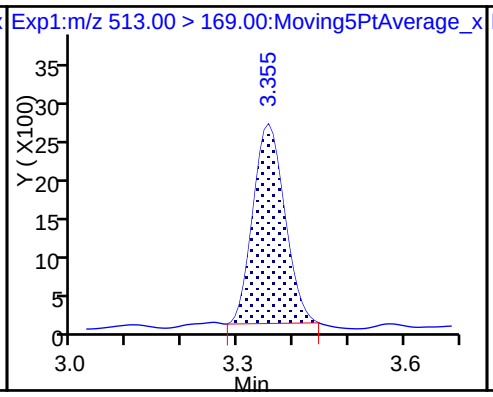
D 23 13C2 PFDA



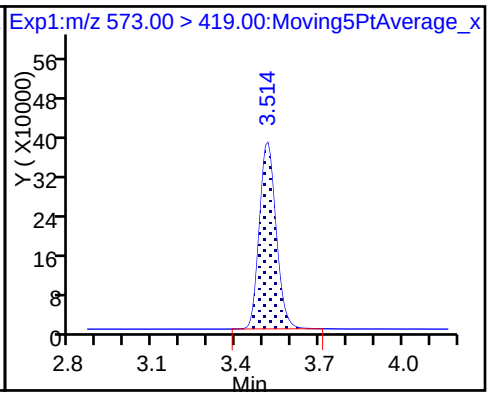
24 Perfluorodecanoic acid



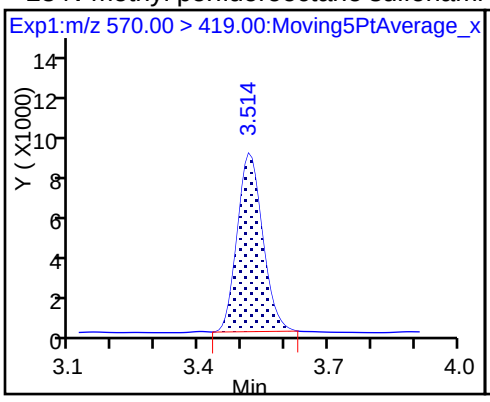
24 Perfluorodecanoic acid



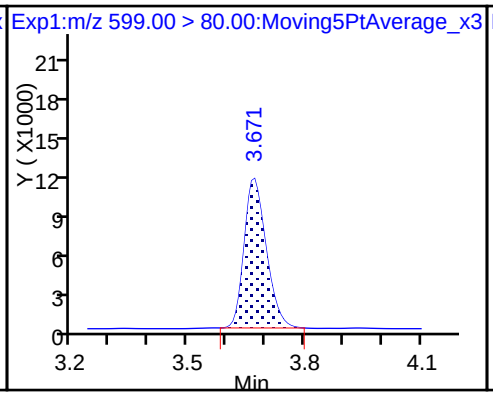
D 27 d3-NMeFOSAA



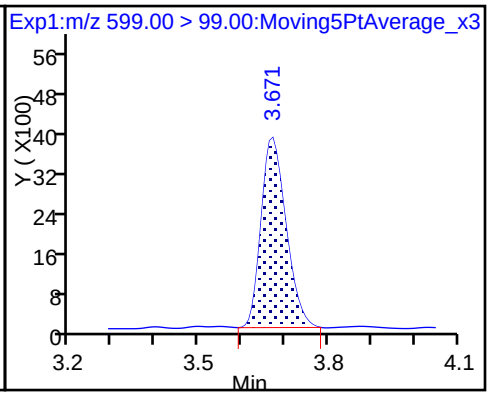
28 N-methyl perfluorooctane sulfonami



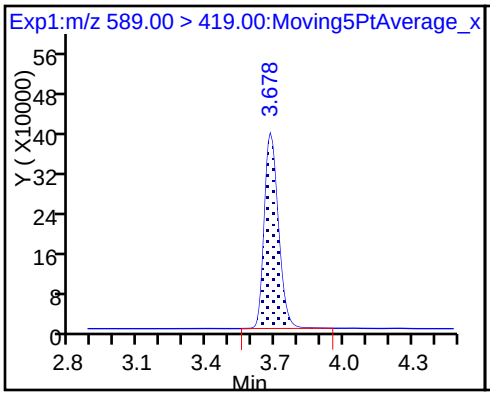
29 Perfluorodecane Sulfonic acid



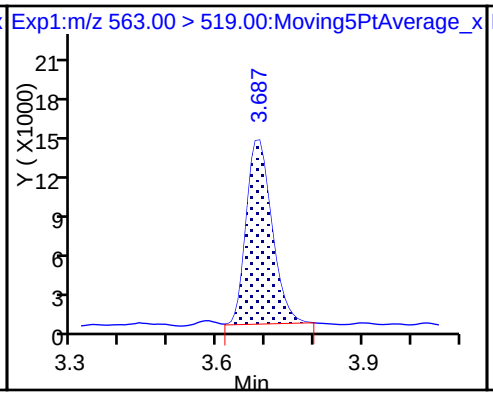
29 Perfluorodecane Sulfonic acid



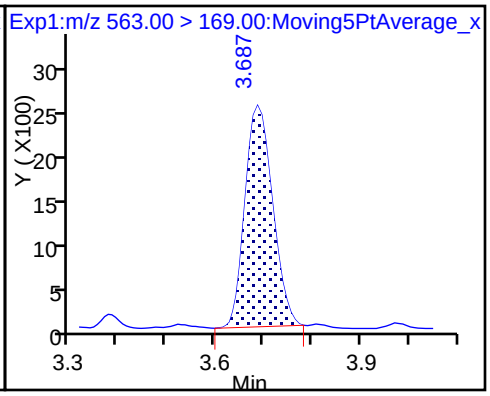
D 32 d5-NEtFOSAA



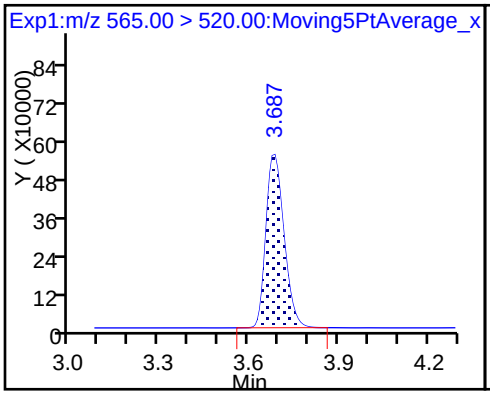
31 Perfluoroundecanoic acid



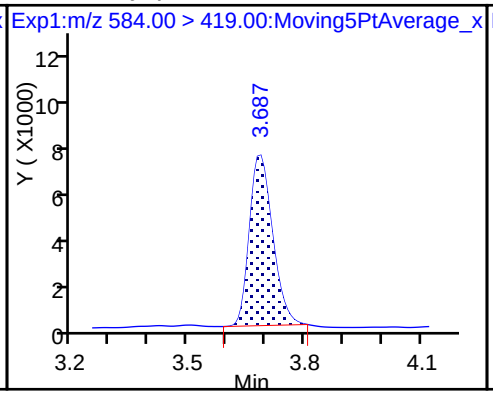
31 Perfluoroundecanoic acid



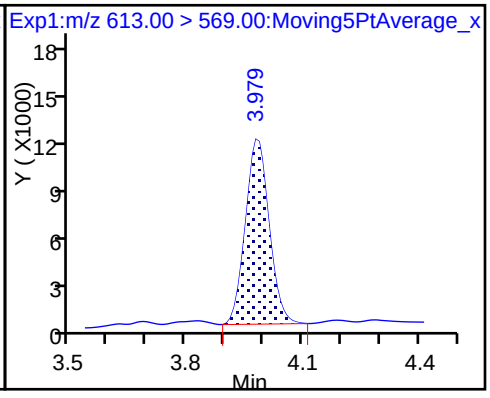
D 30 13C2 PFUnA



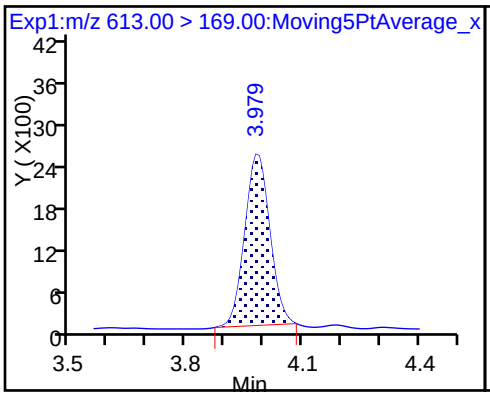
33 N-ethyl perfluorooctane sulfonamid



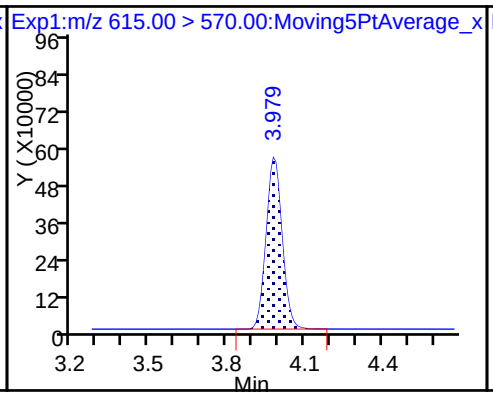
37 Perfluorododecanoic acid



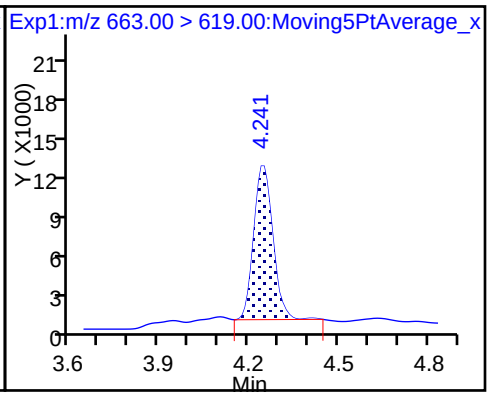
37 Perfluorododecanoic acid



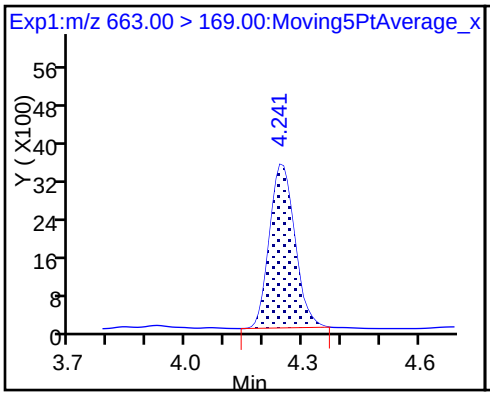
D 36 13C2 PFDoA



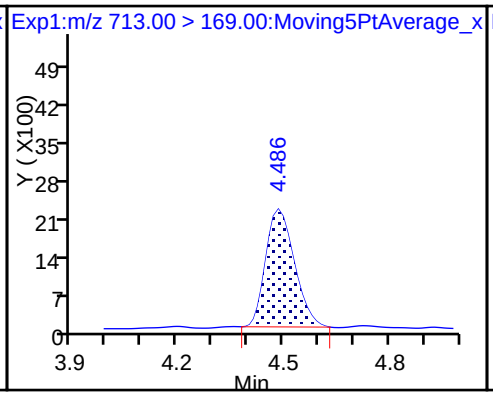
41 Perfluorotridecanoic acid



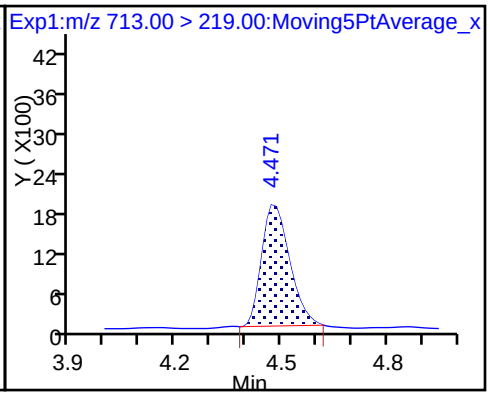
41 Perfluorotridecanoic acid



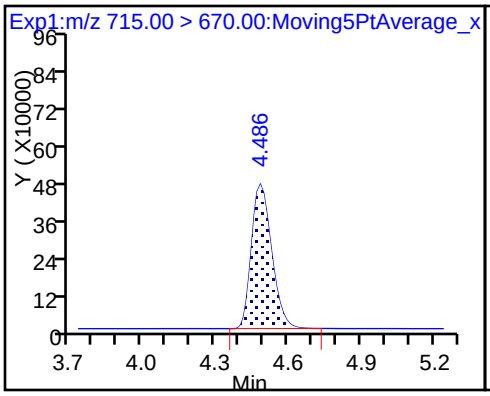
42 Perfluorotetradecanoic acid



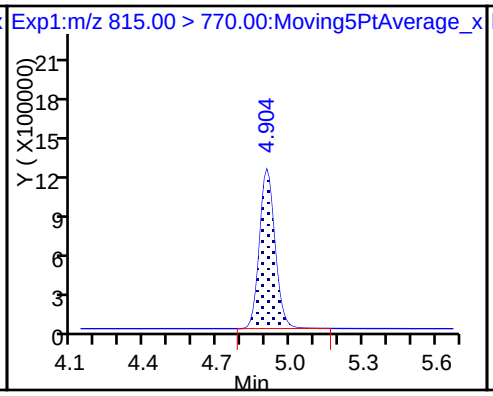
42 Perfluorotetradecanoic acid



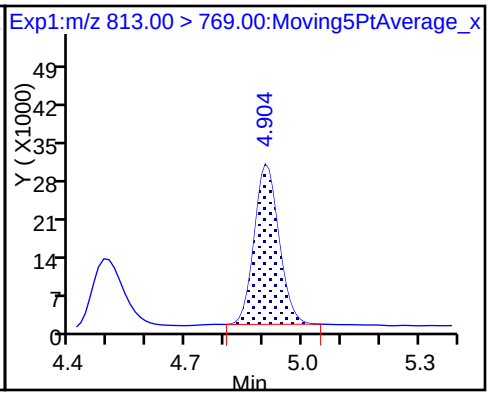
D 43 13C2-PFTeDA



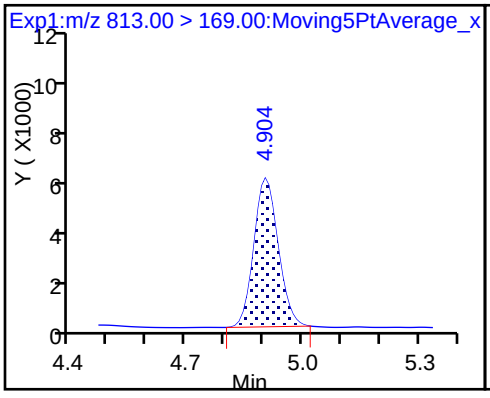
D 44 13C2-PFHxDA



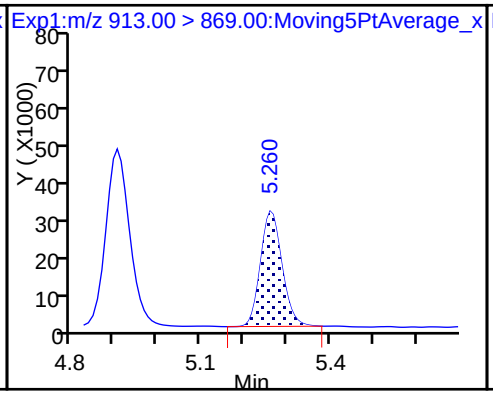
45 Perfluorohexadecanoic acid



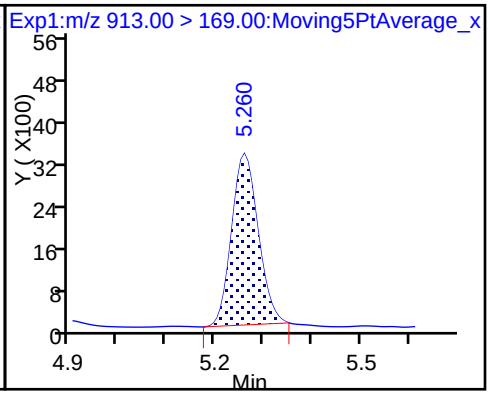
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

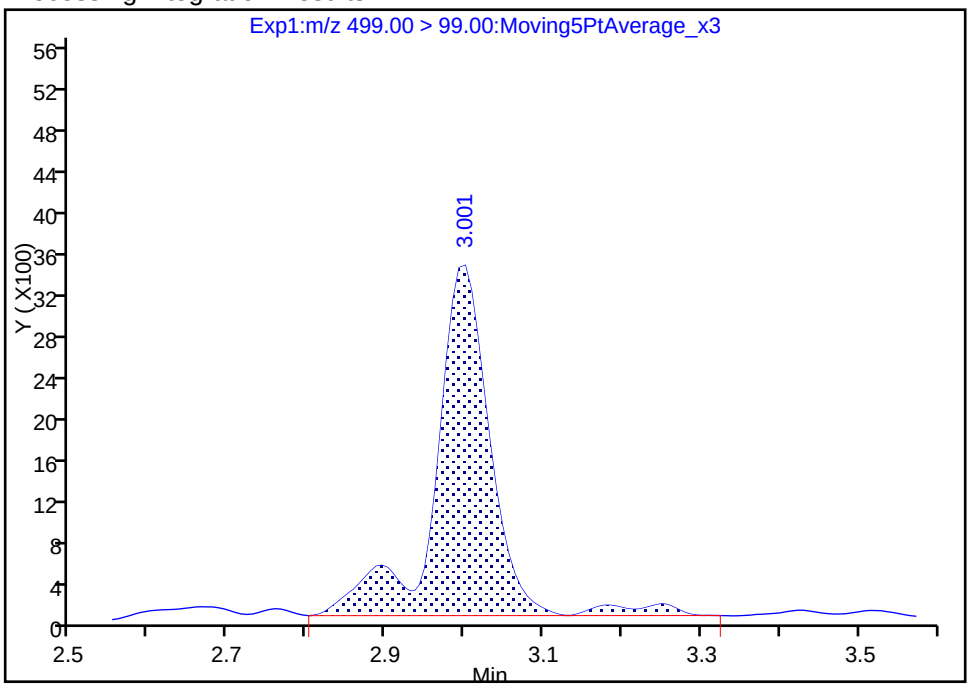
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_003.d
Injection Date: 01-Feb-2018 21:22:23 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

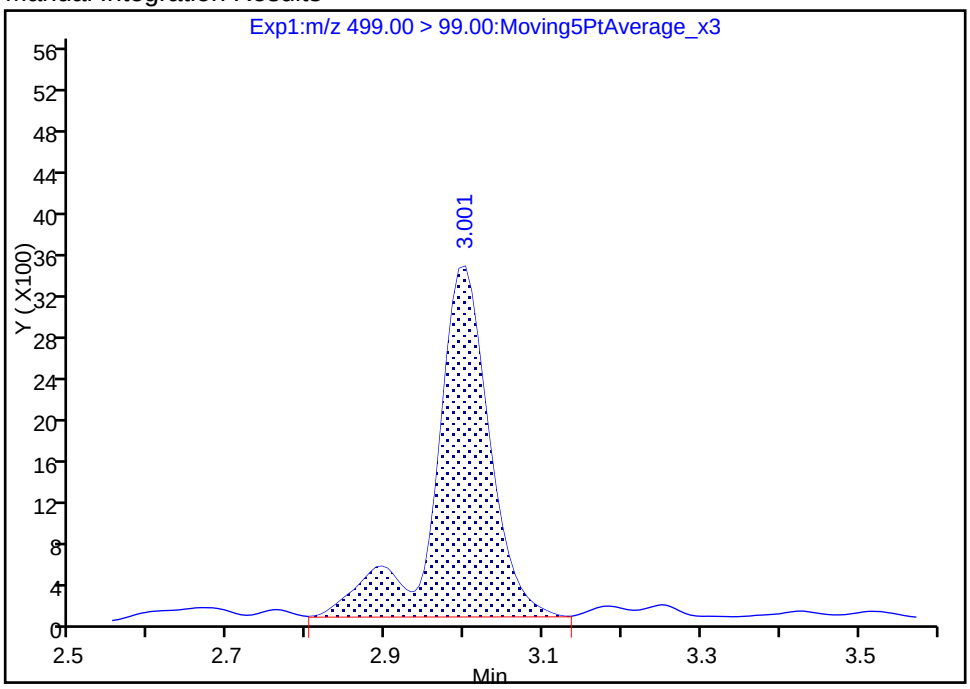
Processing Integration Results

RT: 3.00
Area: 17020
Amount: 0.048091
Amount Units: ng/ml



Manual Integration Results

RT: 3.00
Area: 16464
Amount: 0.046468
Amount Units: ng/ml



Reviewer: hannigana, 02-Feb-2018 15:04:18
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_004.d
Lims ID: IC L3 Full
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 01-Feb-2018 21:30:13 ALS Bottle#: 12 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L3-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:44:51 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:05:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.412	1.416	-0.004	0.537	6699155	2.44		97.7	22837	
2 Perfluorobutyric acid										
212.90 > 169.00	1.412	1.419	-0.007	1.000	622238	0.2451		98.0	83.9	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.660	1.663	-0.003	1.000	469959	0.2418		96.7	278	
D 3 13C5-PFPeA										
267.90 > 223.00	1.660	1.663	-0.003	0.632	4086431	2.45		98.2	84635	
D 47 13C3-PFBS										
301.90 > 83.00	1.695	1.696	-0.001	0.645	84977	2.28		98.2	1970	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.695	1.698	-0.003	1.000	620082	0.2207		99.9	1934	
298.90 > 99.00	1.695	1.698	-0.003	1.000	257419		2.41(1.25-3.74)	99.9	1158	
D 60 M2-4:2FTS										
329.00 > 81.00	1.909	1.902	0.007	0.727	606173	NC			5286	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.909	1.904	0.005	1.000	137615	0.2338		100	8522	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.940	1.937	0.003	1.000	447807	0.2489		99.6	847	
313.00 > 119.00	1.940	1.937	0.003	1.000	38860		11.52(5.03-15.10)	99.6	636	
D 7 13C2 PFHxA										
315.00 > 270.00	1.940	1.937	0.003	0.738	4349144	2.42		96.7	40628	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.275	2.268	0.007	1.000	466605	0.2685		107	697	
363.00 > 169.00	2.275	2.268	0.007	1.000	183841		2.54(1.13-3.40)	107	1589	
D 9 13C4-PFHpA										
367.00 > 322.00	2.275	2.268	0.007	0.866	4177772	2.40		95.9	25369	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.288	2.281	0.007	0.871	4907017	2.28		96.4	23442	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.288	2.281	0.007	1.000	509116	0.2158		94.9	726	
399.00 > 99.00	2.288	2.281	0.007	1.000	184040		2.77(1.50-4.49)	94.9	500	
D 12 M2-6:2FTS										
429.00 > 81.00	2.600	2.598	0.002	0.990	860903	2.33		98.0	18691	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.600	2.598	0.002	1.000	151335	0.2323		98.0	4631	
D 14 13C4 PFOA										
417.00 > 372.00	2.620	2.622	-0.002	0.997	4273175	2.51		100	36221	
* 62 13C2-PFOA										
415.00 > 370.00	2.628	2.623	0.005		4747317	2.50			30820	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.628	2.626	0.002	1.003	466479	0.2396		95.8	165	
413.00 > 169.00	2.628	2.626	0.002	1.003	250909		1.86(0.84-2.52)	95.8	2328	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.635	2.632	0.003	1.000	446839	0.2331		98.0	6256	
449.00 > 99.00	2.635	2.632	0.003	1.000	116432		3.84(1.94-5.82)	98.0	1453	
D 18 13C4 PFOS										
503.00 > 80.00	2.991	2.993	-0.002	1.138	3363862	2.38		99.5	22897	
D 19 13C5 PFNA										
468.00 > 423.00	2.991	2.994	-0.003	1.138	3496534	2.52		101	30830	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.991	2.995	-0.004	1.000	347107	0.2234		96.3	692	
499.00 > 99.00	2.991	2.995	-0.004	1.000	80448		4.31(2.31-6.93)	96.3	487	
20 Perfluorononanoic acid										
463.00 > 419.00	2.999	2.997	0.002	1.003	347087	0.2438		97.5	560	
463.00 > 169.00	2.991	2.997	-0.006	1.000	86041		4.03(1.90-5.69)	97.5	1726	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.334	-0.003	1.268	4979259	2.54		102	21987	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.338	3.337	0.001	1.002	465839	0.2362		94.5	8237	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.346	3.345	0.001	1.000	119880	0.2426		101	3200	
D 26 M2-8:2FTS										
529.00 > 81.00	3.346	3.345	0.001	1.273	963549	2.34		97.7	18267	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.354	3.354	0.0	1.000	302131	0.2428		97.1	1264	
513.00 > 169.00	3.354	3.354	0.0	1.000	53227		5.68(2.36-7.09)	97.1	965	
D 23 13C2 PFDA										
515.00 > 470.00	3.354	3.354	0.0	1.276	3045445	2.55		102	19996	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.506	3.508	-0.002	1.334	1613276	2.50		99.9	14599	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.513	3.513	0.0	1.002	161696	0.2338		93.5	1435	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.662	3.666	-0.004	1.000	216689	0.2332		96.8	6745	
599.00 > 99.00	3.662	3.666	-0.004	1.000	79723		2.72(1.39-4.16)	96.8	3996	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.677	3.676	0.001	1.399	1679163	2.53		101	8478	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.677	3.682	-0.005	1.000	157389	0.2524		101	2656	
D 30 13C2 PFUnA										
565.00 > 520.00	3.677	3.682	-0.005	1.399	2294383	2.48		99.2	31053	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.677	3.682	-0.005	1.000	236687	0.2505		100	1107	
563.00 > 169.00	3.677	3.682	-0.005	1.000	46637		5.08(0.00-0.00)	100	2083	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.980	-0.002	1.514	2355519	2.49		99.7	25012	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.980	-0.002	1.000	234155	0.2365		94.6	910	
613.00 > 169.00	3.978	3.980	-0.002	1.000	61330		3.82(2.13-6.40)	94.6	2420	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.240	4.245	-0.005	1.000	264606	0.2517		101	682	
663.00 > 169.00	4.240	4.245	-0.005	1.000	82814		3.20(1.25-3.76)	101	4780	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.477	4.485	-0.008	1.704	2975377	2.55		102	18789	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.477	4.485	-0.008	1.000	74825	0.2538		102	2645	
713.00 > 219.00	4.477	4.485	-0.008	1.000	51169		1.46(0.71-2.13)	102	1843	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.907	4.905	0.002	1.000	515166	0.2605		104	367	
813.00 > 169.00	4.907	4.905	0.002	1.000	93091		5.53(2.86-8.58)	104	1761	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.907	4.905	0.002	1.867	4883792	2.42		97.0	12428	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.263	5.257	0.006	1.000	552620	0.2551		102	135	
913.00 > 169.00	5.256	5.257	-0.001	0.999	65355		8.46(0.00-0.00)	102	683	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL3_00003 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:44:52 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_004.d

Injection Date: 01-Feb-2018 21:30:13 Instrument ID: A8_N

Lims ID: IC L3 Full

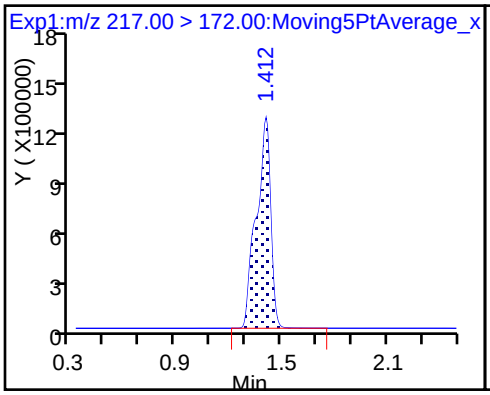
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 4

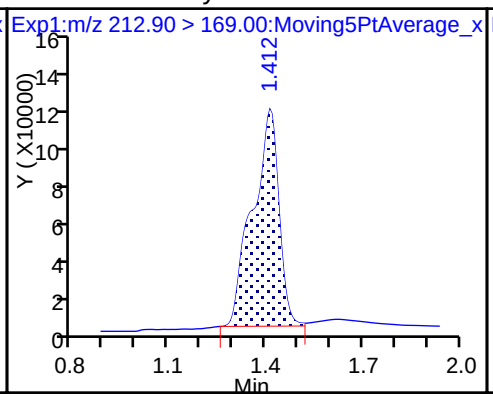
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

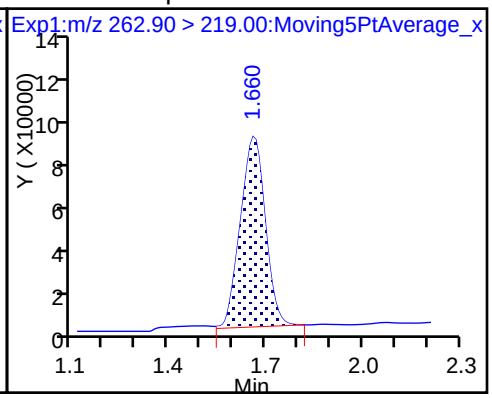
D 1 13C4 PFBA



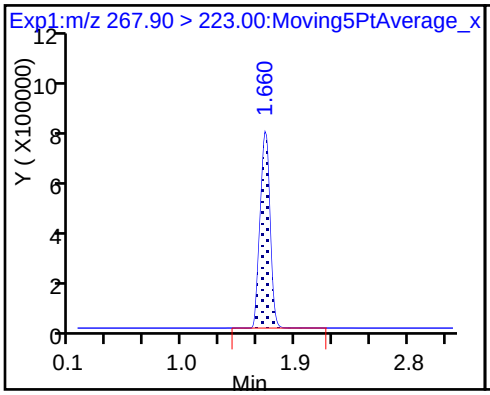
2 Perfluorobutyric acid



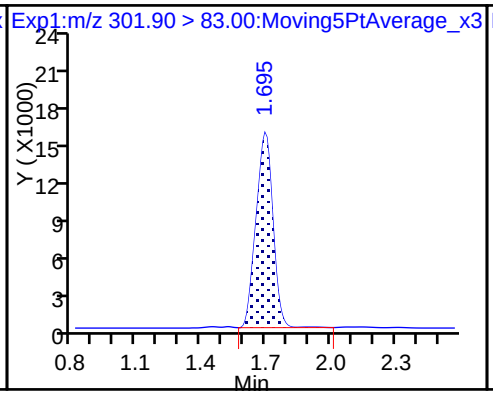
4 Perfluoropentanoic acid



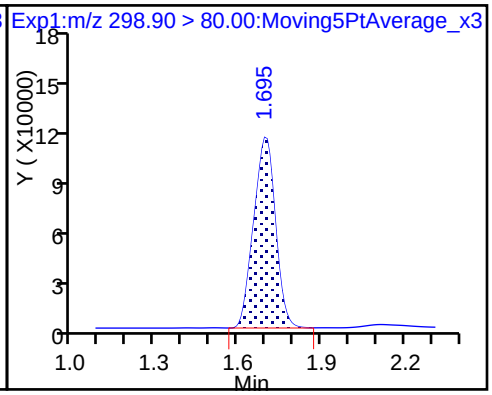
D 3 13C5-PFPeA



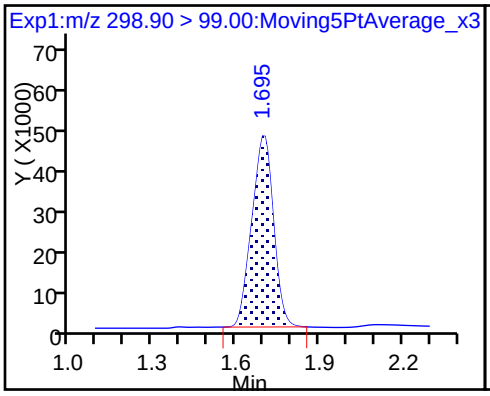
D 47 13C3-PFBS



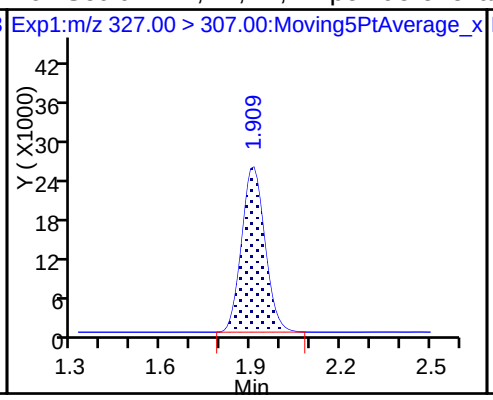
5 Perfluorobutanesulfonic acid



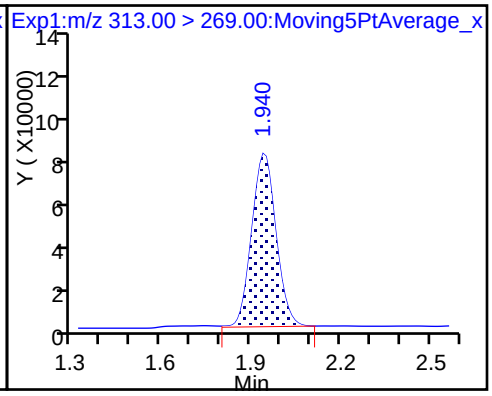
5 Perfluorobutanesulfonic acid



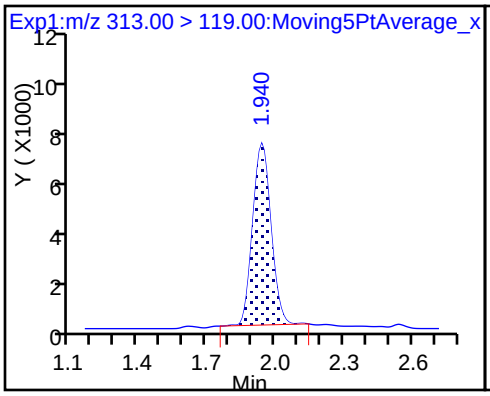
61 Sodium 1H,1H,2H,2H-perfluorohexane



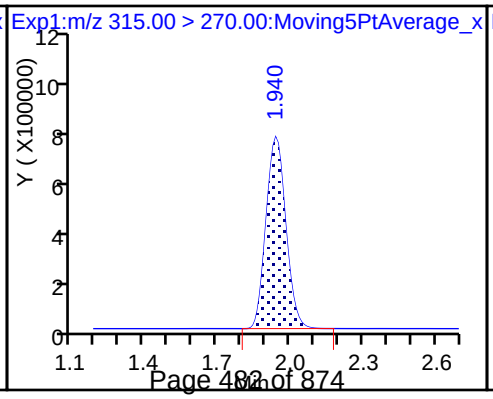
6 Perfluorohexanoic acid



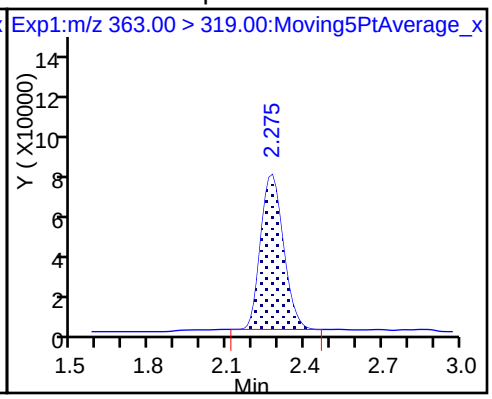
6 Perfluorohexanoic acid



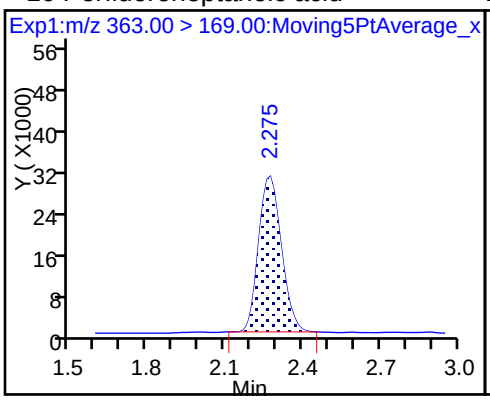
D 7 13C2 PFHxA



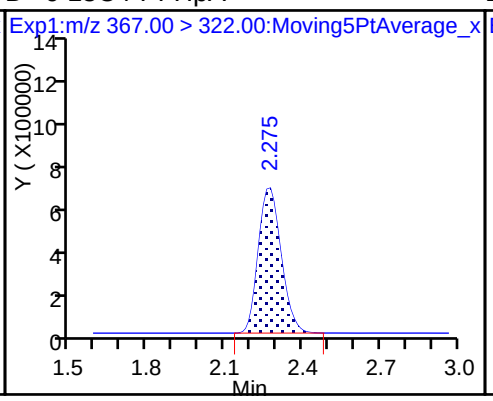
10 Perfluoroheptanoic acid



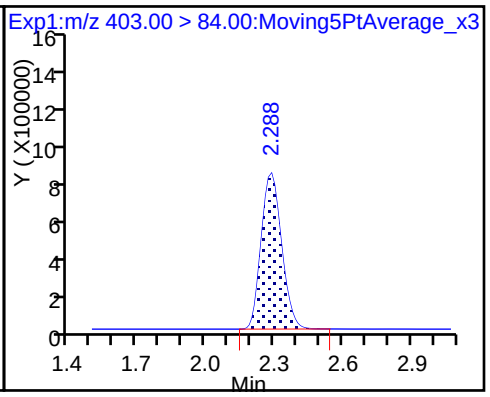
10 Perfluoroheptanoic acid



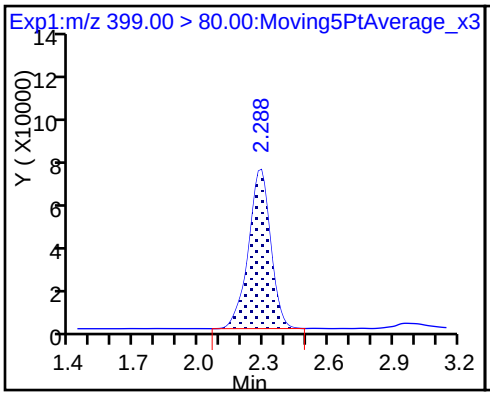
D 9 13C4-PFHpA



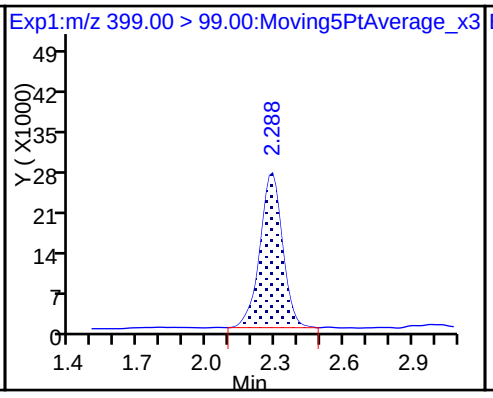
D 11 18O2 PFHxS



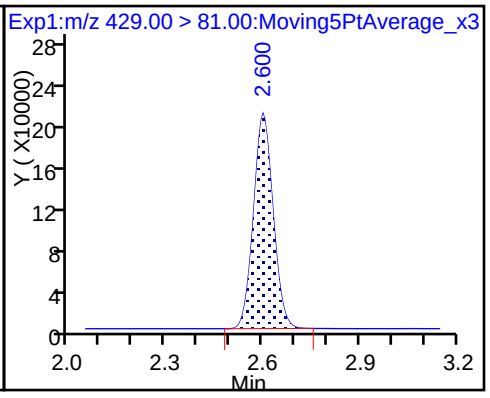
8 Perfluorohexanesulfonic acid



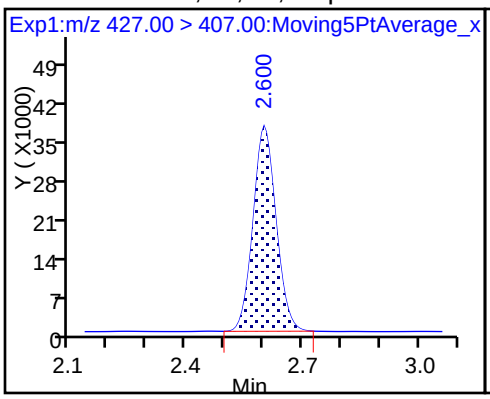
8 Perfluorohexanesulfonic acid



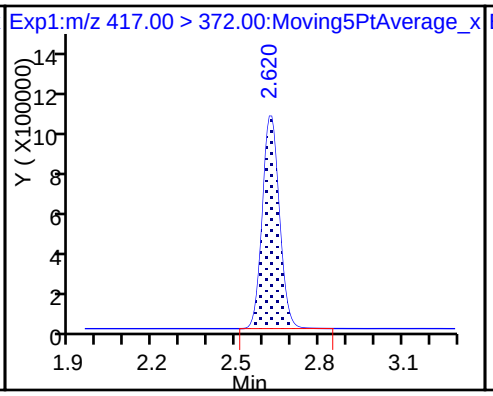
D 12 M2-6:2FTS



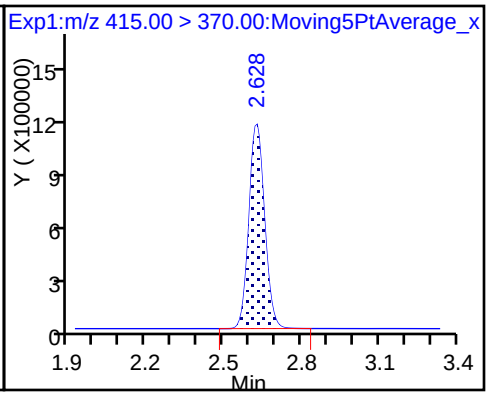
13 Sodium 1H,1H,2H,2H-perfluorooctane



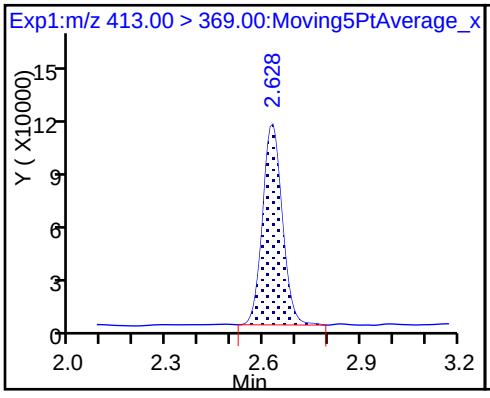
D 14 13C4 PFOA



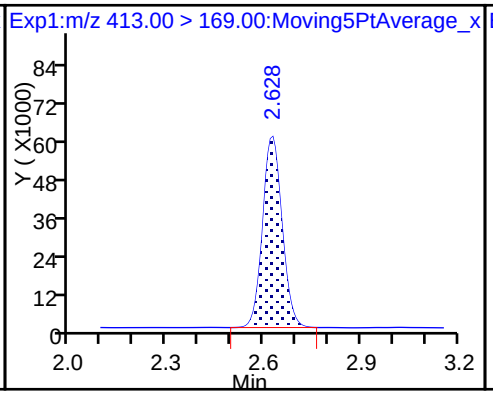
* 62 13C2-PFOA



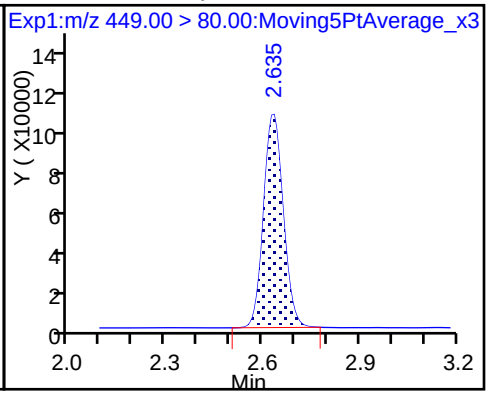
15 Perfluorooctanoic acid



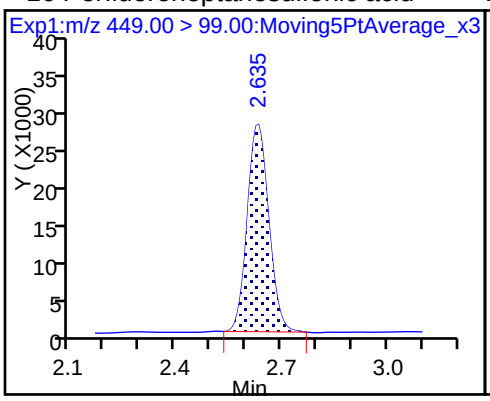
15 Perfluorooctanoic acid



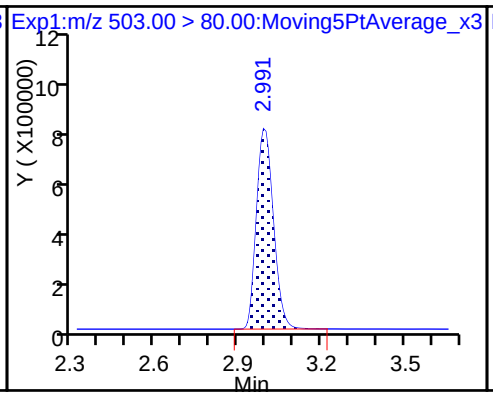
16 Perfluoroheptanesulfonic acid



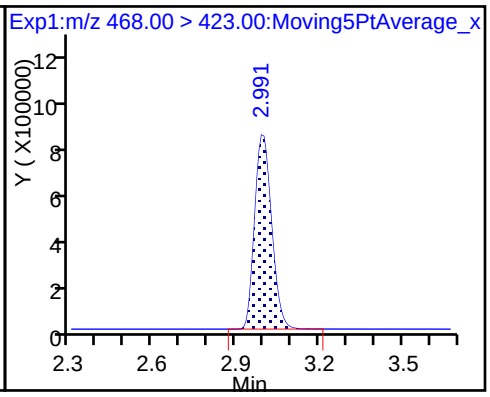
16 Perfluoroheptanesulfonic acid



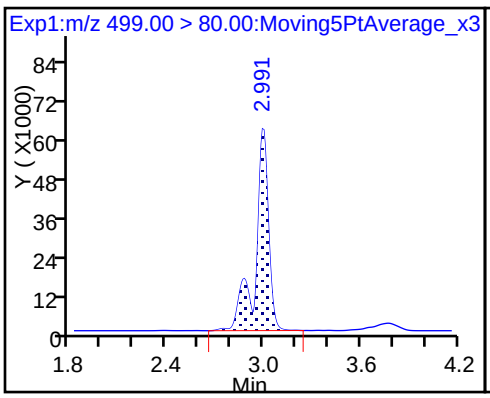
D 18 13C4 PFOS



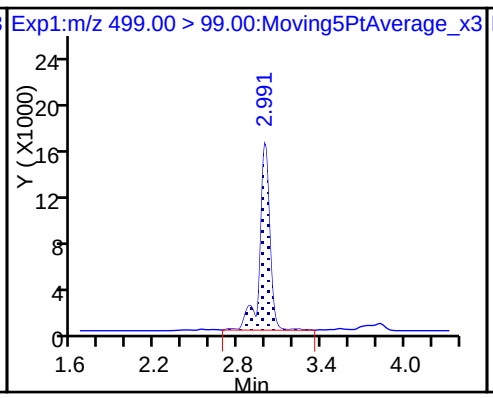
D 19 13C5 PFNA



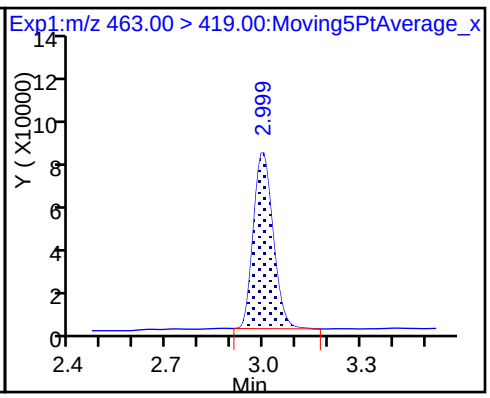
17 Perfluorooctane sulfonic acid



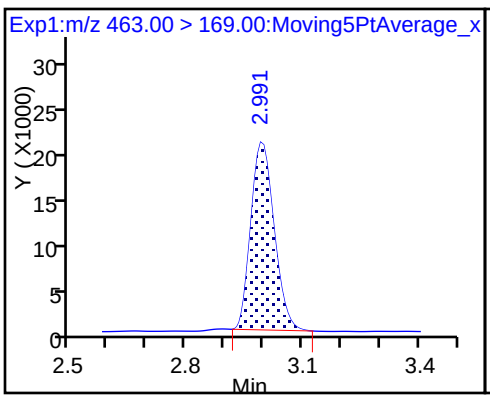
17 Perfluorooctane sulfonic acid



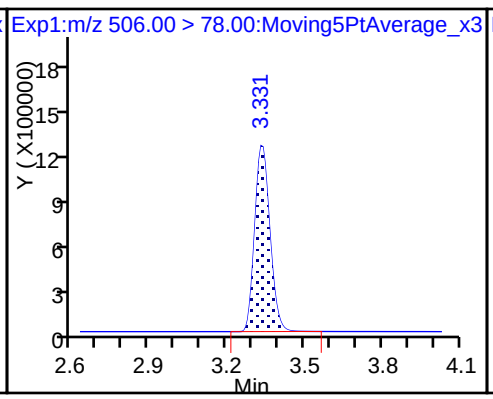
20 Perfluorononanoic acid



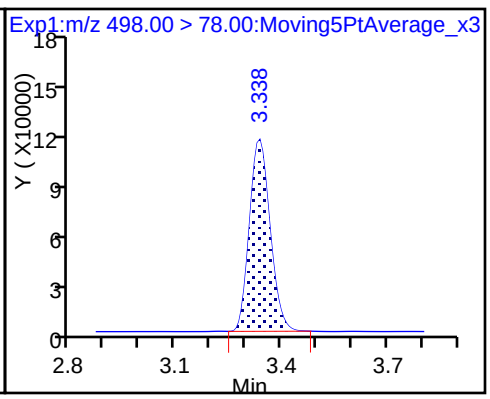
20 Perfluorononanoic acid



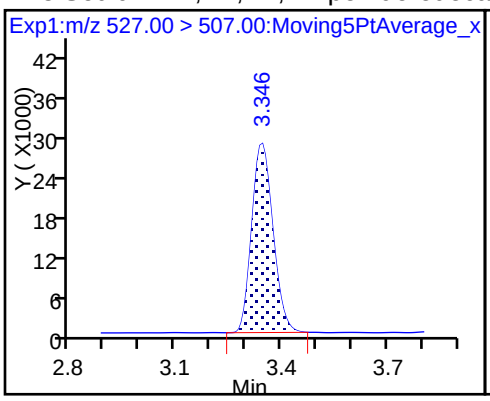
D 21 13C8 FOSA



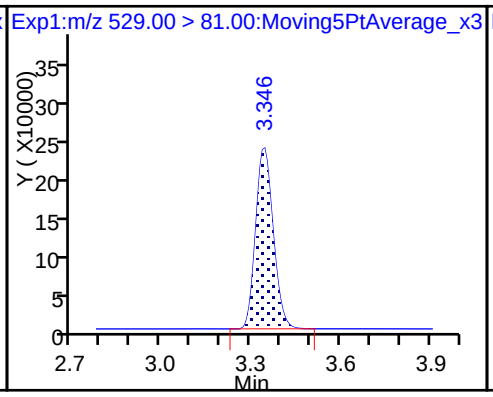
22 Perfluorooctane Sulfonamide



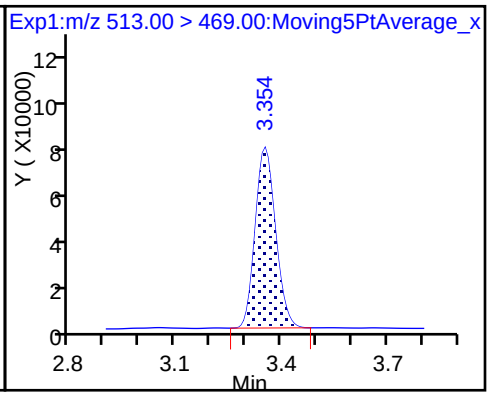
25 Sodium 1H,1H,2H,2H-perfluorodecane



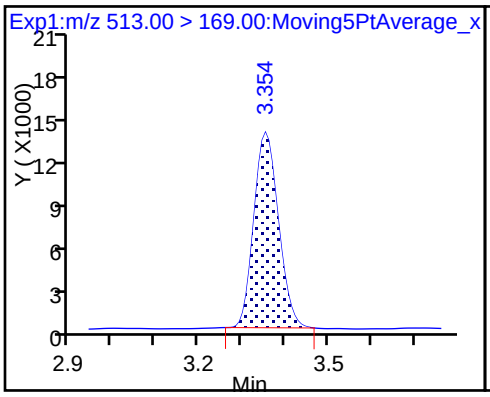
D 26 M2-8:2FTS



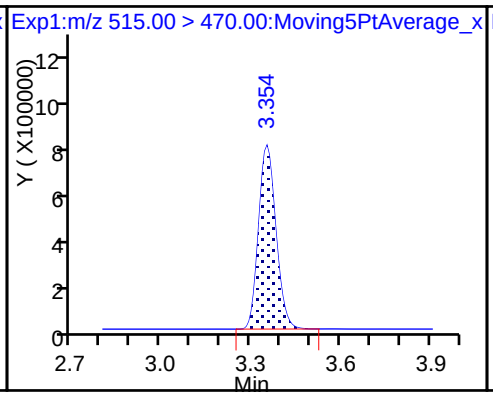
24 Perfluorodecanoic acid



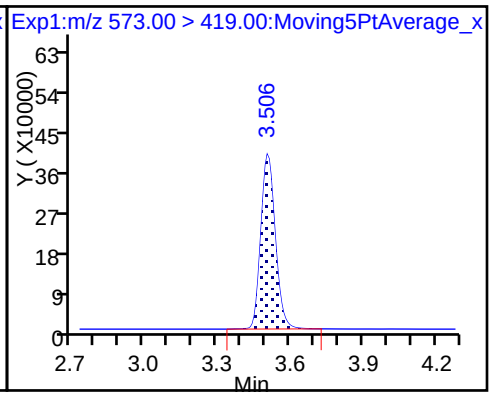
24 Perfluorodecanoic acid



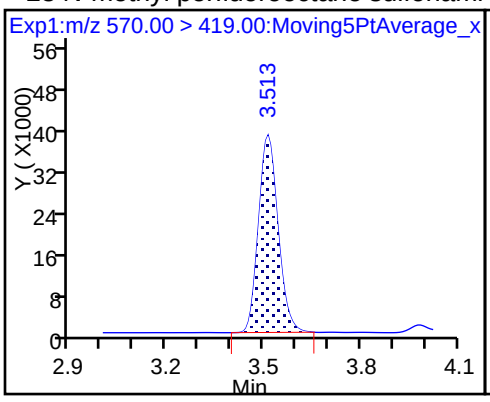
D 23 13C2 PFDA



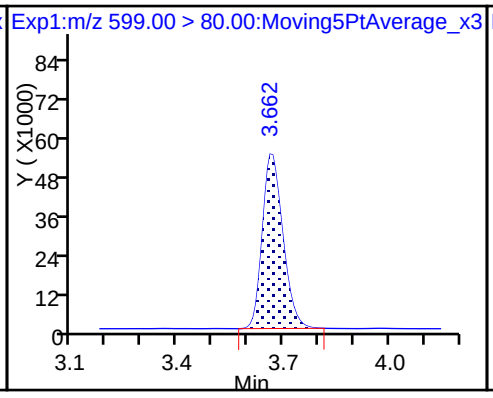
D 27 d3-NMeFOSAA



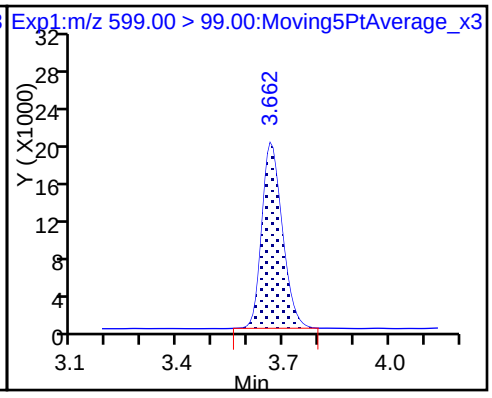
28 N-methyl perfluorooctane sulfonami



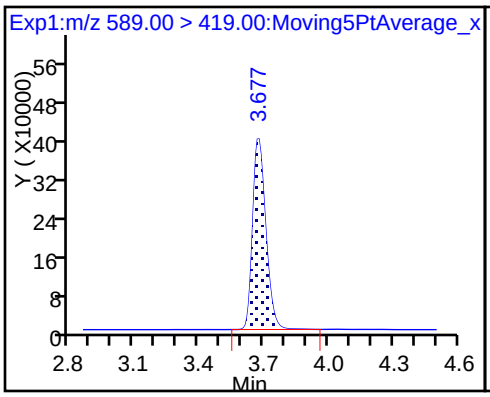
29 Perfluorodecane Sulfonic acid



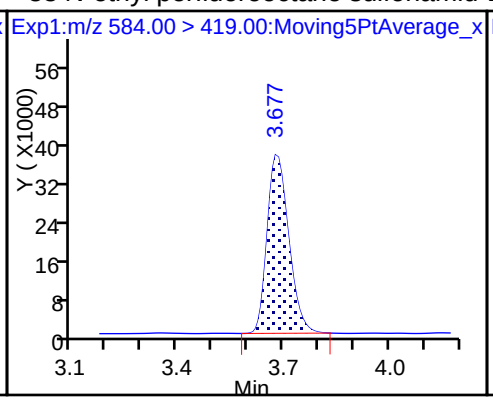
29 Perfluorodecane Sulfonic acid



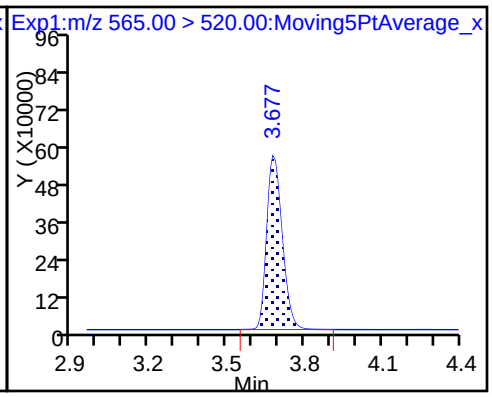
D 32 d5-NEtFOSAA



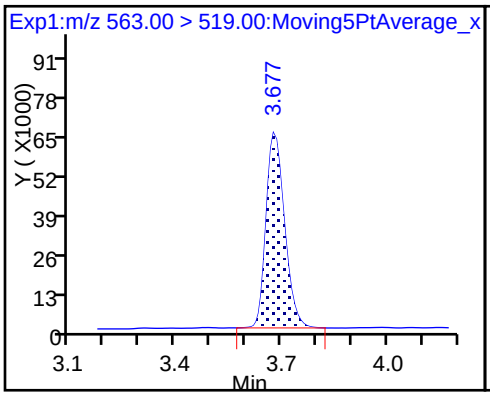
33 N-ethyl perfluorooctane sulfonamid



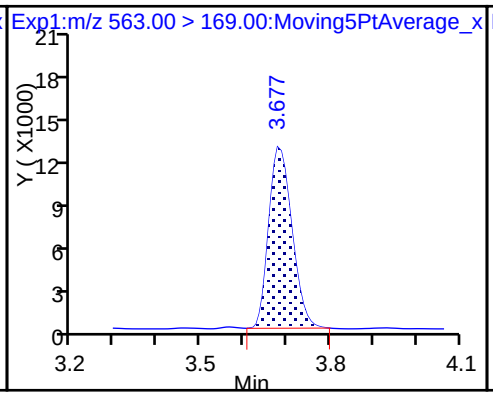
D 30 13C2 PFUnA



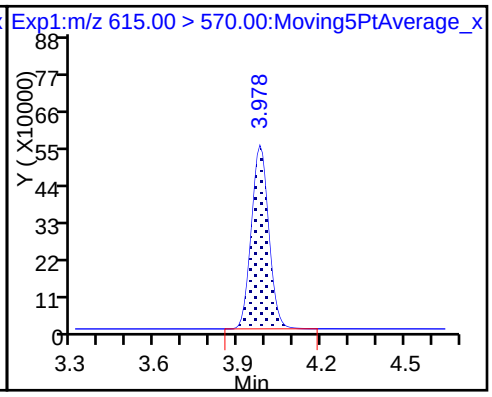
31 Perfluoroundecanoic acid



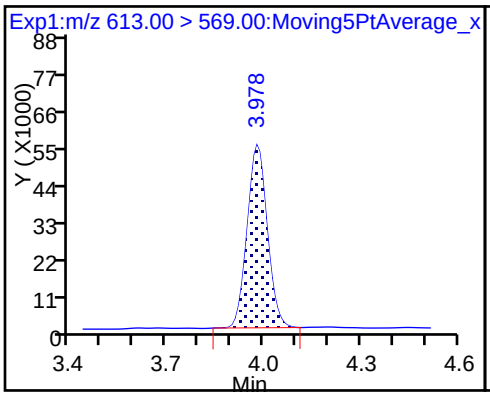
31 Perfluoroundecanoic acid



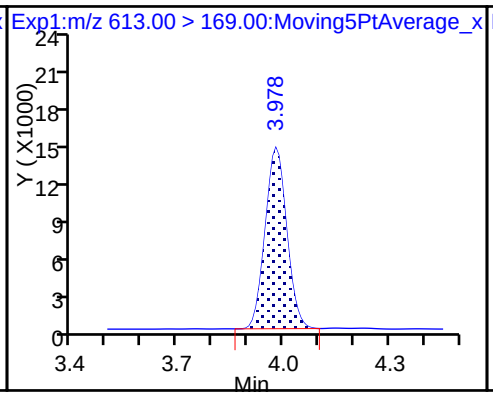
D 36 13C2 PFDoA



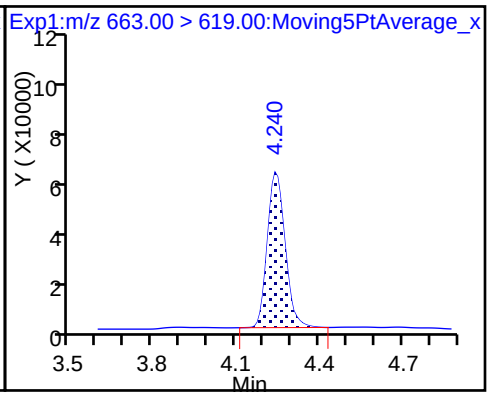
37 Perfluorododecanoic acid



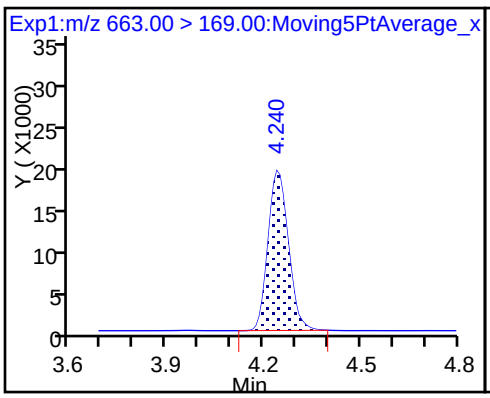
37 Perfluorododecanoic acid



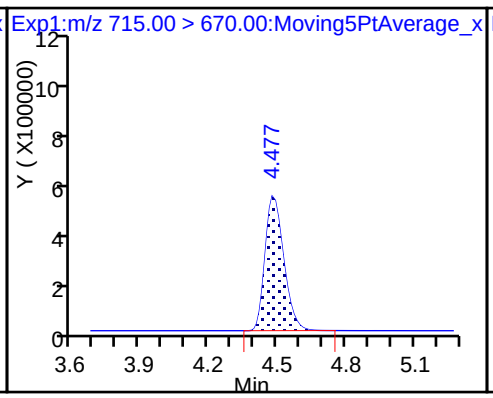
41 Perfluorotridecanoic acid



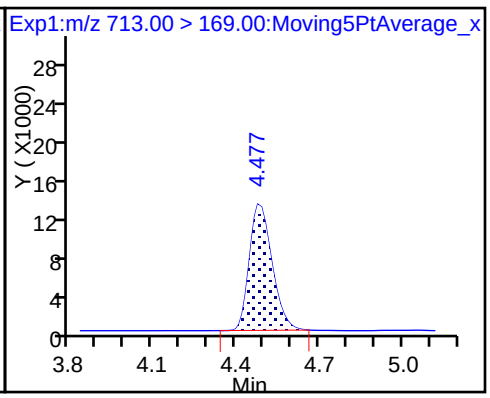
41 Perfluorotridecanoic acid



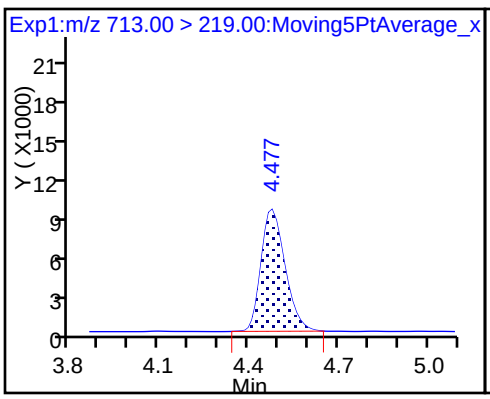
D 43 13C2-PFTeDA



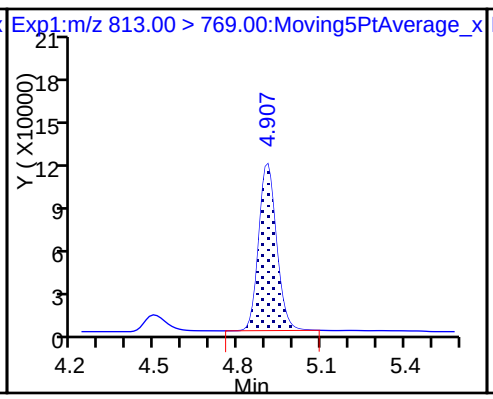
42 Perfluorotetradecanoic acid



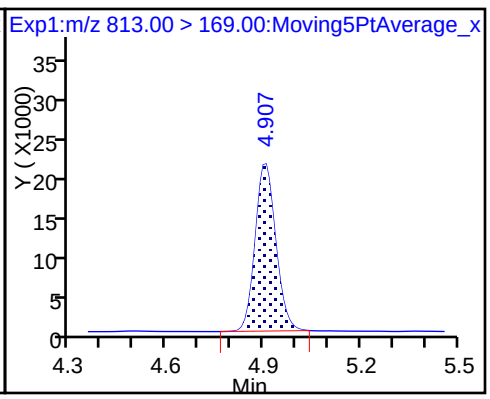
42 Perfluorotetradecanoic acid



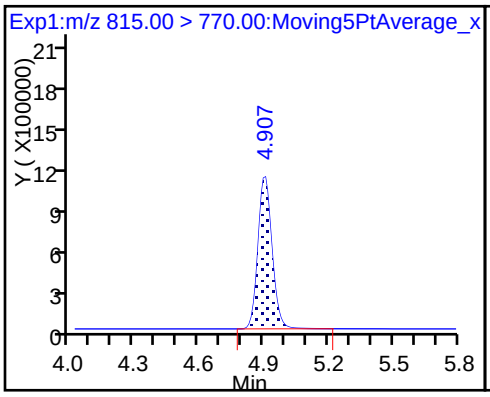
45 Perfluorohexadecanoic acid



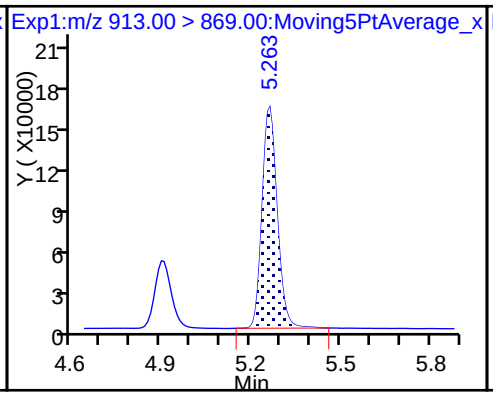
45 Perfluorohexadecanoic acid



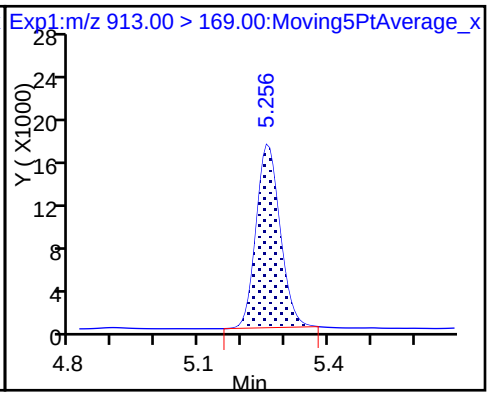
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_005.d
Lims ID: IC L4 Full
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 01-Feb-2018 21:38:05 ALS Bottle#: 30 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L4-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:53:28 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:06:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.418	1.416	0.002	0.540	6886461	2.56		102	24507	
2 Perfluorobutyric acid										
212.90 > 169.00	1.418	1.419	-0.001	1.000	2499458	0.9576		95.8	363	
D 3 13C5-PFPeA										
267.90 > 223.00	1.669	1.663	0.006	0.635	4156327	2.54		102	46379	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.669	1.663	0.006	1.000	1851126	0.9363		93.6	1112	
D 47 13C3-PFBS										
301.90 > 83.00	1.704	1.696	0.008	0.649	82145	2.25		96.7	2505	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.704	1.698	0.006	1.000	2487038	0.9158		104	8291	
298.90 > 99.00	1.704	1.698	0.006	1.000	1049003		2.37(1.25-3.74)	104	4221	
D 60 M2-4:2FTS										
329.00 > 81.00	1.909	1.902	0.007	0.727	637968	NC			6239	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.909	1.904	0.005	1.000	533657	0.9378		100	24444	
D 7 13C2 PFHxA										
315.00 > 270.00	1.950	1.937	0.013	0.742	4490722	2.54		102	40588	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.950	1.937	0.013	1.000	1756038	0.9452		94.5	4221	
313.00 > 119.00	1.950	1.937	0.013	1.000	169197		10.38(5.03-15.10)	94.5	4291	
D 9 13C4-PFHpA										
367.00 > 322.00	2.275	2.268	0.007	0.866	4318903	2.52		101	26511	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.275	2.268	0.007	1.000	1796078	1.00		100.0	2747	
363.00 > 169.00	2.275	2.268	0.007	1.000	703033		2.55(1.13-3.40)	100.0	6106	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.288	2.281	0.007	1.000	2017855	0.8074		88.7	2797	
399.00 > 99.00	2.288	2.281	0.007	1.000	662310		3.05(1.50-4.49)	88.7	1586	
D 11 18O2 PFHxS										
403.00 > 84.00	2.288	2.281	0.007	0.871	5198616	2.46		104	22012	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.606	2.598	0.008	1.000	697301	1.02		107	13141	
D 12 M2-6:2FTS										
429.00 > 81.00	2.606	2.598	0.008	0.992	904201	2.49		105	18410	
D 14 13C4 PFOA										
417.00 > 372.00	2.627	2.622	0.005	1.000	4319700	2.58		103	29564	
* 62 13C2-PFOA										
415.00 > 370.00	2.627	2.623	0.004		4660761	2.50			32926	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.635	2.626	0.009	1.003	1848801	0.9394		93.9	661	
413.00 > 169.00	2.635	2.626	0.009	1.003	988092		1.87(0.84-2.52)	93.9	7913	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.635	2.632	0.003	1.000	1778356	0.9246		97.1	11820	
449.00 > 99.00	2.635	2.632	0.003	1.000	488272		3.64(1.94-5.82)	97.1	4901	
D 18 13C4 PFOS										
503.00 > 80.00	2.999	2.993	0.006	1.141	3375435	2.43		102	19714	
D 19 13C5 PFNA										
468.00 > 423.00	2.999	2.994	0.005	1.141	3550460	2.60		104	25877	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.999	2.995	0.004	1.000	1437074	0.9219		99.3	2438	
499.00 > 99.00	2.999	2.995	0.004	1.000	317585		4.53(2.31-6.93)	99.3	1771	
20 Perfluorononanoic acid										
463.00 > 419.00	2.999	2.997	0.002	1.000	1452902	1.01		101	2234	
463.00 > 169.00	2.999	2.997	0.002	1.000	357756		4.06(1.90-5.69)	101	6075	
D 21 13C8 FOSA										
506.00 > 78.00	3.338	3.334	0.004	1.271	4951275	2.58		103	21283	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.338	3.337	0.001	1.000	1919094	0.9784		97.8	17067	
D 26 M2-8:2FTS										
529.00 > 81.00	3.346	3.345	0.001	1.273	978889	2.42		101	18555	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.346	3.345	0.001	1.000	480437	0.9570		99.9	11899	
D 23 13C2 PFDA										
515.00 > 470.00	3.361	3.354	0.007	1.279	2954400	2.52		101	21694	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.361	3.354	0.007	1.000	1183817	0.9807		98.1	4448	
513.00 > 169.00	3.361	3.354	0.007	1.000	217822		5.43(2.36-7.09)	98.1	1591	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.513	3.508	0.005	1.337	1629965	2.57		103	12903	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.520	3.513	0.007	1.002	682339	0.9764		97.6	4892	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.669	3.666	0.003	1.000	868374	0.9313		96.6	16668	
599.00 > 99.00	3.669	3.666	0.003	1.000	296699		2.93(1.39-4.16)	96.6	9231	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.677	3.676	0.001	1.399	1661617	2.55		102	8533	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.686	3.682	0.004	1.000	863121	0.8812		88.1	4201	
563.00 > 169.00	3.686	3.682	0.004	1.000	191751		4.50(0.00-0.00)	88.1	6482	
D 30 13C2 PFUnA										
565.00 > 520.00	3.686	3.682	0.004	1.403	2378270	2.62		105	26007	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.686	3.682	0.004	1.002	625696	1.01		101	8202	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.986	3.980	0.006	1.000	973391	1.01		101	4498	
613.00 > 169.00	3.986	3.980	0.006	1.000	243739		3.99(2.13-6.40)	101	7167	
D 36 13C2 PFDoA										
615.00 > 570.00	3.986	3.980	0.006	1.517	2301620	2.48		99.2	19194	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.249	4.245	0.004	1.000	977236	0.9513		95.1	2500	
663.00 > 169.00	4.249	4.245	0.004	1.000	316093		3.09(1.25-3.76)	95.1	10265	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.491	4.485	0.006	1.000	299575	1.02		102	8749	
713.00 > 219.00	4.477	4.485	-0.008	0.997	206136		1.45(0.71-2.13)	102	6124	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.491	4.485	0.006	1.709	2953360	2.58		103	17812	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.907	4.905	0.002	1.867	5077137	2.57		103	12871	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.907	4.905	0.002	1.000	1948660	0.9850		98.5	1199	
813.00 > 169.00	4.907	4.905	0.002	1.000	344258		5.66(2.86-8.58)	98.5	4644	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.263	5.257	0.006	1.000	2294769	1.02		102	540	
913.00 > 169.00	5.256	5.257	-0.001	0.999	272098		8.43(0.00-0.00)	102	1604	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL4_00003 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:53:29 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_005.d

Injection Date: 01-Feb-2018 21:38:05 Instrument ID: A8_N

Lims ID: IC L4 Full

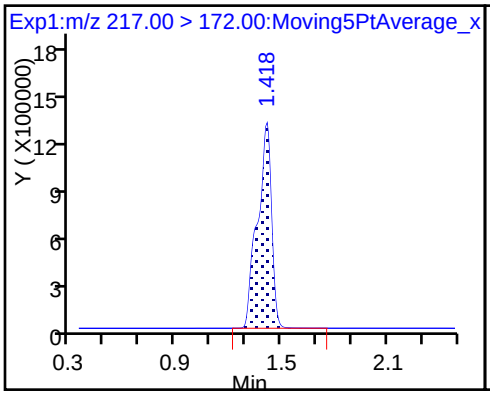
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 5

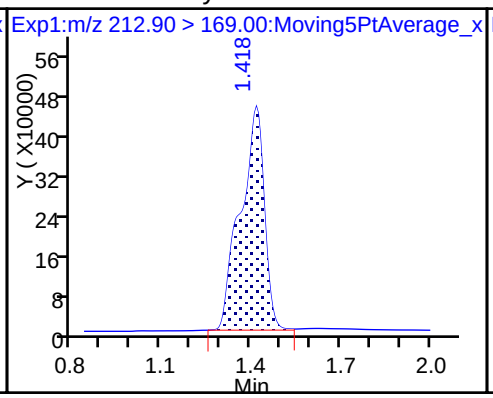
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

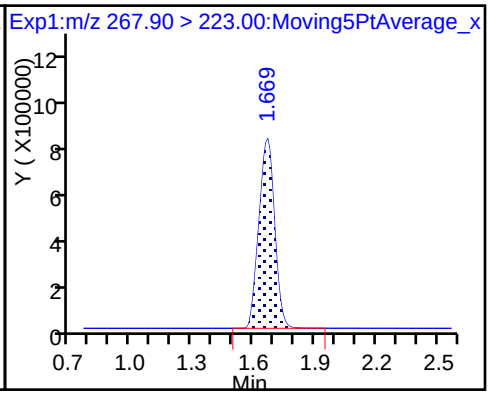
D 1 13C4 PFBA



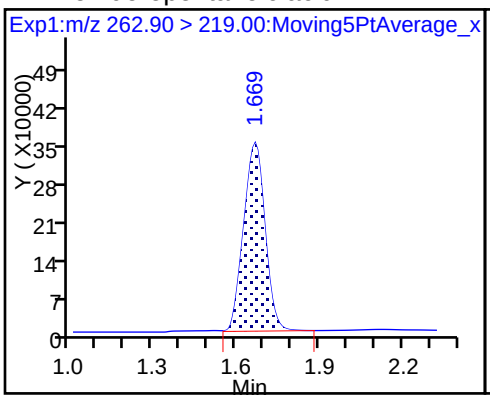
2 Perfluorobutyric acid



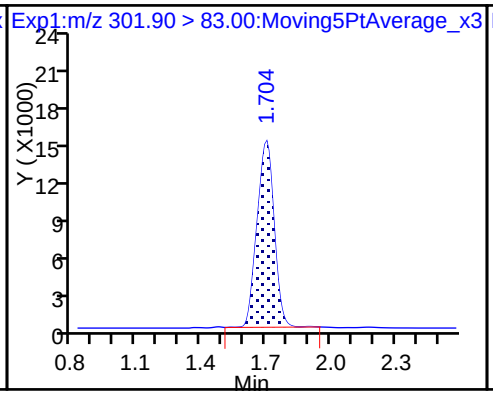
D 3 13C5-PFPeA



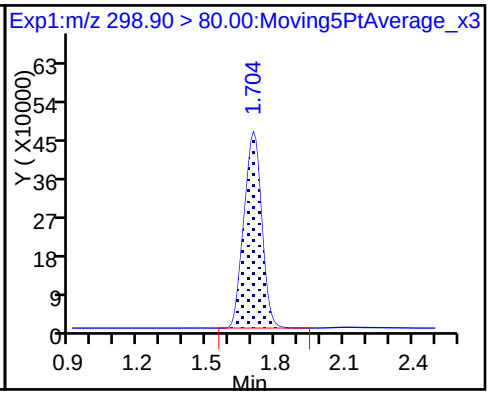
4 Perfluoropentanoic acid



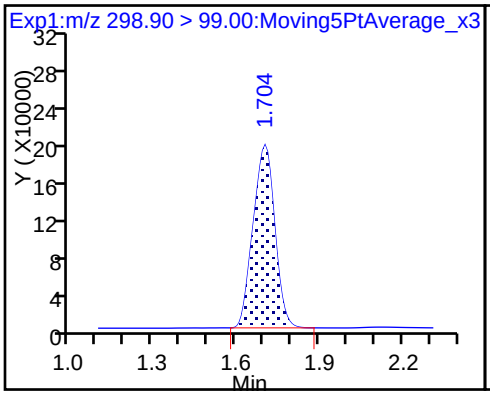
D 47 13C3-PFBS



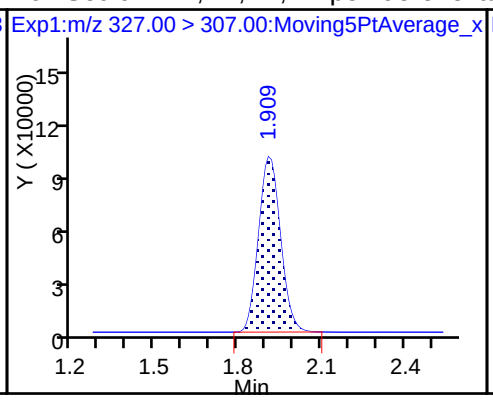
5 Perfluorobutanesulfonic acid



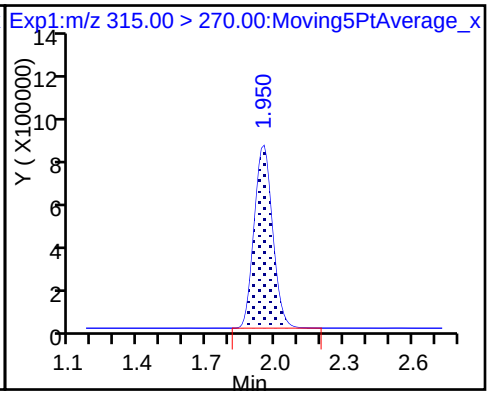
5 Perfluorobutanesulfonic acid



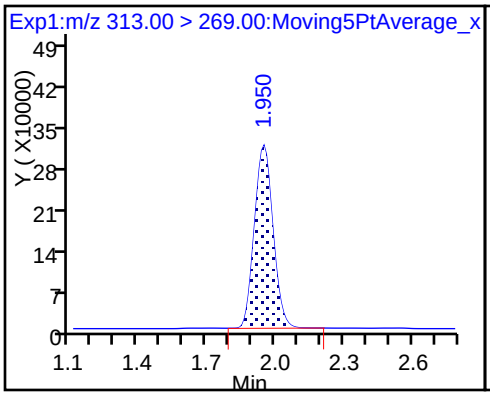
61 Sodium 1H,1H,2H,2H-perfluorohexa



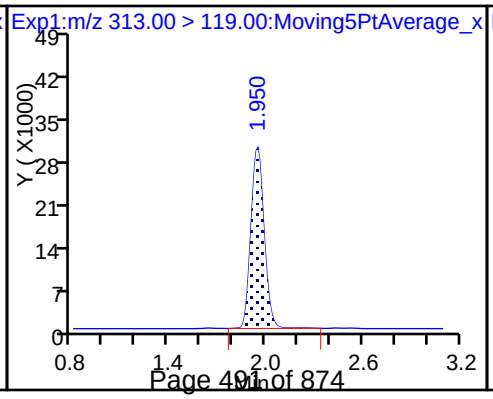
D 7 13C2 PFHxA



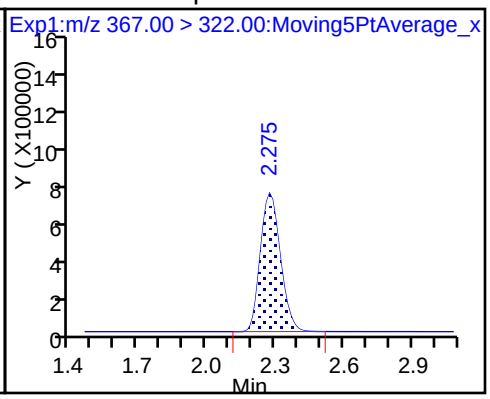
6 Perfluorohexanoic acid



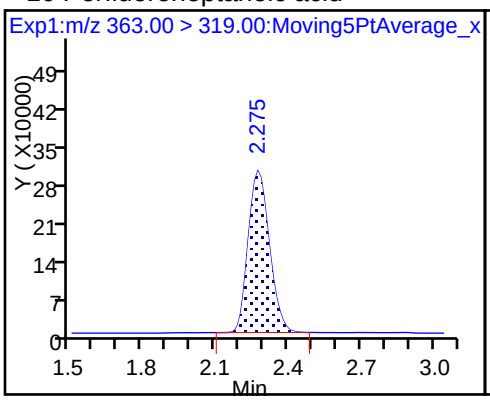
6 Perfluorohexanoic acid



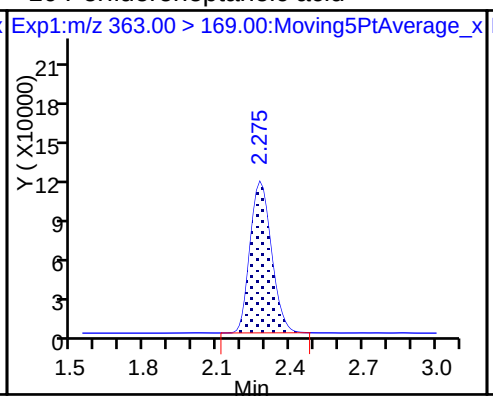
D 9 13C4-PFHpA



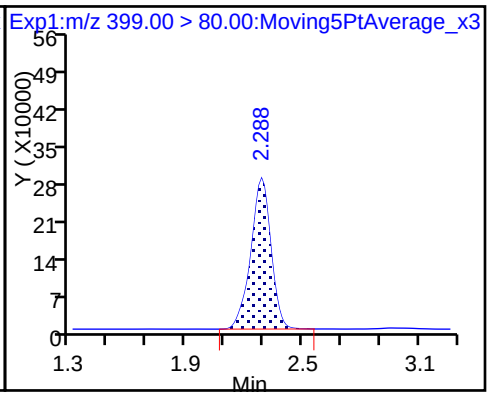
10 Perfluoroheptanoic acid



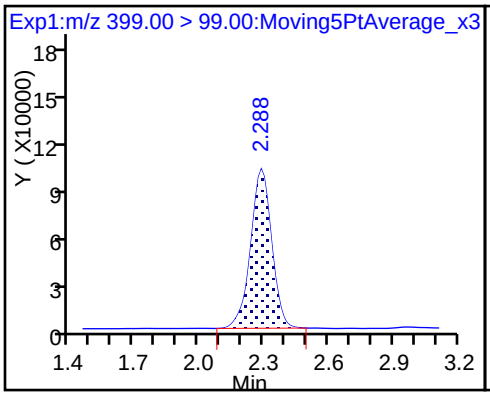
10 Perfluoroheptanoic acid



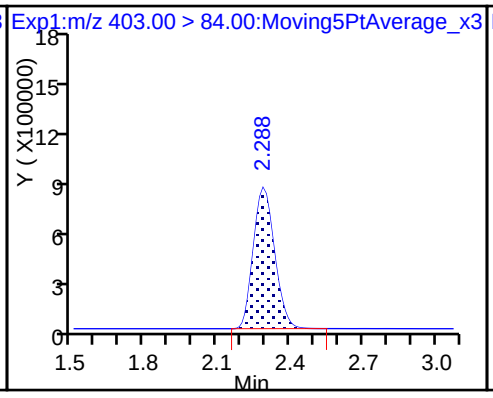
8 Perfluorohexanesulfonic acid



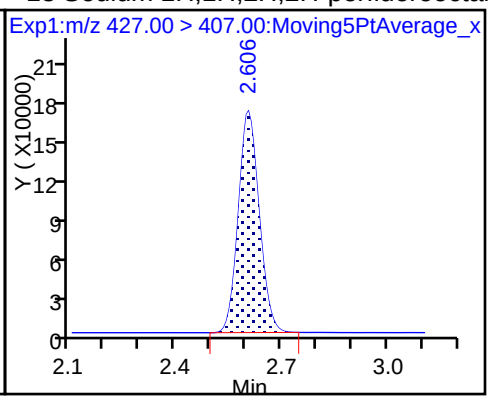
8 Perfluorohexanesulfonic acid



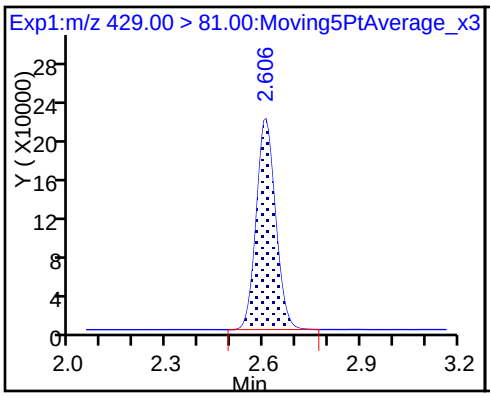
D 11 18O2 PFHxS



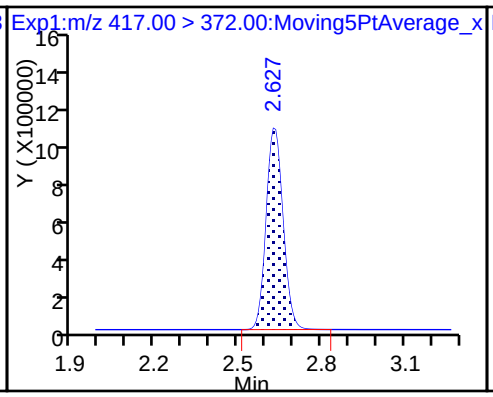
13 Sodium 1H,1H,2H,2H-perfluorooctane



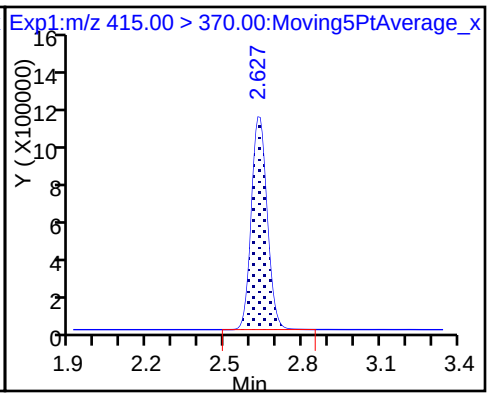
D 12 M2-6:2FTS



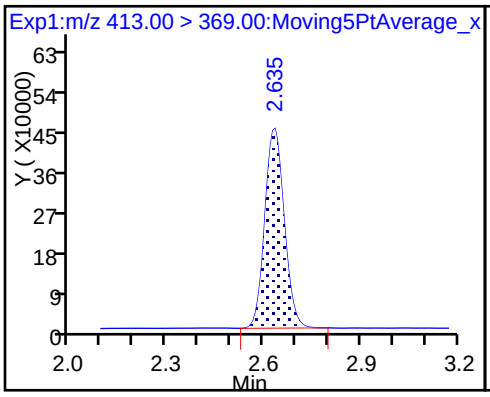
D 14 13C4 PFOA



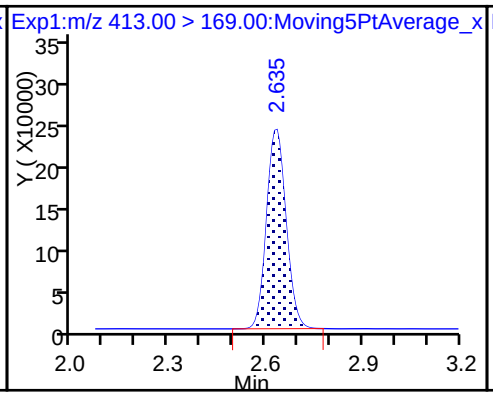
* 62 13C2-PFOA



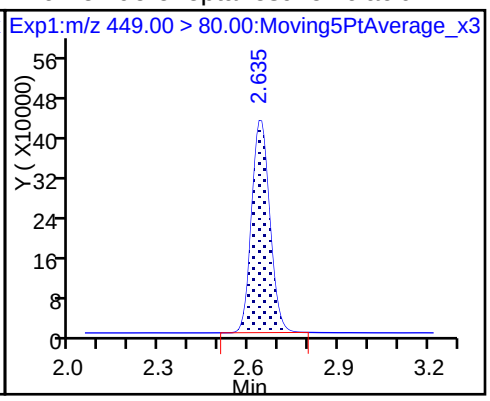
15 Perfluorooctanoic acid



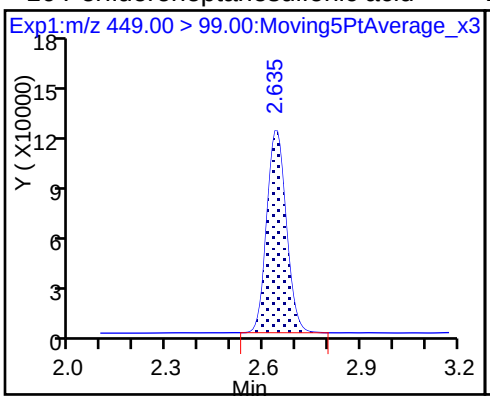
15 Perfluorooctanoic acid



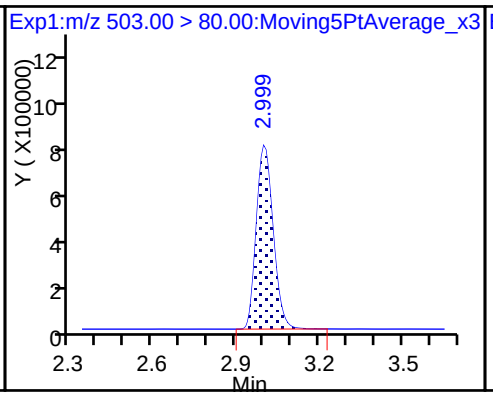
16 Perfluoroheptanesulfonic acid



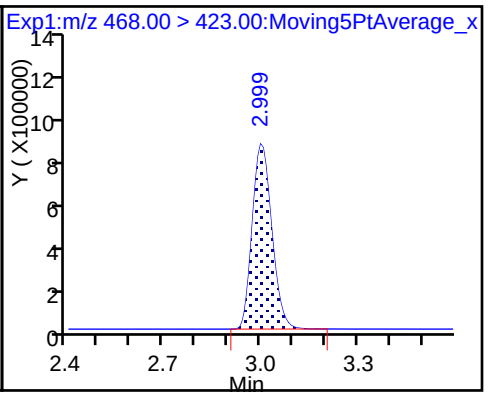
16 Perfluoroheptanesulfonic acid



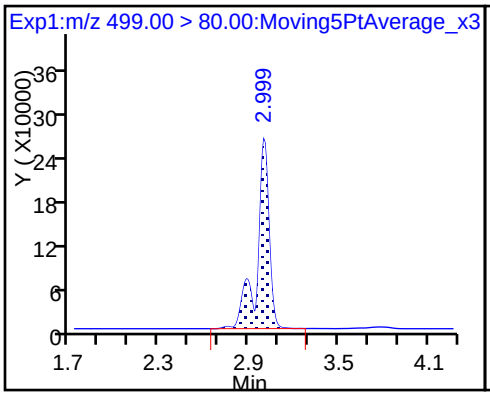
D 18 13C4 PFOS



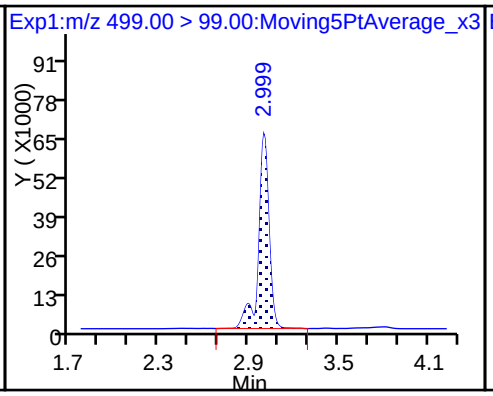
D 19 13C5 PFNA



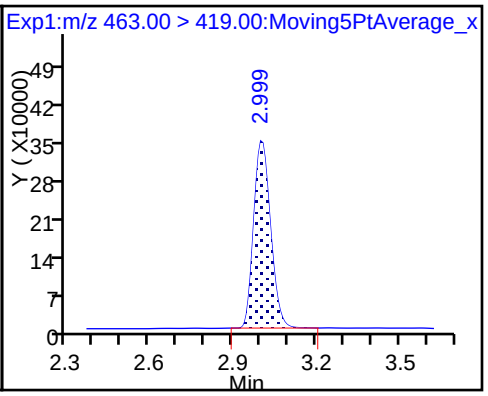
17 Perfluorooctane sulfonic acid



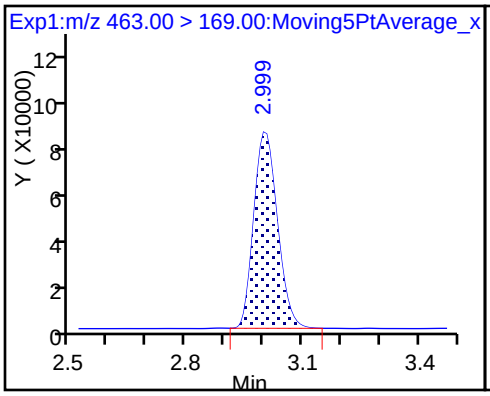
17 Perfluorooctane sulfonic acid



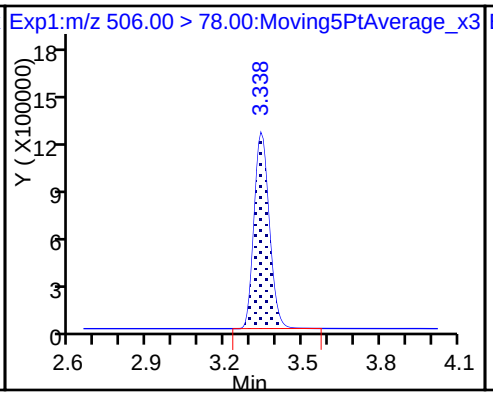
20 Perfluorononanoic acid



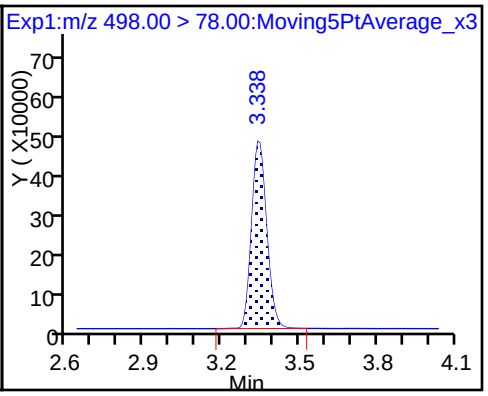
20 Perfluorononanoic acid



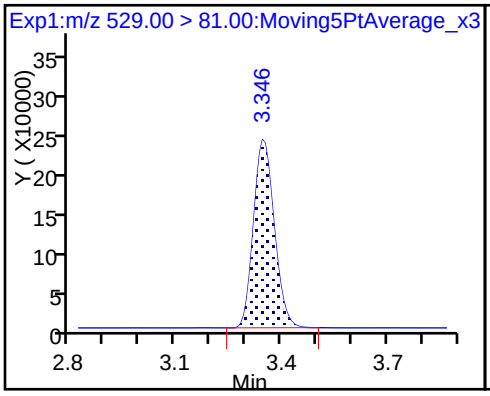
D 21 13C8 FOSA



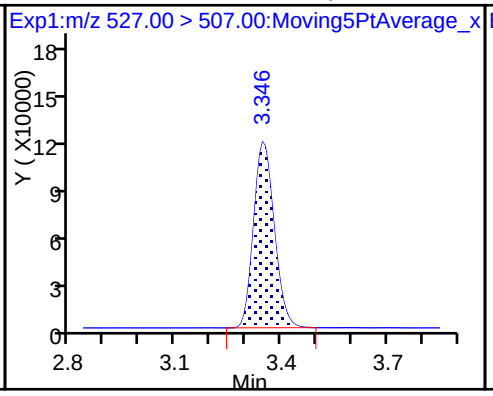
22 Perfluorooctane Sulfonamide



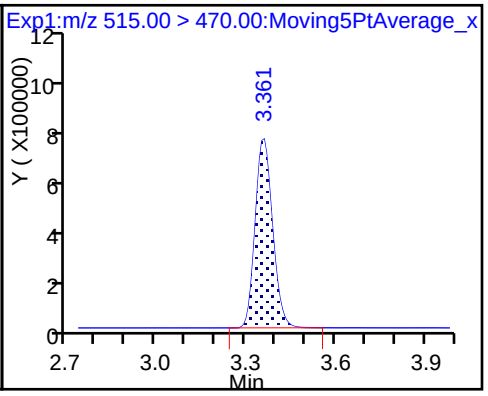
D 26 M2-8:2FTS



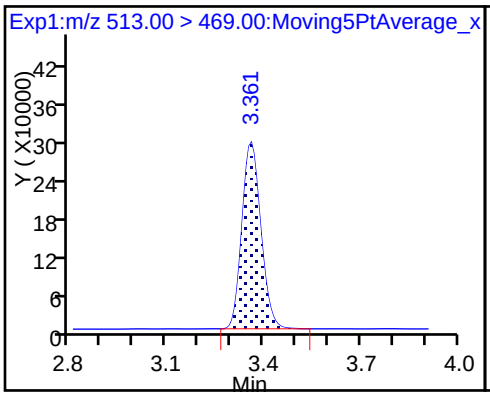
25 Sodium 1H,1H,2H,2H-perfluorodecane



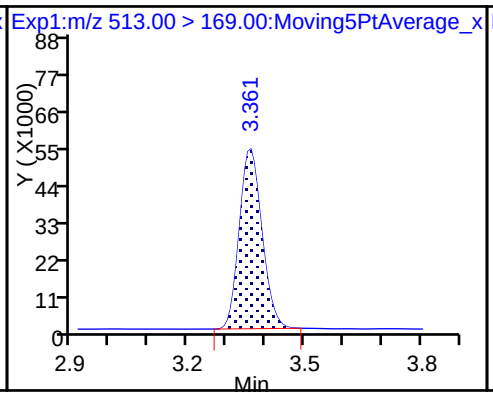
D 23 13C2 PFDA



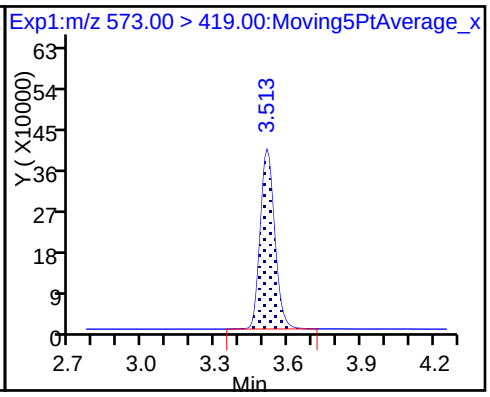
24 Perfluorodecanoic acid



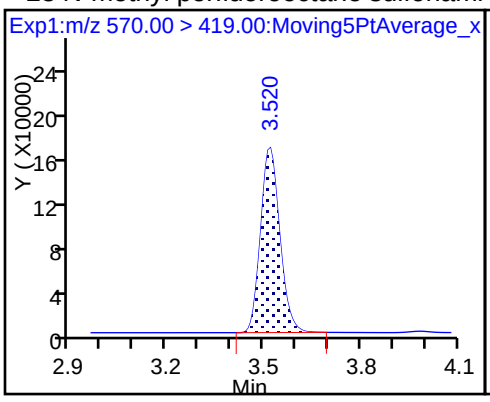
24 Perfluorodecanoic acid



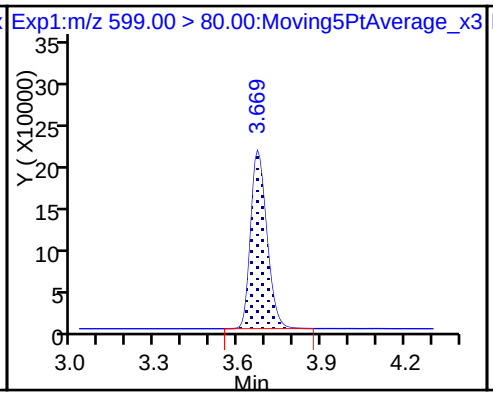
D 27 d3-NMeFOSAA



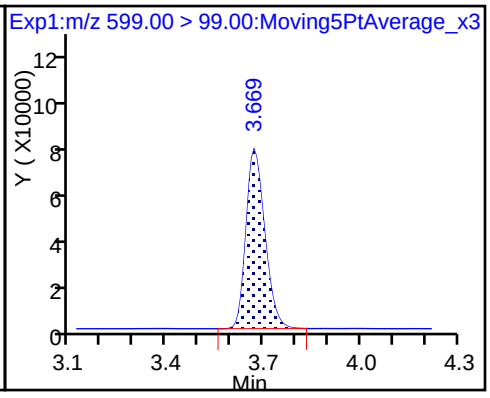
28 N-methyl perfluorooctane sulfonami



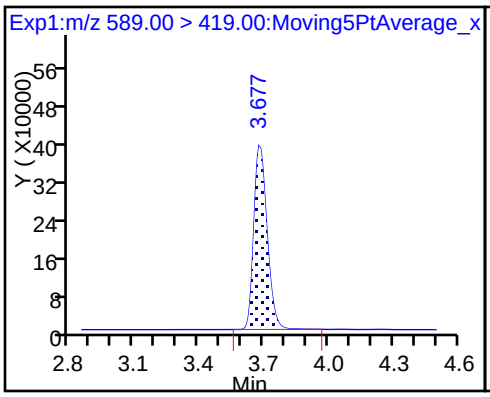
29 Perfluorodecane Sulfonic acid



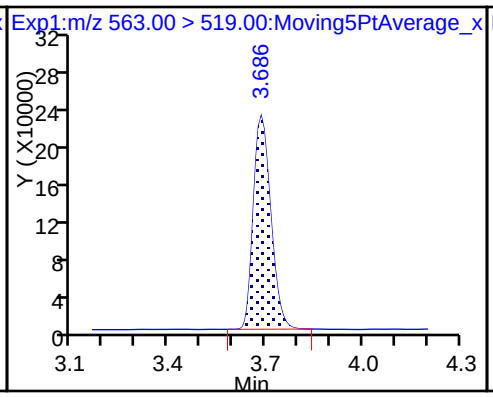
29 Perfluorodecane Sulfonic acid



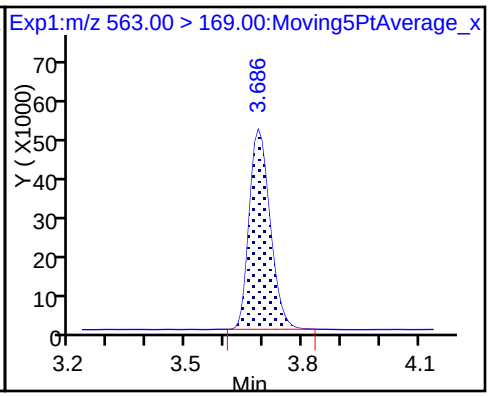
D 32 d5-NEtFOSAA



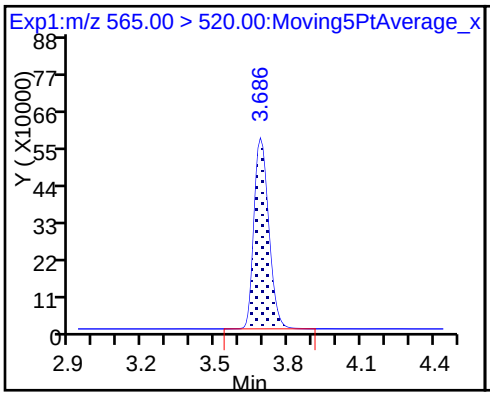
31 Perfluoroundecanoic acid



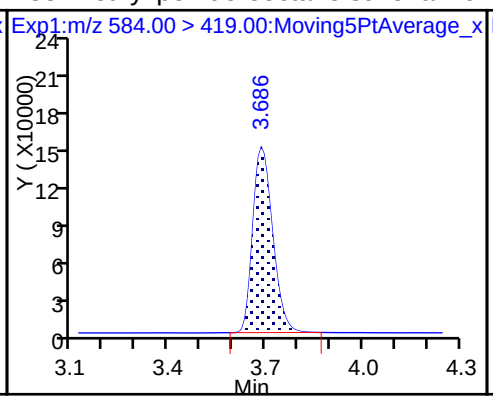
31 Perfluoroundecanoic acid



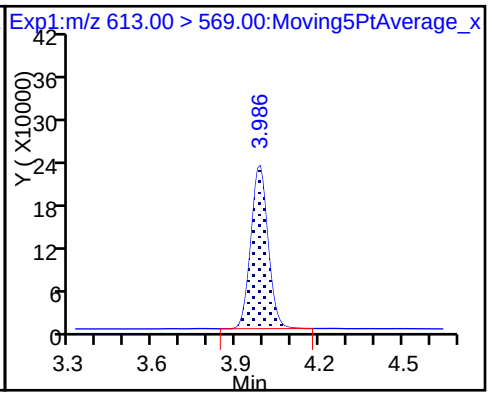
D 30 13C2 PFUnA



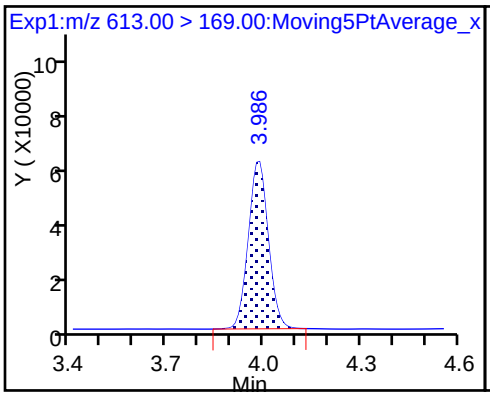
33 N-ethyl perfluorooctane sulfonamid



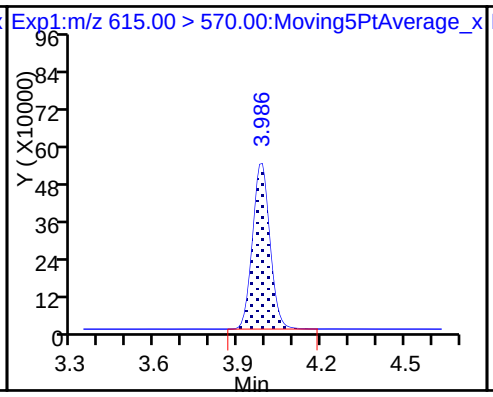
37 Perfluorododecanoic acid



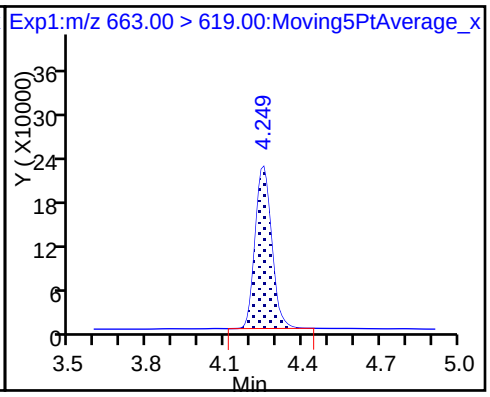
37 Perfluorododecanoic acid



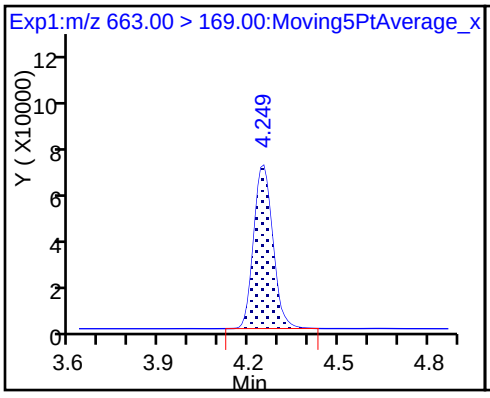
D 36 13C2 PFDoA



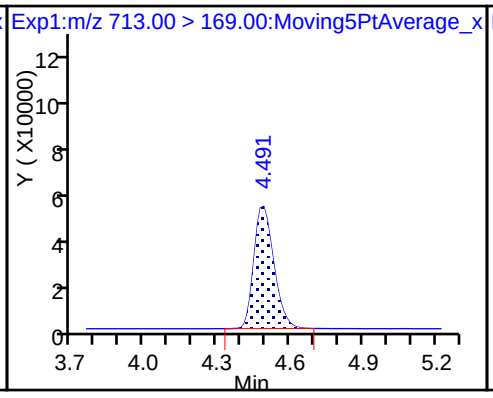
41 Perfluorotridecanoic acid



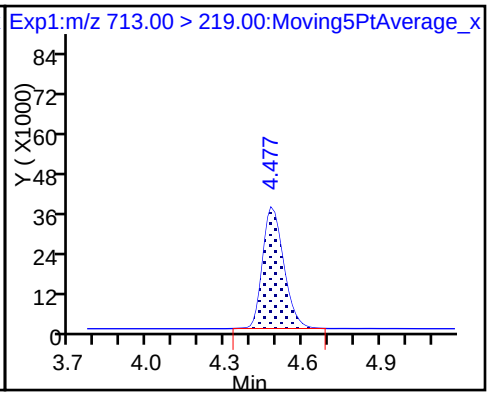
41 Perfluorotridecanoic acid



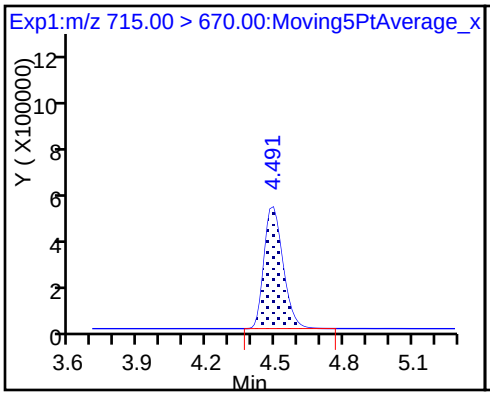
42 Perfluorotetradecanoic acid



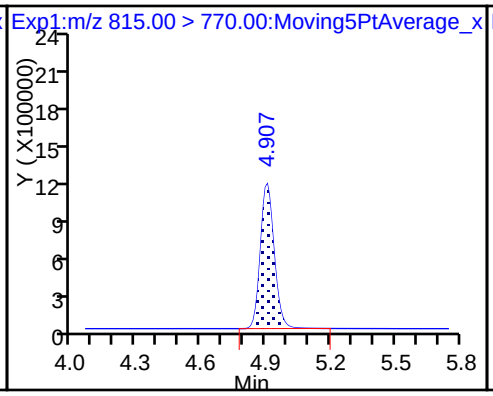
42 Perfluorotetradecanoic acid



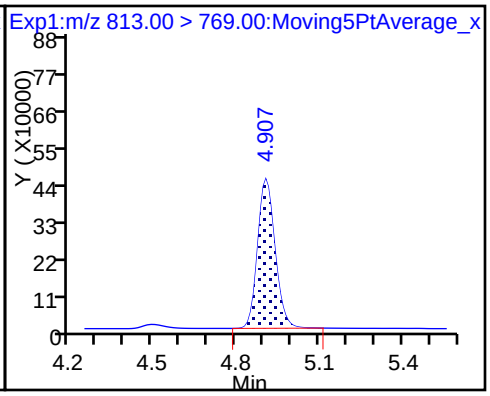
D 43 13C2-PFTeDA



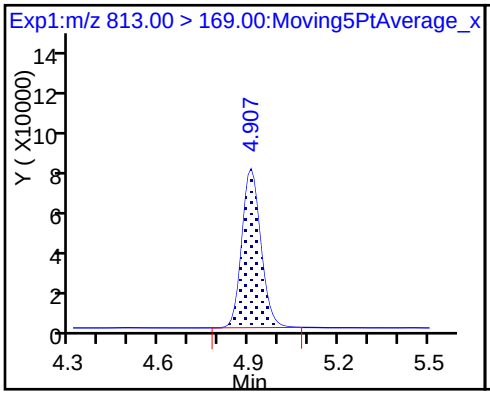
D 44 13C2-PFHxDA



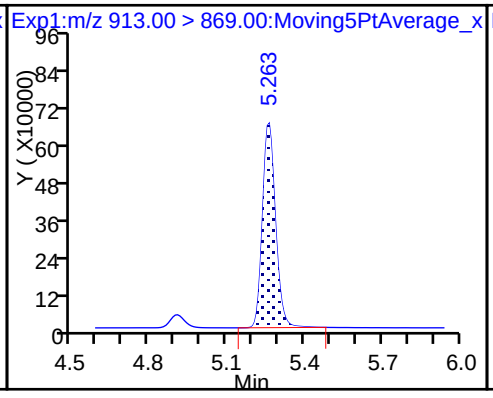
45 Perfluorohexadecanoic acid



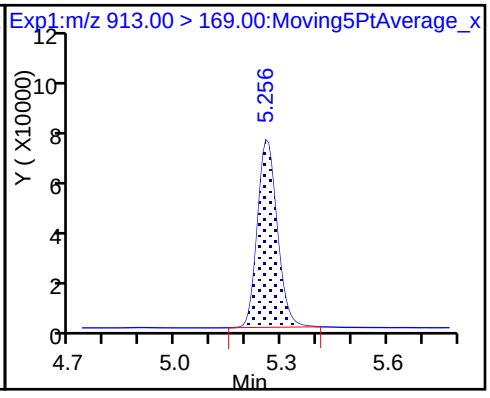
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_006.d
Lims ID: IC L5 Full
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 01-Feb-2018 21:45:56 ALS Bottle#: 31 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:44:56 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:06:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.416	-0.005	0.539	6605515	2.47		99.0	22691	
2 Perfluorobutyric acid										
212.90 > 169.00	1.411	1.419	-0.008	1.000	6229773	2.49		99.5	951	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.657	1.663	-0.006	1.000	4733420	2.50		100.0	3353	
D 3 13C5-PFPeA										
267.90 > 223.00	1.657	1.663	-0.006	0.633	3981793	2.46		98.3	32619	
D 47 13C3-PFBS										
301.90 > 83.00	1.693	1.696	-0.003	0.647	82947	2.29		98.5	2226	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.702	1.698	0.004	1.005	6291747	2.29		104	18039	
298.90 > 99.00	1.702	1.698	0.004	1.005	2619522		2.40(1.25-3.74)	104	9919	
D 60 M2-4:2FTS										
329.00 > 81.00	1.907	1.902	0.005	0.729	596771	NC			6455	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.907	1.904	0.003	1.000	1299241	2.26		96.8	47257	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.938	1.937	0.001	1.000	4535539	2.55		102	12498	
313.00 > 119.00	1.938	1.937	0.001	1.000	403560		11.24(5.03-15.10)	102	5538	
D 7 13C2 PFHxA										
315.00 > 270.00	1.938	1.937	0.001	0.740	4305749	2.46		98.4	45298	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.271	2.268	0.003	1.000	4383188	2.49		99.6	6447	
363.00 > 169.00	2.271	2.268	0.003	1.000	1775219		2.47(1.13-3.40)	99.6	11635	
D 9 13C4-PFHpA										
367.00 > 322.00	2.271	2.268	0.003	0.868	4231077	2.49		99.7	22330	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.284	2.281	0.003	0.873	4673525	2.23		94.3	19926	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.284	2.281	0.003	1.000	5184901	2.31		101	6085	
399.00 > 99.00	2.284	2.281	0.003	1.000	1700298		3.05(1.50-4.49)	101	3865	
D 12 M2-6:2FTS										
429.00 > 81.00	2.597	2.598	-0.001	0.992	834642	2.32		97.6	17945	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.597	2.598	-0.001	1.000	1584503	2.51		106	19347	
D 14 13C4 PFOA										
417.00 > 372.00	2.617	2.622	-0.005	1.000	4088575	2.46		98.5	27036	
* 62 13C2-PFOA										
415.00 > 370.00	2.617	2.623	-0.006		4620875	2.50			27505	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.624	2.626	-0.002	1.003	4568465	2.45		98.1	1564	
413.00 > 169.00	2.624	2.626	-0.002	1.003	2402716		1.90(0.84-2.52)	98.1	13534	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.631	2.632	-0.001	1.000	4682387	2.60		109	24606	
449.00 > 99.00	2.624	2.632	-0.008	0.997	1202769		3.89(1.94-5.82)	109	9773	
D 18 13C4 PFOS										
503.00 > 80.00	2.987	2.993	-0.006	1.141	3156492	2.29		95.9	18407	
D 19 13C5 PFNA										
468.00 > 423.00	2.987	2.994	-0.007	1.141	3305211	2.45		97.8	25559	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.995	2.995	0.0	1.003	3449216	2.37		102	5372	
499.00 > 99.00	2.987	2.995	-0.008	1.000	757685		4.55(2.31-6.93)	102	4106	
20 Perfluorononanoic acid										
463.00 > 419.00	2.995	2.997	-0.002	1.003	3523797	2.62		105	5535	
463.00 > 169.00	2.995	2.997	-0.002	1.003	808365		4.36(1.90-5.69)	105	11960	
D 21 13C8 FOSA										
506.00 > 78.00	3.327	3.334	-0.007	1.271	4602356	2.42		96.7	20625	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.335	3.337	-0.002	1.002	4920353	2.70		108	19994	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.342	3.345	-0.003	1.000	1118867	2.36		98.6	14420	
D 26 M2-8:2FTS										
529.00 > 81.00	3.342	3.345	-0.003	1.277	924312	2.31		96.2	14158	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.354	-0.004	1.000	2843548	2.48		99.0	11637	
513.00 > 169.00	3.350	3.354	-0.004	1.000	519281		5.48(2.36-7.09)	99.0	1816	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.354	-0.004	1.280	2811010	2.42		96.6	22224	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.502	3.508	-0.006	1.338	1498134	2.38		95.3	11391	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.509	3.513	-0.004	1.002	1663688	2.59		104	10111	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.659	3.666	-0.007	1.000	2272625	2.61		108	32046	
599.00 > 99.00	3.659	3.666	-0.007	1.000	754743		3.01(1.39-4.16)	108	11760	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.666	3.676	-0.010	1.401	1578507	2.45		97.9	7329	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.673	3.682	-0.009	1.002	1505408	2.57		103	11323	
D 30 13C2 PFUnA										
565.00 > 520.00	3.673	3.682	-0.009	1.404	2201724	2.45		97.8	22303	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.673	3.682	-0.009	1.000	2161204	2.38		95.3	9006	
563.00 > 169.00	3.673	3.682	-0.009	1.000	453579		4.76(0.00-0.00)	95.3	10264	
D 36 13C2 PFDoA										
615.00 > 570.00	3.974	3.980	-0.006	1.519	2255382	2.45		98.1	21780	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.974	3.980	-0.006	1.000	2506575	2.64		106	8544	
613.00 > 169.00	3.974	3.980	-0.006	1.000	590058		4.25(2.13-6.40)	106	19575	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.235	4.245	-0.010	1.000	2530301	2.51		101	6601	
663.00 > 169.00	4.235	4.245	-0.010	1.000	799750		3.16(1.25-3.76)	101	18131	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.485	-0.012	1.709	2951842	2.60		104	18644	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.485	-0.012	1.000	694531	2.37		95.0	17427	
713.00 > 219.00	4.473	4.485	-0.012	1.000	504893		1.38(0.71-2.13)	95.0	11326	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.896	4.905	-0.009	1.000	4737919	2.48		99.2	2960	
813.00 > 169.00	4.896	4.905	-0.009	1.000	816825		5.80(2.86-8.58)	99.2	7368	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.896	4.905	-0.009	1.871	4942588	2.52		101	13157	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.254	5.257	-0.003	1.000	5698308	2.60		104	1197	
913.00 > 169.00	5.254	5.257	-0.003	1.000	686065		8.31(0.00-0.00)	104	2300	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL5_00003 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:44:57 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_006.d

Injection Date: 01-Feb-2018 21:45:56 Instrument ID: A8_N

Lims ID: IC L5 Full

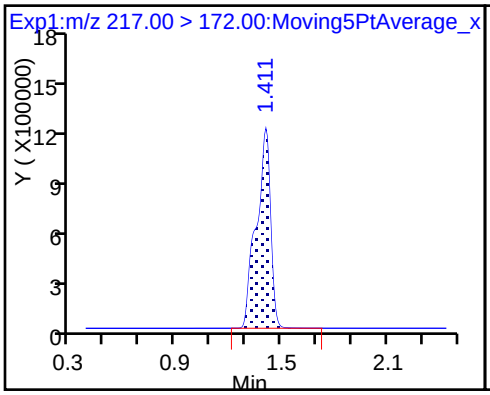
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 6

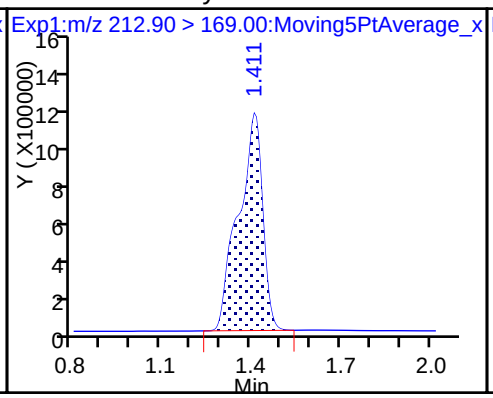
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

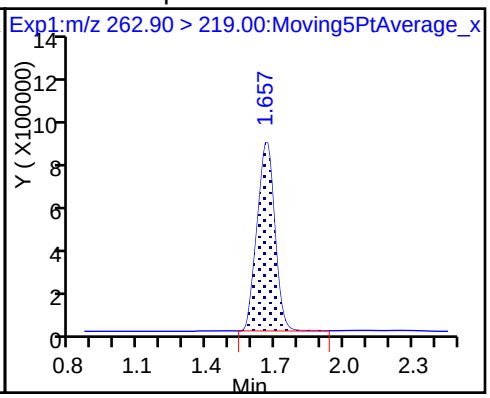
D 1 13C4 PFBA



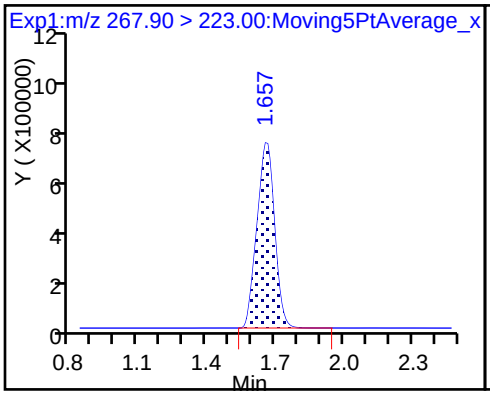
2 Perfluorobutyric acid



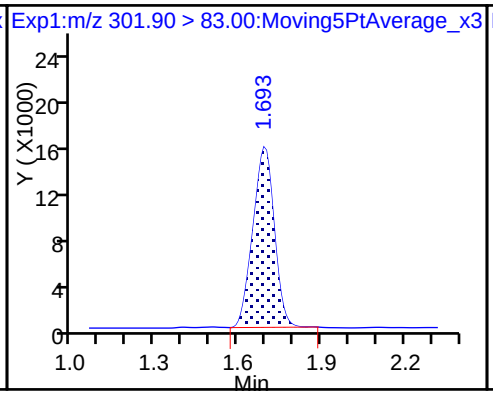
4 Perfluoropentanoic acid



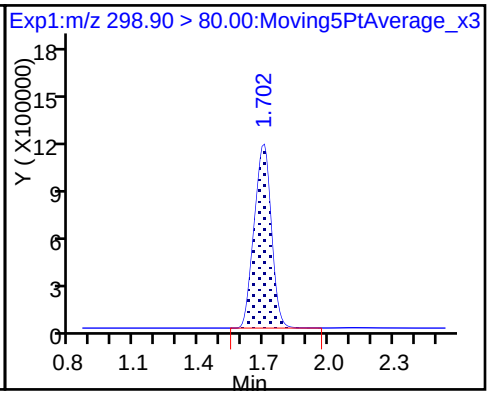
D 3 13C5-PFPeA



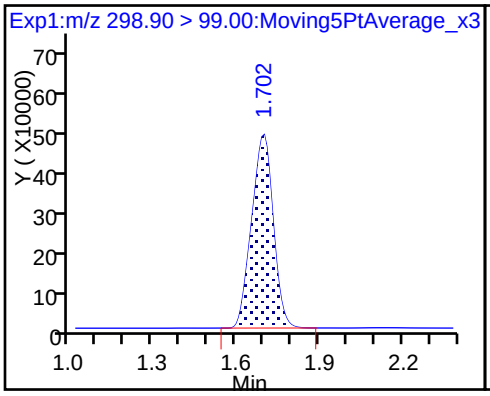
D 47 13C3-PFBS



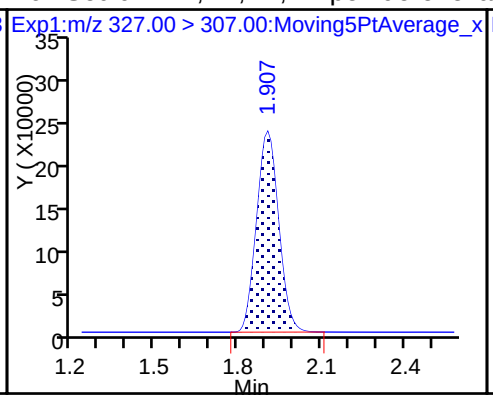
5 Perfluorobutanesulfonic acid



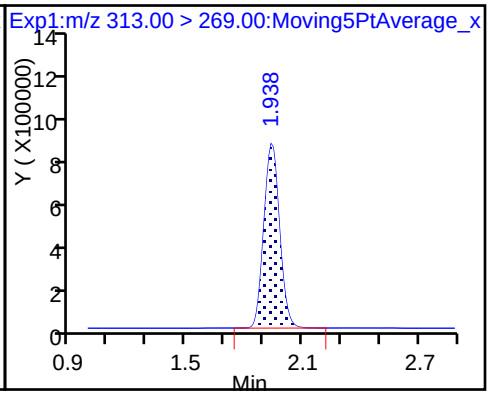
5 Perfluorobutanesulfonic acid



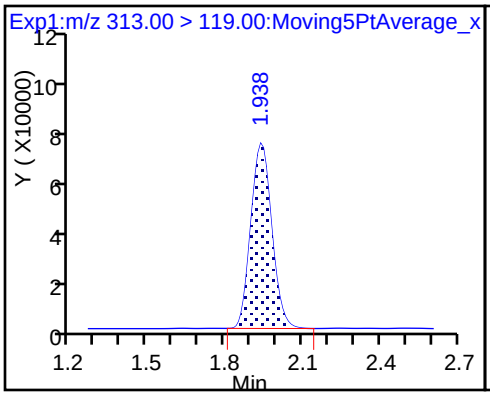
61 Sodium 1H,1H,2H,2H-perfluorohexane



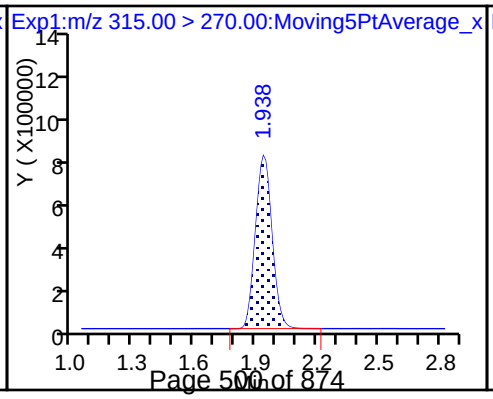
6 Perfluorohexanoic acid



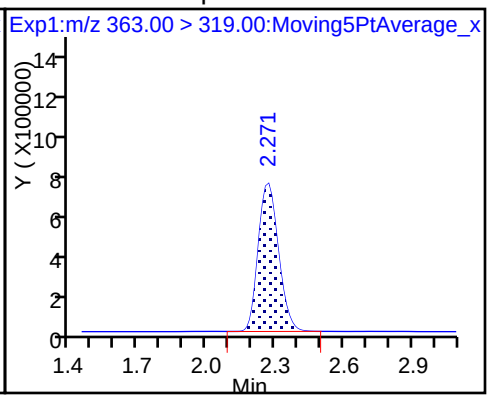
6 Perfluorohexanoic acid



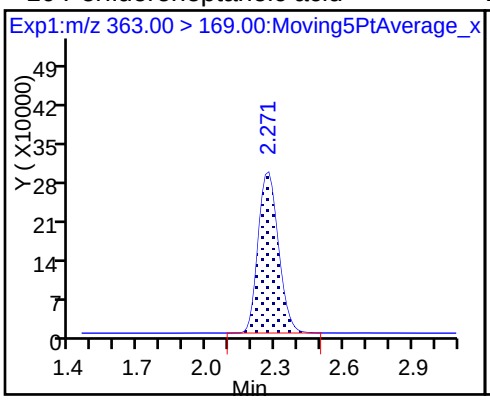
D 7 13C2 PFHxA



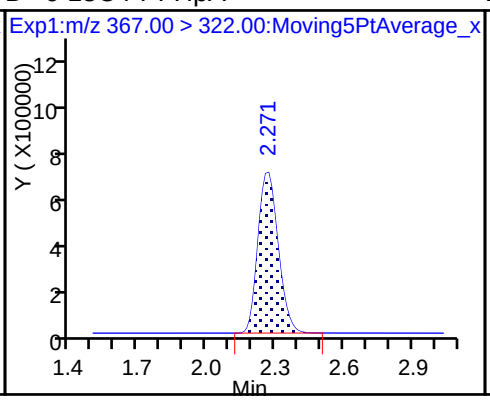
10 Perfluoroheptanoic acid



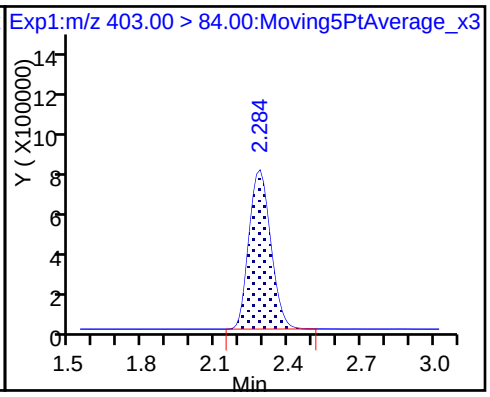
10 Perfluoroheptanoic acid



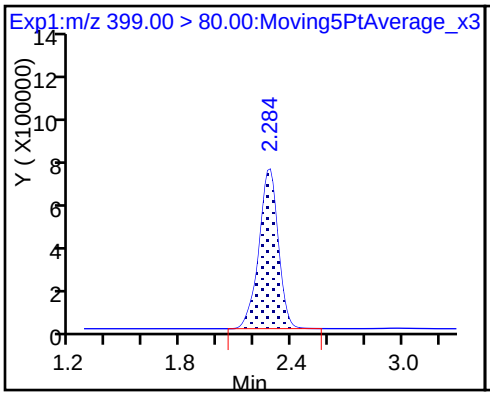
D 9 13C4-PFHpA



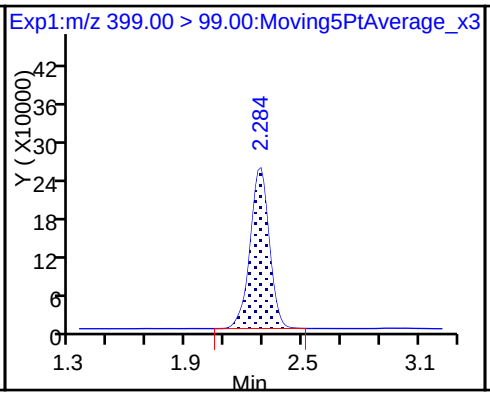
D 11 18O2 PFHxS



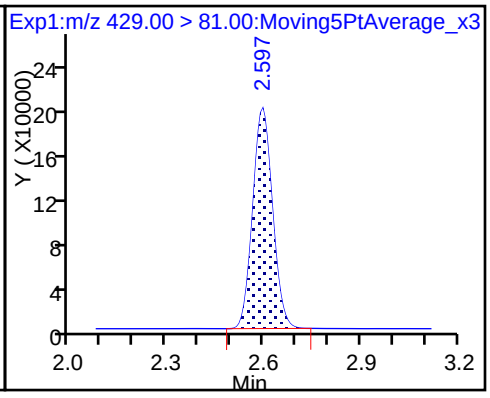
8 Perfluorohexanesulfonic acid



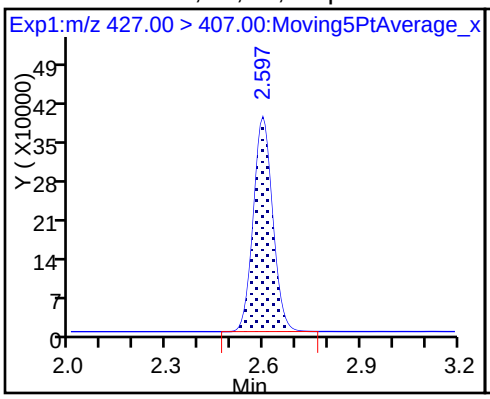
8 Perfluorohexanesulfonic acid



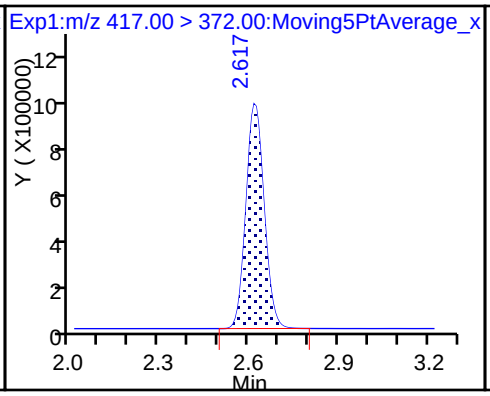
D 12 M2-6:2FTS



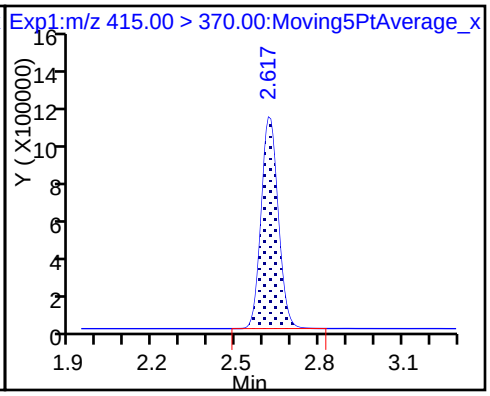
13 Sodium 1H,1H,2H,2H-perfluorooctane



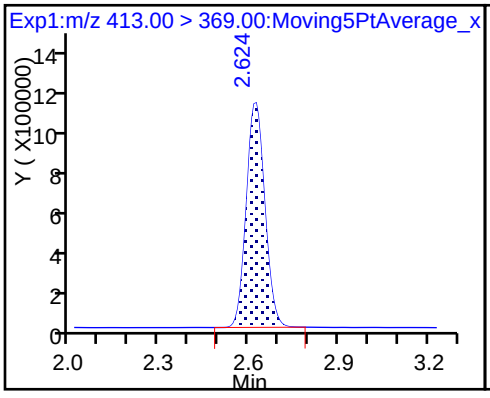
D 14 13C4 PFOA



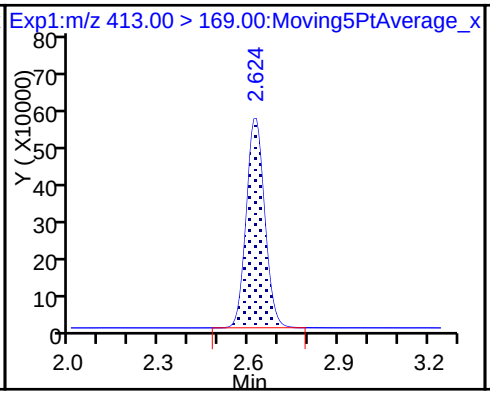
* 62 13C2-PFOA



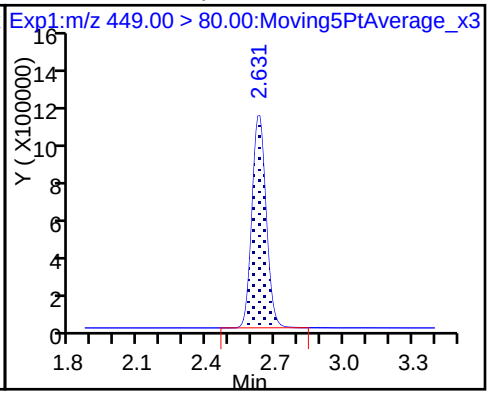
15 Perfluorooctanoic acid



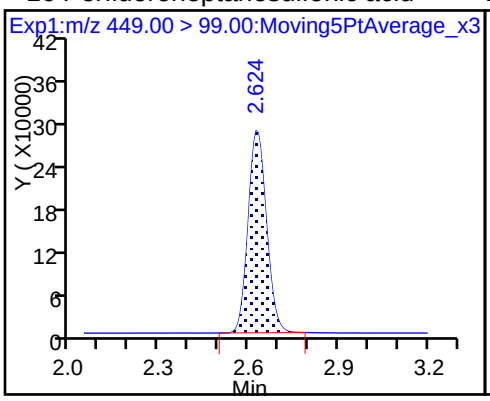
15 Perfluorooctanoic acid



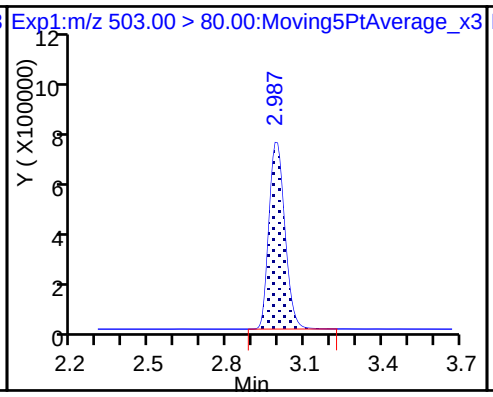
16 Perfluoroheptanesulfonic acid



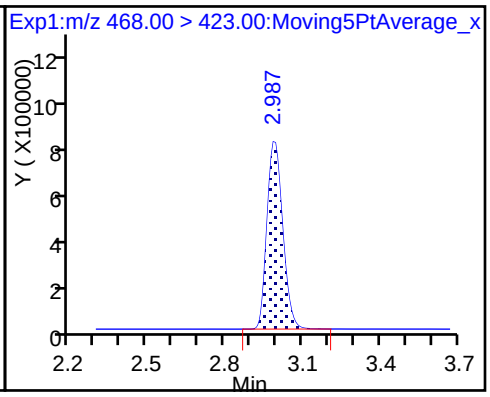
16 Perfluoroheptanesulfonic acid



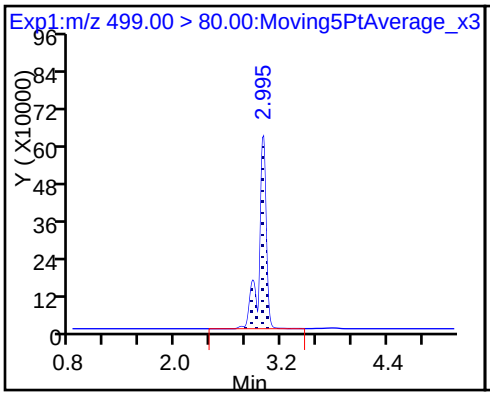
D 18 13C4 PFOS



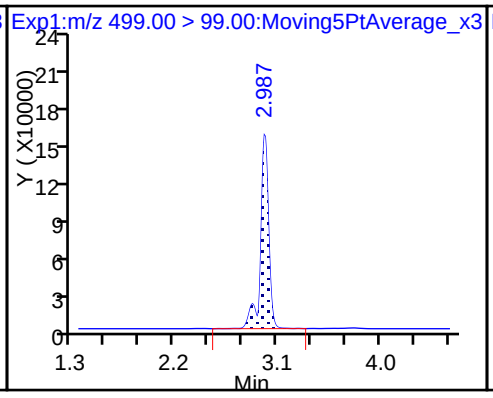
D 19 13C5 PFNA



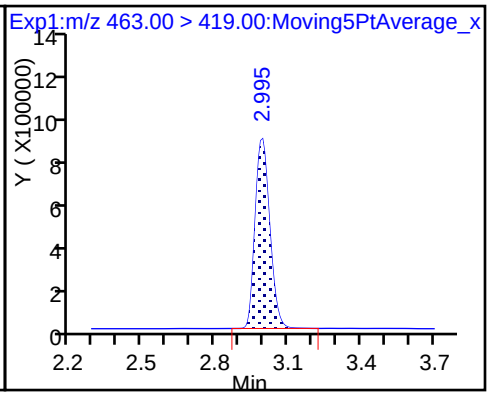
17 Perfluorooctane sulfonic acid



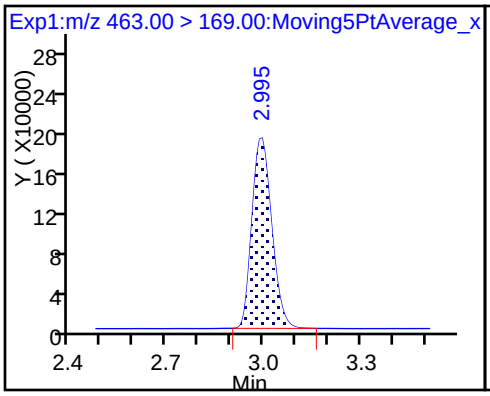
17 Perfluorooctane sulfonic acid



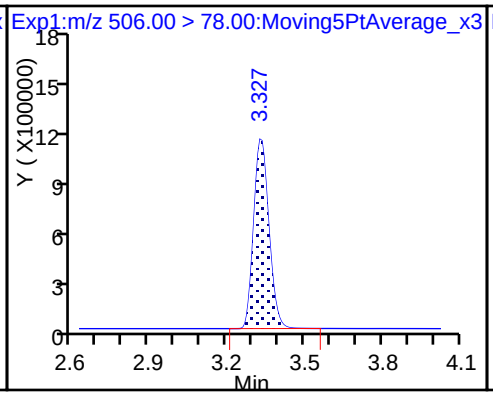
20 Perfluorononanoic acid



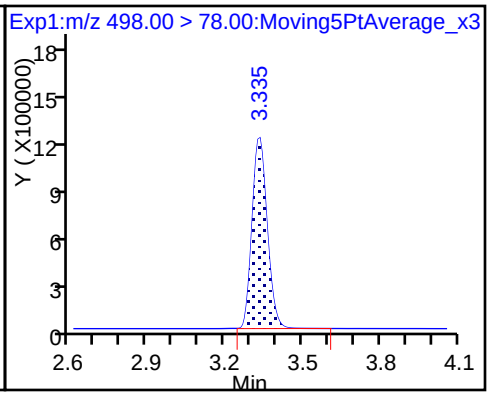
20 Perfluorononanoic acid



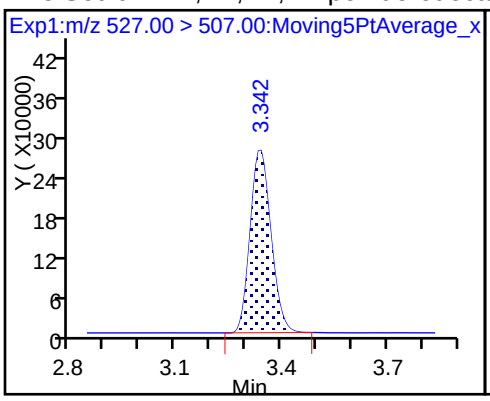
D 21 13C8 FOSA



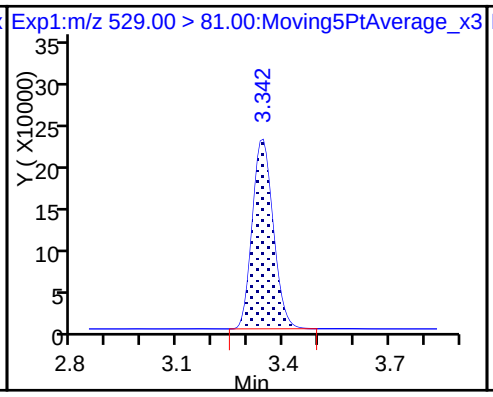
22 Perfluorooctane Sulfonamide



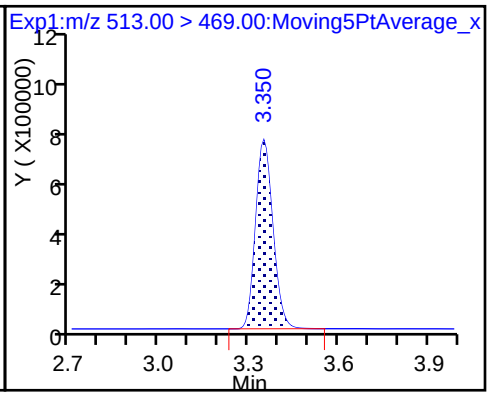
25 Sodium 1H,1H,2H,2H-perfluorodecane



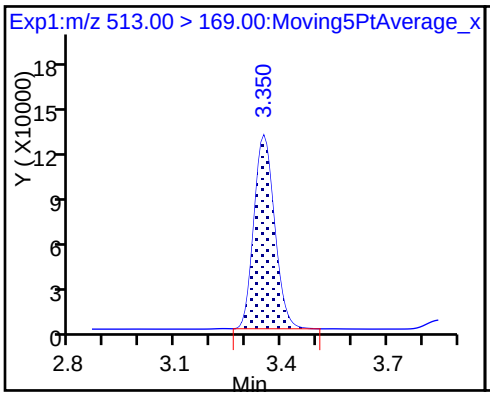
D 26 M2-8:2FTS



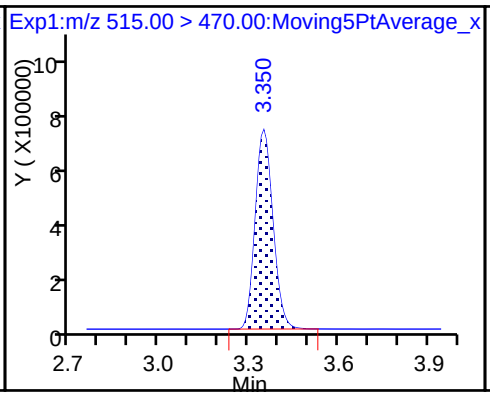
24 Perfluorodecanoic acid



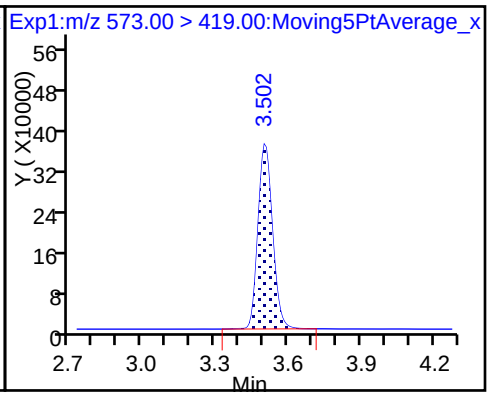
24 Perfluorodecanoic acid



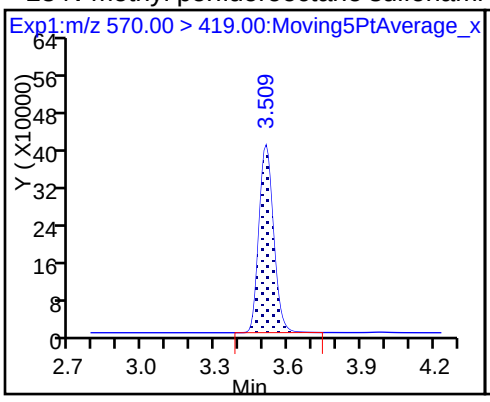
D 23 13C2 PFDA



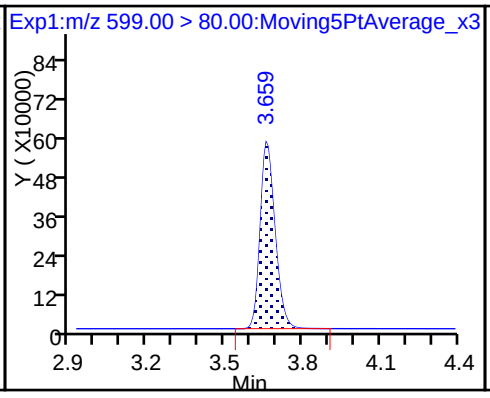
D 27 d3-NMeFOSAA



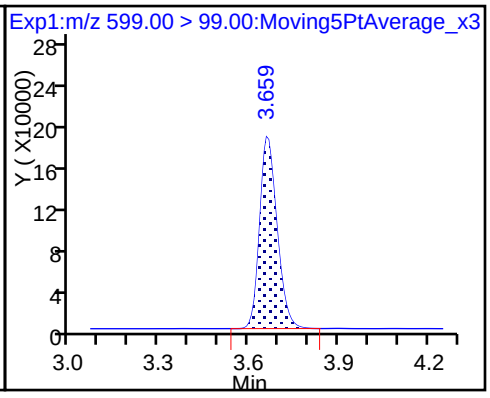
28 N-methyl perfluorooctane sulfonami



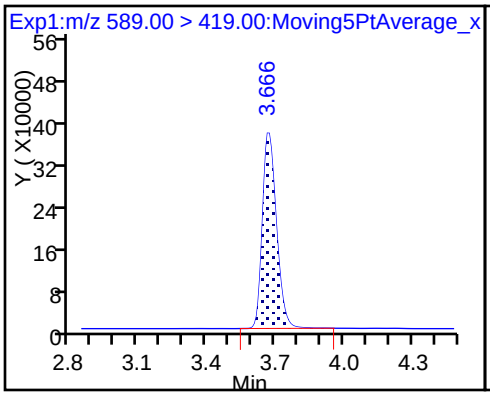
29 Perfluorodecane Sulfonic acid



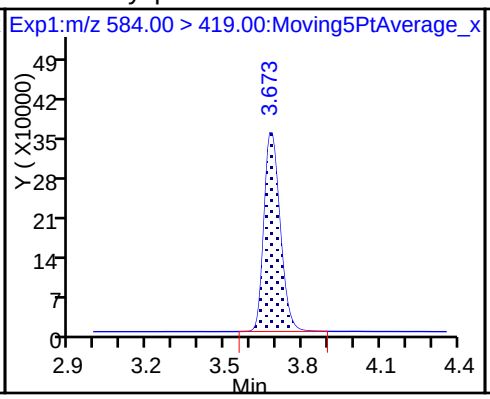
29 Perfluorodecane Sulfonic acid



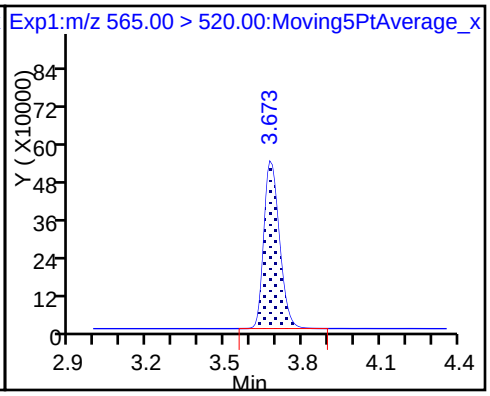
D 32 d5-NEtFOSAA



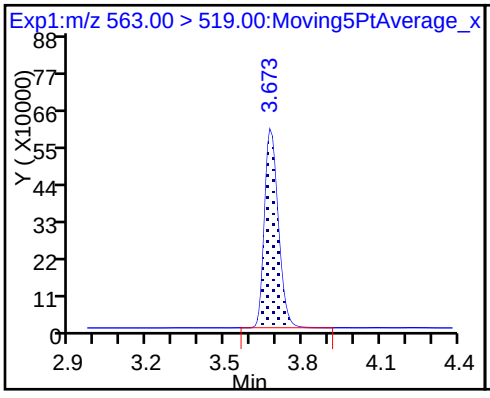
33 N-ethyl perfluorooctane sulfonamid



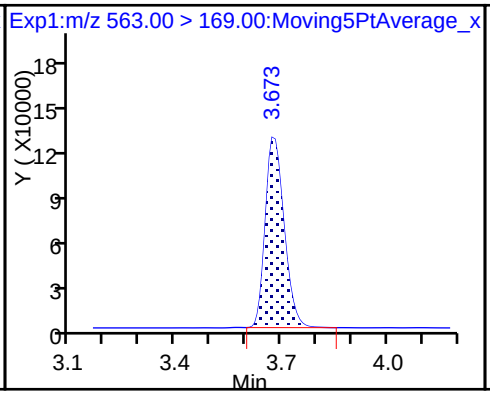
D 30 13C2 PFUnA



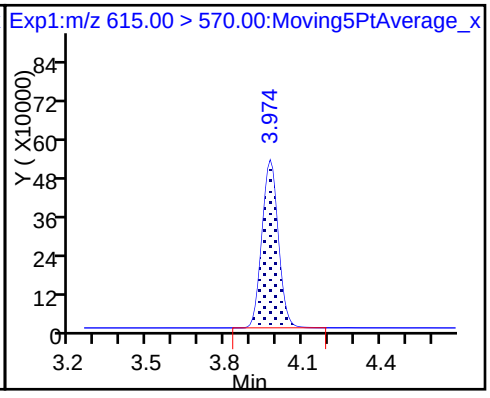
31 Perfluoroundecanoic acid



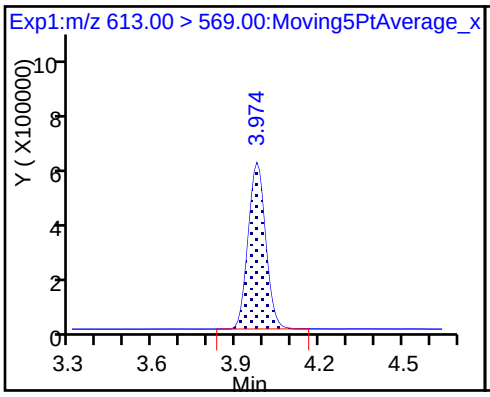
31 Perfluoroundecanoic acid



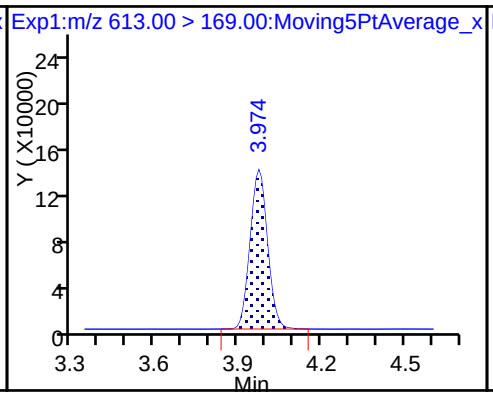
D 36 13C2 PFDoA



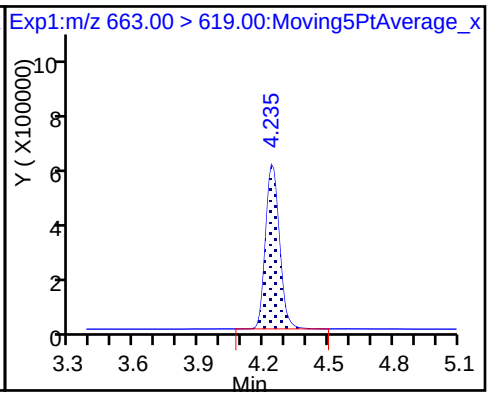
37 Perfluorododecanoic acid



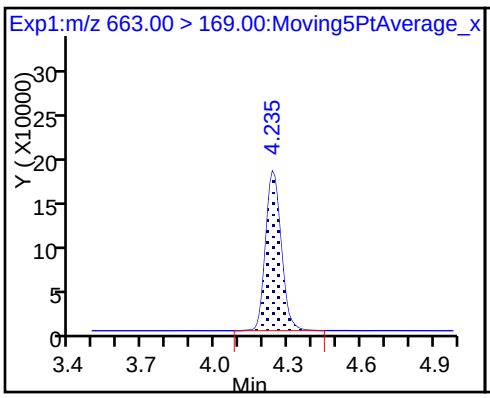
37 Perfluorododecanoic acid



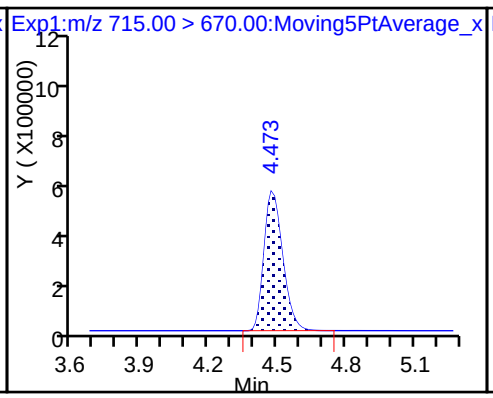
41 Perfluorotridecanoic acid



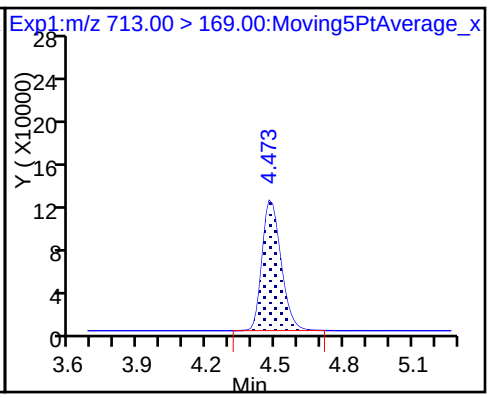
41 Perfluorotridecanoic acid



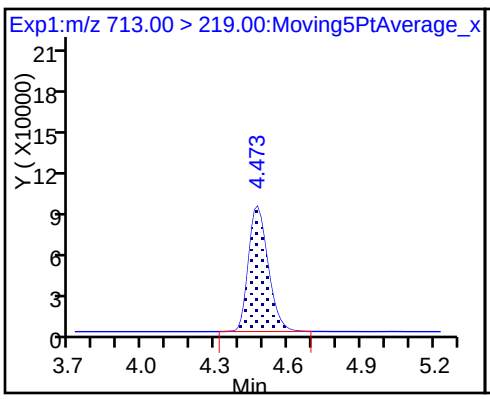
D 43 13C2-PFTeDA



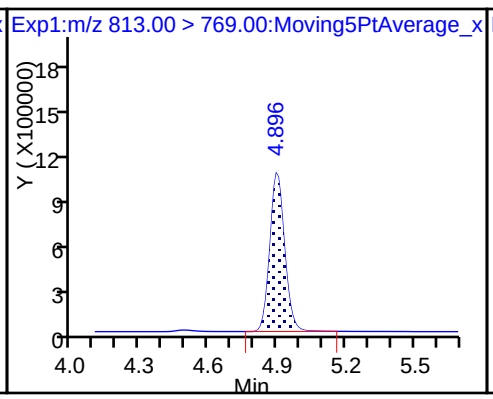
42 Perfluorotetradecanoic acid



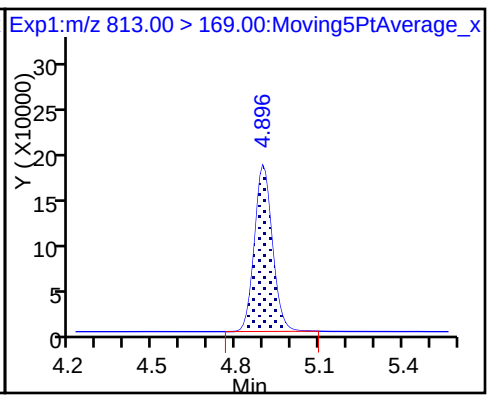
42 Perfluorotetradecanoic acid



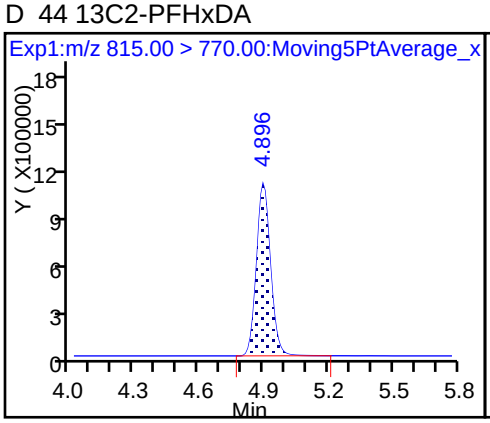
45 Perfluorohexadecanoic acid



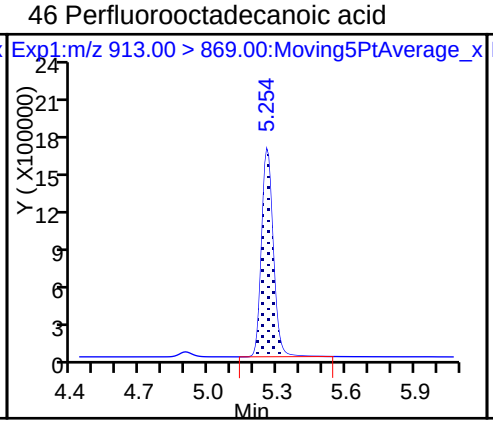
45 Perfluorohexadecanoic acid



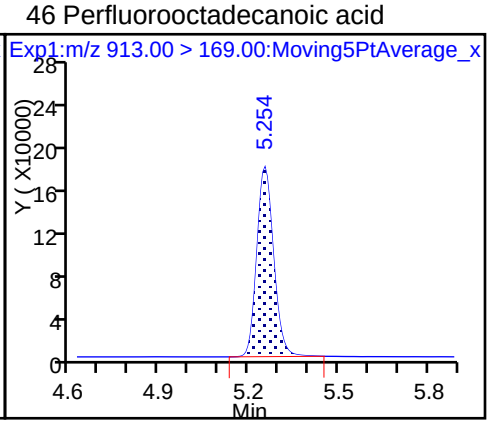
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_007.d
Lims ID: IC L6 Full
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 01-Feb-2018 21:53:46 ALS Bottle#: 15 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L6-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:44:59 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:07:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.412	1.416	-0.004	0.537	6414466	2.53		101	21965	
2 Perfluorobutyric acid										
212.90 > 169.00	1.418	1.419	-0.001	1.004	12224394	5.03		101	1416	
D 3 13C5-PFPeA										
267.90 > 223.00	1.669	1.663	0.006	0.635	3871216	2.52		101	55445	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.669	1.663	0.006	1.000	8968873	4.87		97.4	6157	
D 47 13C3-PFBS										
301.90 > 83.00	1.695	1.696	-0.001	0.645	81276	2.36		102	1893	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.704	1.698	0.006	1.005	12131833	4.52		102	29787	
298.90 > 99.00	1.704	1.698	0.006	1.005	5217664		2.33(1.25-3.74)	102	20989	
D 60 M2-4:2FTS										
329.00 > 81.00	1.909	1.902	0.007	0.727	583602	NC			5781	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.909	1.904	0.005	1.000	2729145	4.85		104	83946	
D 7 13C2 PFHxA										
315.00 > 270.00	1.940	1.937	0.003	0.738	4339018	2.61		105	45403	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.940	1.937	0.003	1.000	8517033	4.74		94.9	20442	
313.00 > 119.00	1.940	1.937	0.003	1.000	783811		10.87(5.03-15.10)	94.9	15313	
D 9 13C4-PFHpA										
367.00 > 322.00	2.275	2.268	0.007	0.866	4240463	2.63		105	27829	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.275	2.268	0.007	1.000	8855043	5.02		100	11751	
363.00 > 169.00	2.275	2.268	0.007	1.000	3376494		2.62(1.13-3.40)	100	17240	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.288	2.281	0.007	1.000	10015084	4.30		94.5	9871	
399.00 > 99.00	2.288	2.281	0.007	1.000	3408300		2.94(1.50-4.49)	94.5	6241	
D 11 18O2 PFHxS										
403.00 > 84.00	2.288	2.281	0.007	0.871	4843508	2.44		103	27121	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.600	2.598	0.002	1.000	2868374	4.50		95.0	33594	
D 12 M2-6:2FTS										
429.00 > 81.00	2.600	2.598	0.002	0.990	841952	2.47		104	17331	
D 14 13C4 PFOA										
417.00 > 372.00	2.628	2.622	0.006	1.000	4021101	2.55		102	28908	
* 62 13C2-PFOA										
415.00 > 370.00	2.628	2.623	0.005		4383906	2.50			26497	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.628	2.626	0.002	1.000	8848932	4.83		96.6	3376	
413.00 > 169.00	2.628	2.626	0.002	1.000	4807778		1.84(0.84-2.52)	96.6	18443	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.635	2.632	0.003	1.000	8776049	4.80		101	26210	
449.00 > 99.00	2.635	2.632	0.003	1.000	2359114		3.72(1.94-5.82)	101	16006	
D 18 13C4 PFOS										
503.00 > 80.00	2.999	2.993	0.006	1.141	3209575	2.46		103	17838	
D 19 13C5 PFNA										
468.00 > 423.00	2.999	2.994	0.005	1.141	3180614	2.48		99.2	32827	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.999	2.995	0.004	1.000	6794840	4.58		98.8	8801	
499.00 > 99.00	2.999	2.995	0.004	1.000	1514290		4.49(2.31-6.93)	98.8	8010	
20 Perfluorononanoic acid										
463.00 > 419.00	2.999	2.997	0.002	1.000	6720258	5.19		104	8982	
463.00 > 169.00	2.999	2.997	0.002	1.000	1655050		4.06(1.90-5.69)	104	17923	
D 21 13C8 FOSA										
506.00 > 78.00	3.338	3.334	0.004	1.271	4607275	2.55		102	20771	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.338	3.337	0.001	1.000	9065432	4.97		99.3	19690	
D 26 M2-8:2FTS										
529.00 > 81.00	3.346	3.345	0.001	1.273	965340	2.54		106	16012	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.346	3.345	0.001	1.000	2390917	4.83		101	42466	
D 23 13C2 PFDA										
515.00 > 470.00	3.354	3.354	0.0	1.276	2879595	2.61		104	31134	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.354	3.354	0.0	1.000	5692957	4.84		96.8	22957	
513.00 > 169.00	3.354	3.354	0.0	1.000	960182		5.93(2.36-7.09)	96.8	1729	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.513	3.508	0.005	1.337	1553365	2.60		104	12006	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.513	3.513	0.0	1.000	3230498	4.85		97.0	13371	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.669	3.666	0.003	1.000	4436222	5.00		104	38226	
599.00 > 99.00	3.669	3.666	0.003	1.000	1473781		3.01(1.39-4.16)	104	19294	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.677	3.676	0.001	1.399	1530625	2.50		100	5325	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.686	3.682	0.004	1.000	4470571	4.96		99.3	20438	
563.00 > 169.00	3.686	3.682	0.004	1.000	912281		4.90(0.00-0.00)	99.3	24663	
D 30 13C2 PFUnA										
565.00 > 520.00	3.686	3.682	0.004	1.403	2186881	2.56		102	23023	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.686	3.682	0.004	1.002	2828787	4.98		99.5	18434	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.980	-0.002	1.000	4782436	5.20		104	21461	
613.00 > 169.00	3.978	3.980	-0.002	1.000	1148131		4.17(2.13-6.40)	104	22298	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.980	-0.002	1.514	2187885	2.51		100	27036	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.240	4.245	-0.005	1.000	4994151	5.11		102	9988	
663.00 > 169.00	4.240	4.245	-0.005	1.000	1577847		3.17(1.25-3.76)	102	32449	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.477	4.485	-0.008	1.000	1365222	4.97		99.4	21517	
713.00 > 219.00	4.477	4.485	-0.008	1.000	946220		1.44(0.71-2.13)	99.4	15397	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.477	4.485	-0.008	1.704	2772145	2.58		103	21105	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.907	4.905	0.002	1.867	4447904	2.39		95.6	14881	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.907	4.905	0.002	1.000	8554866	4.99		99.9	5268	
813.00 > 169.00	4.907	4.905	0.002	1.000	1436096		5.96(2.86-8.58)	99.9	8117	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.256	5.257	-0.001	1.000	9764233	4.95		99.0	1505	
913.00 > 169.00	5.249	5.257	-0.008	0.999	1182085		8.26(0.00-0.00)	99.0	2145	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL6_00004 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:44:59 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_007.d

Injection Date: 01-Feb-2018 21:53:46 Instrument ID: A8_N

Lims ID: IC L6 Full

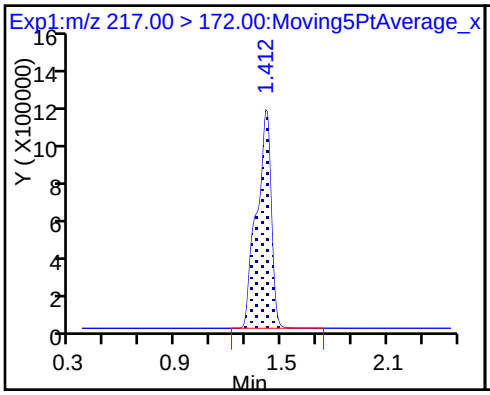
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 7

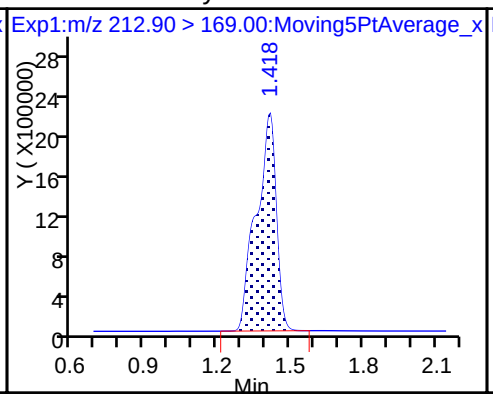
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

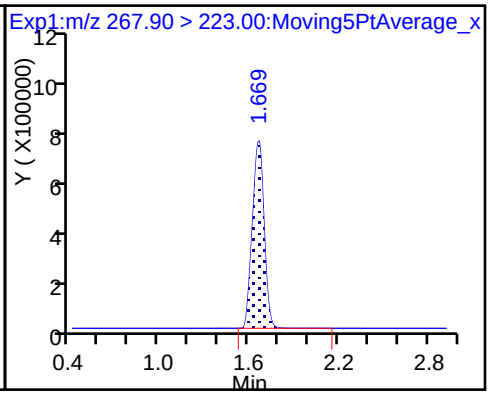
D 1 13C4 PFBA



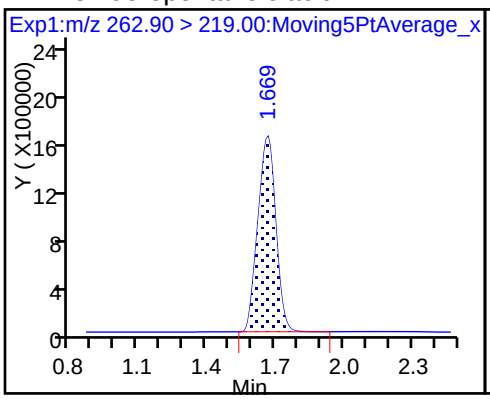
2 Perfluorobutyric acid



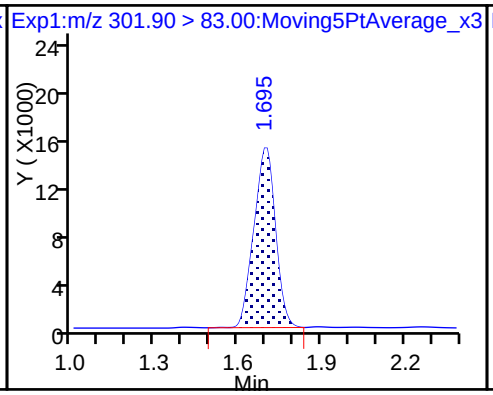
D 3 13C5-PFPeA



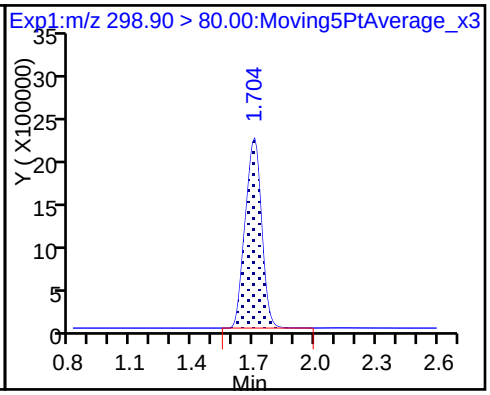
4 Perfluoropentanoic acid



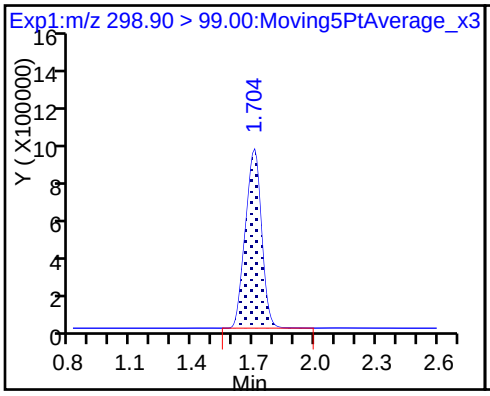
D 47 13C3-PFBS



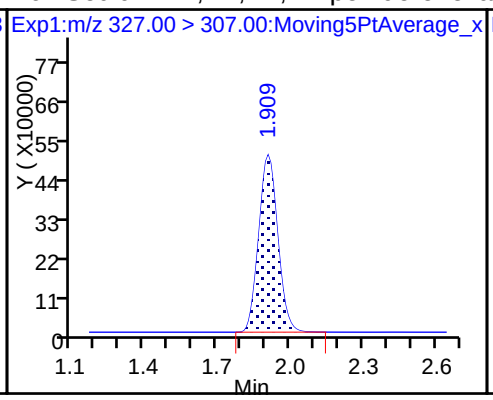
5 Perfluorobutanesulfonic acid



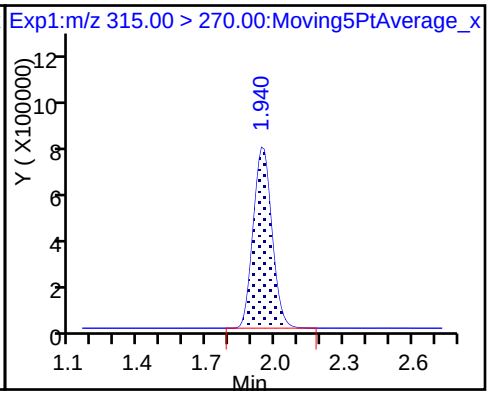
5 Perfluorobutanesulfonic acid



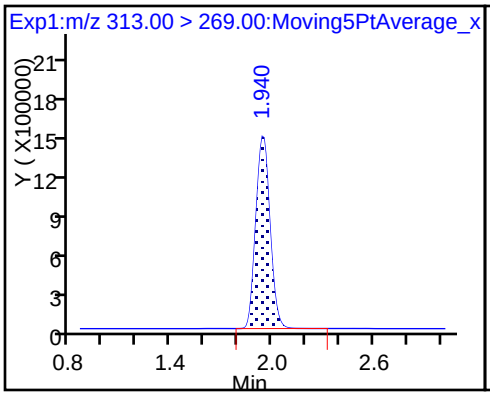
61 Sodium 1H,1H,2H,2H-perfluorohexa



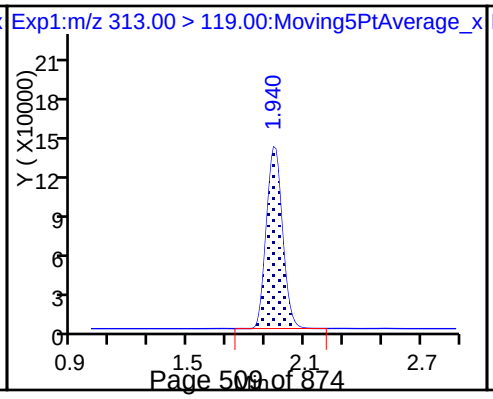
D 7 13C2 PFHxA



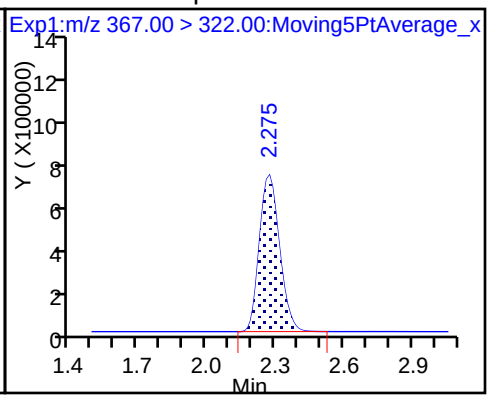
6 Perfluorohexanoic acid



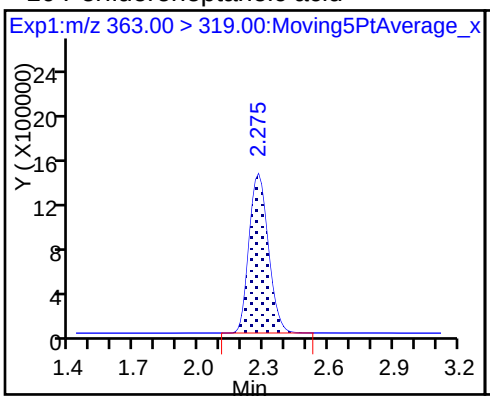
6 Perfluorohexanoic acid



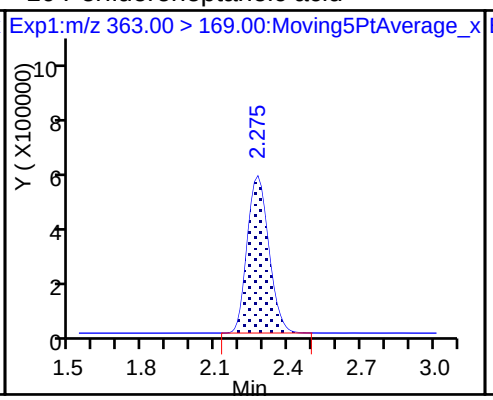
D 9 13C4-PFHpA



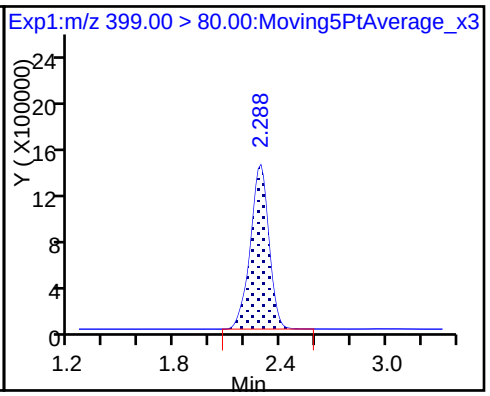
10 Perfluoroheptanoic acid



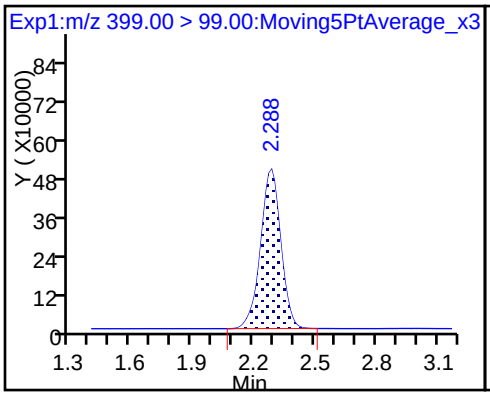
10 Perfluoroheptanoic acid



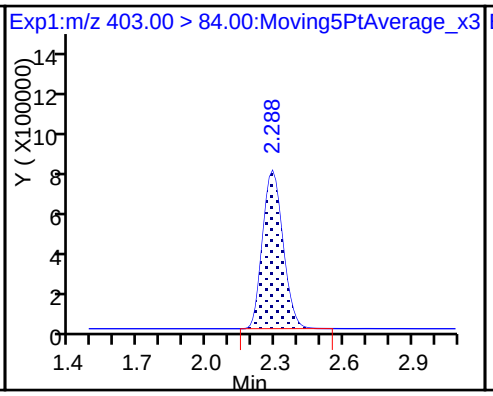
8 Perfluorohexanesulfonic acid



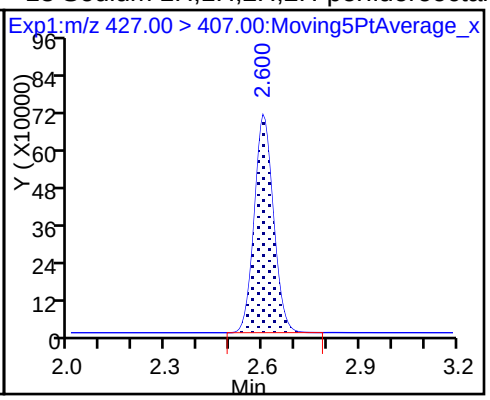
8 Perfluorohexanesulfonic acid



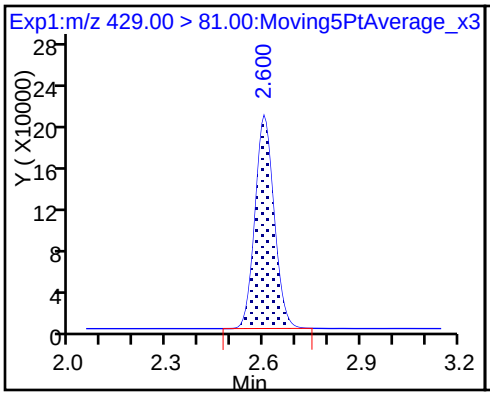
D 11 18O2 PFHxS



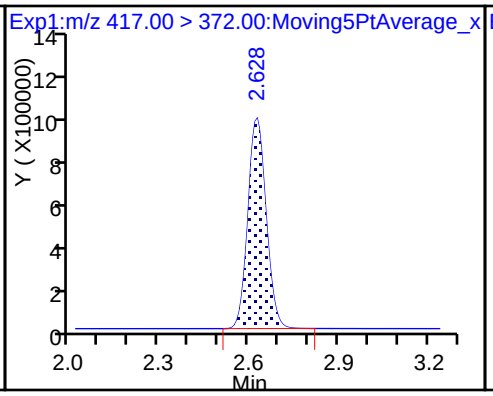
13 Sodium 1H,1H,2H,2H-perfluorooctane



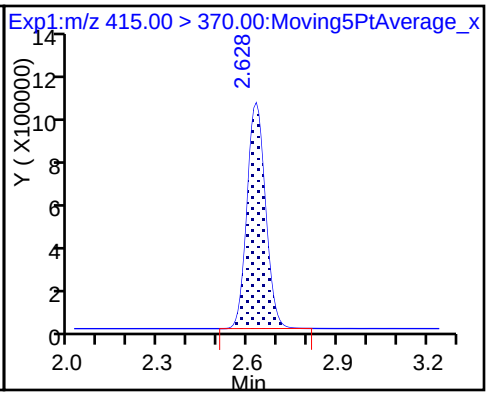
D 12 M2-6:2FTS



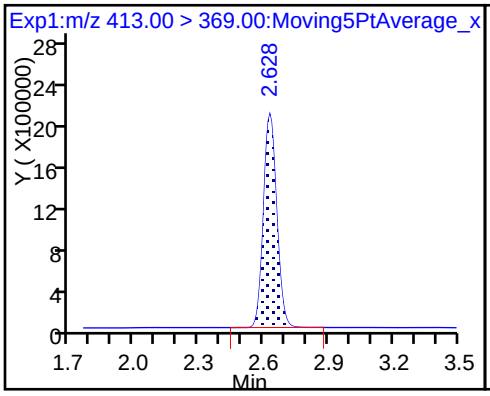
D 14 13C4 PFOA



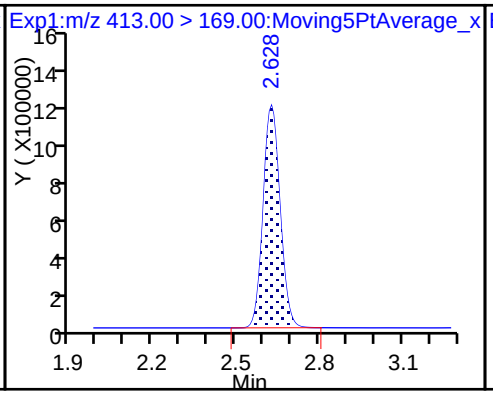
* 62 13C2-PFOA



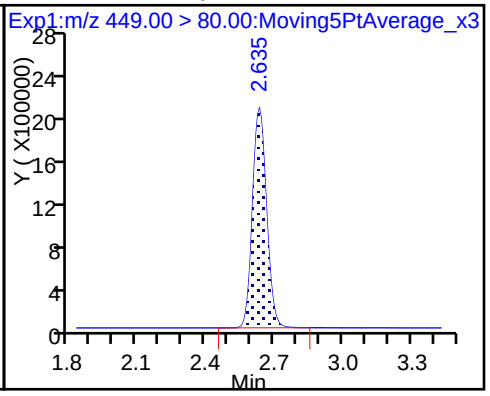
15 Perfluorooctanoic acid



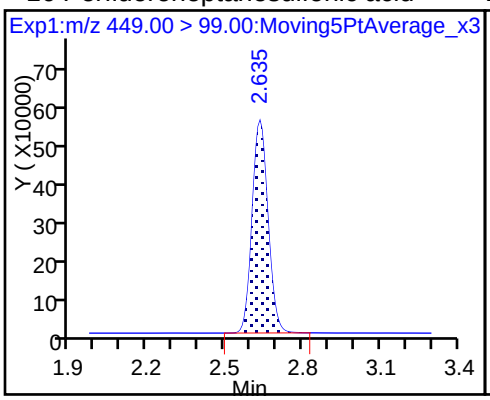
15 Perfluorooctanoic acid



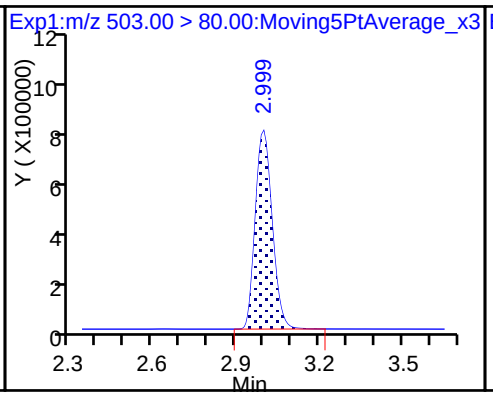
16 Perfluoroheptanesulfonic acid



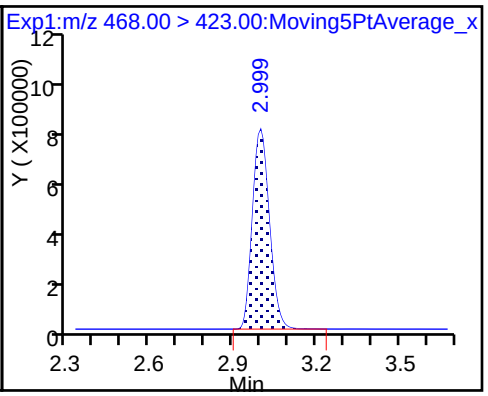
16 Perfluoroheptanesulfonic acid



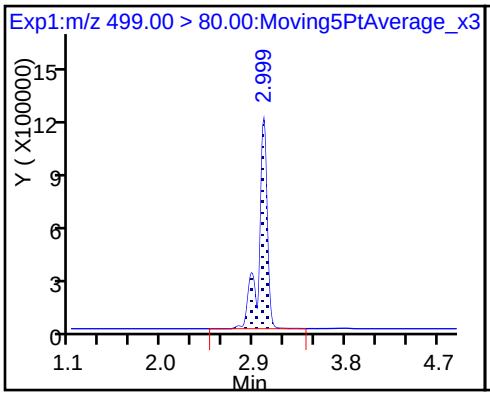
D 18 13C4 PFOS



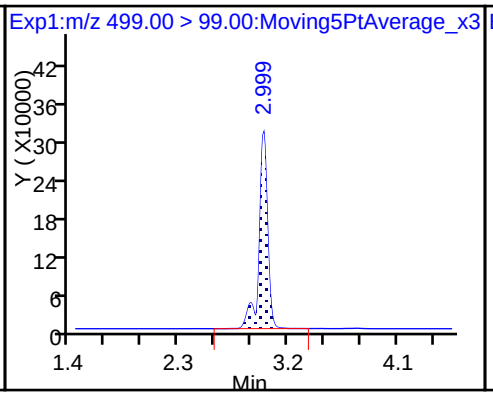
D 19 13C5 PFNA



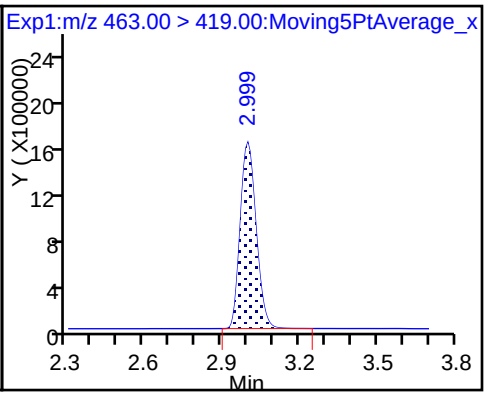
17 Perfluorooctane sulfonic acid



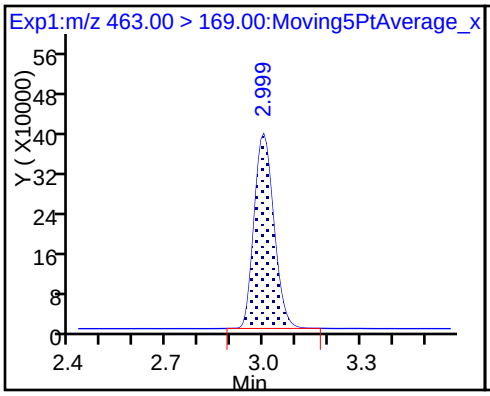
17 Perfluorooctane sulfonic acid



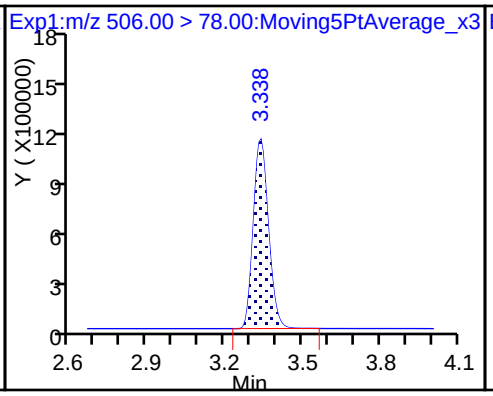
20 Perfluorononanoic acid



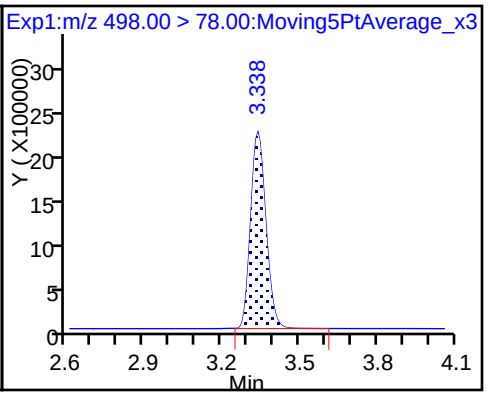
20 Perfluorononanoic acid



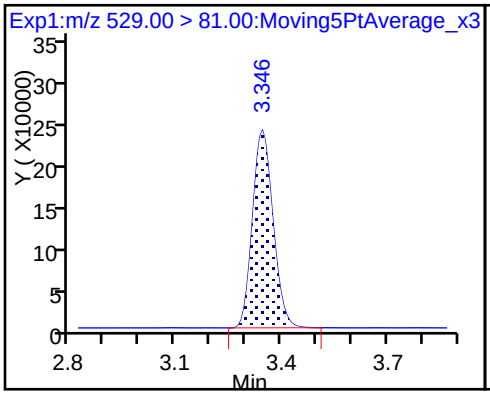
D 21 13C8 FOSA



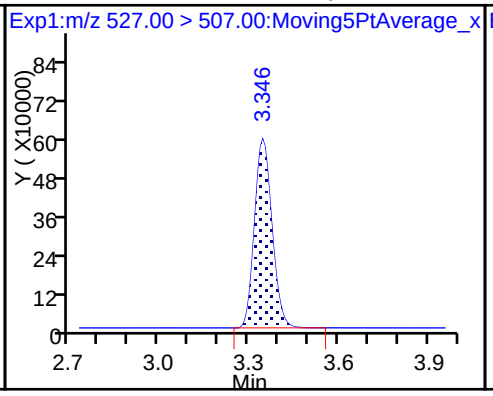
22 Perfluorooctane Sulfonamide



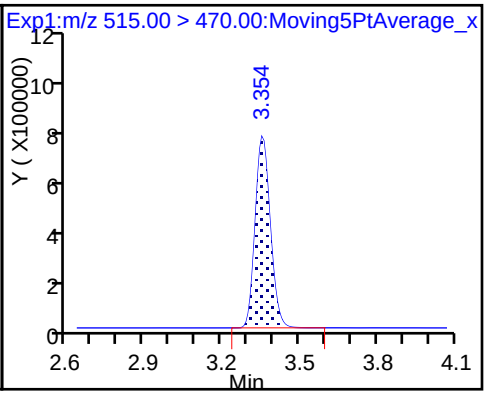
D 26 M2-8:2FTS



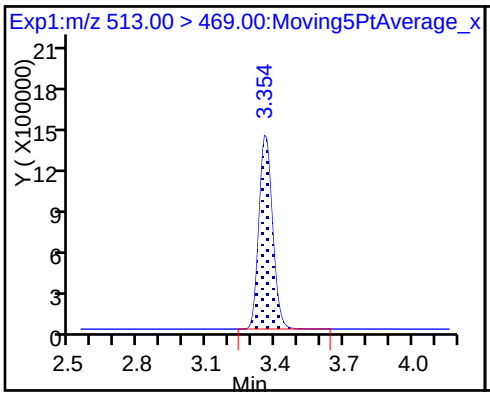
25 Sodium 1H,1H,2H,2H-perfluorodecane



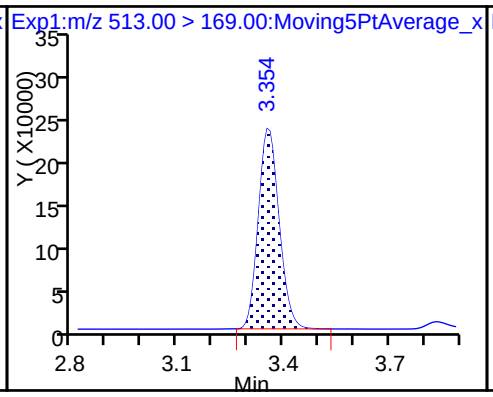
D 23 13C2 PFDA



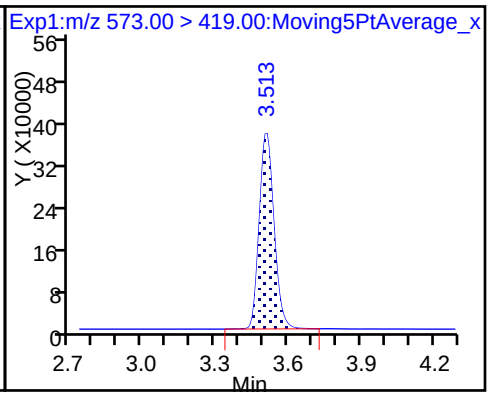
24 Perfluorodecanoic acid



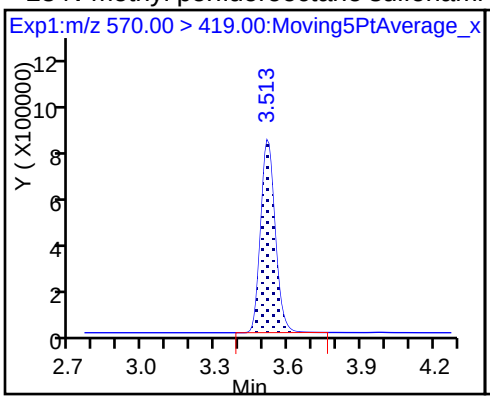
24 Perfluorodecanoic acid



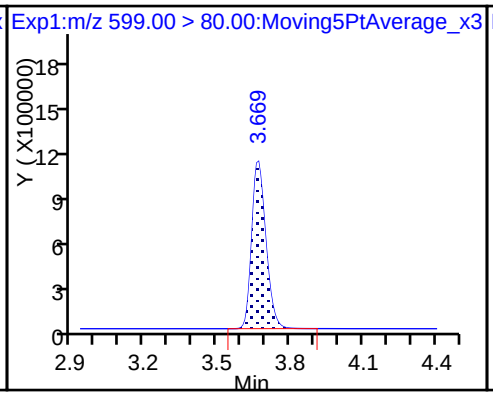
D 27 d3-NMeFOSAA



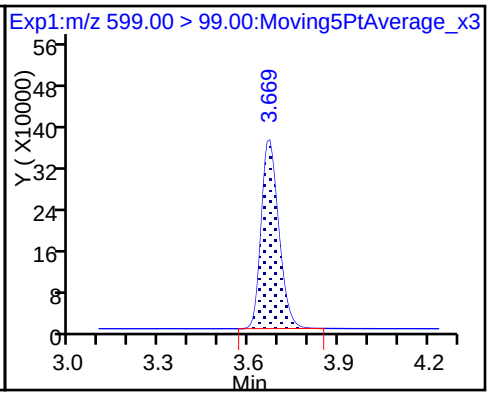
28 N-methyl perfluorooctane sulfonami



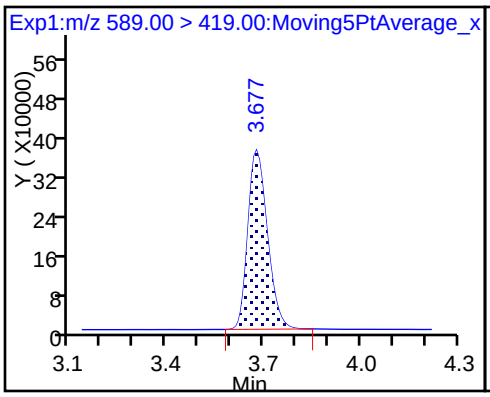
29 Perfluorodecane Sulfonic acid



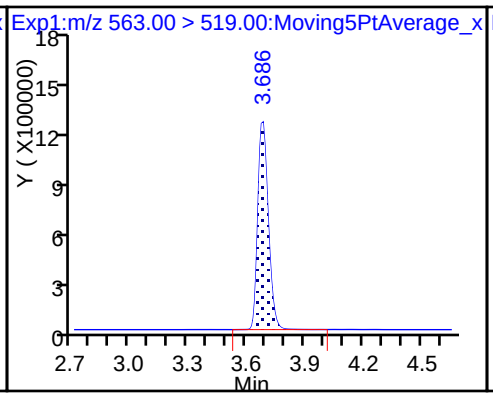
29 Perfluorodecane Sulfonic acid



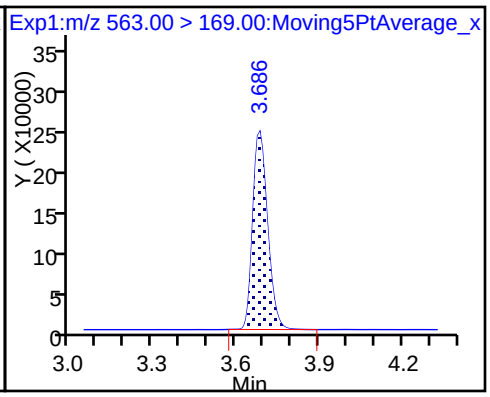
D 32 d5-NEtFOSAA



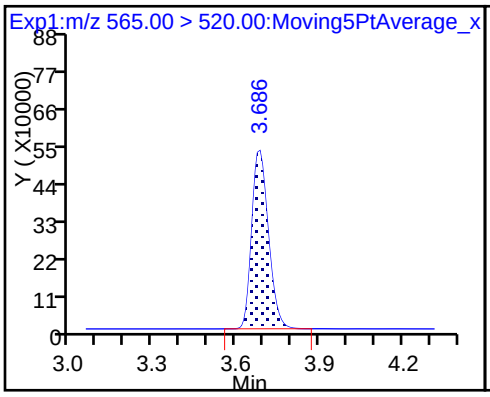
31 Perfluoroundecanoic acid



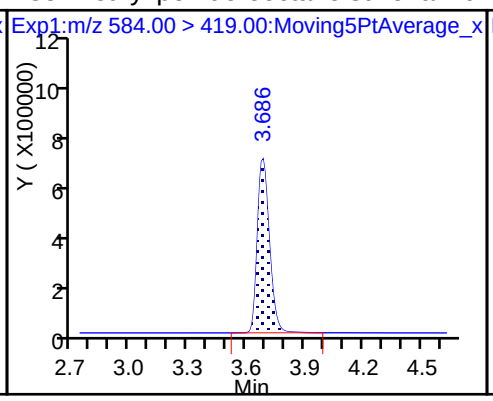
31 Perfluoroundecanoic acid



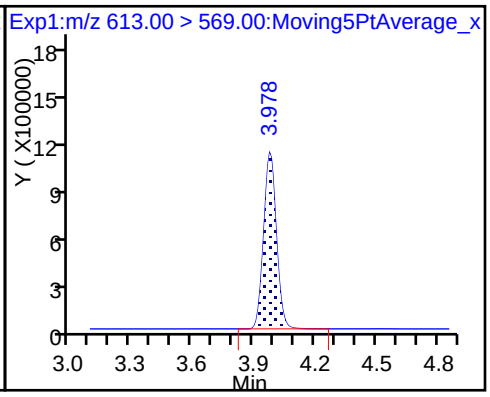
D 30 13C2 PFUnA



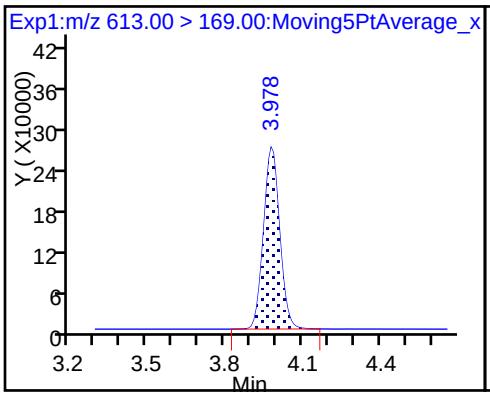
33 N-ethyl perfluorooctane sulfonamid



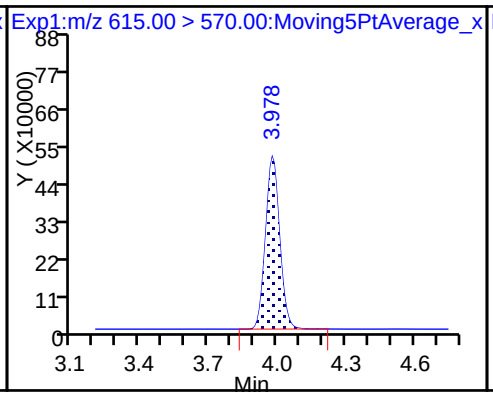
37 Perfluorododecanoic acid



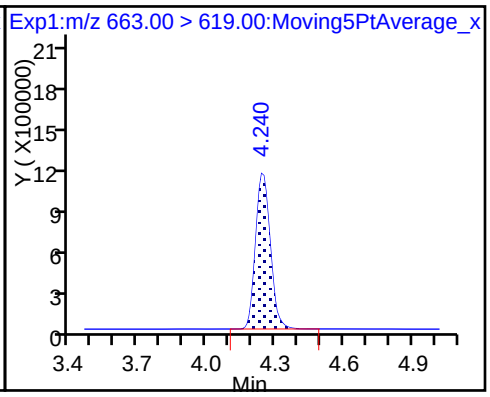
37 Perfluorododecanoic acid



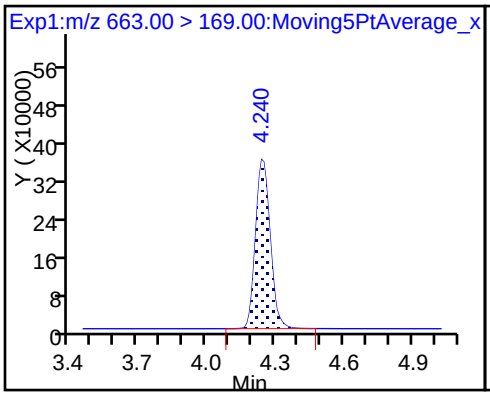
D 36 13C2 PFDoA



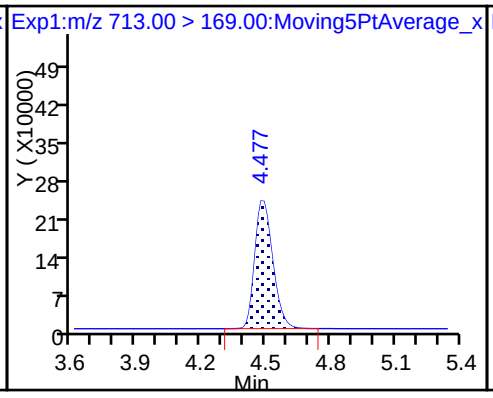
41 Perfluorotridecanoic acid



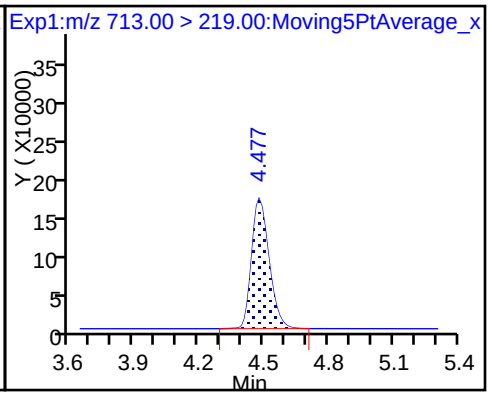
41 Perfluorotridecanoic acid



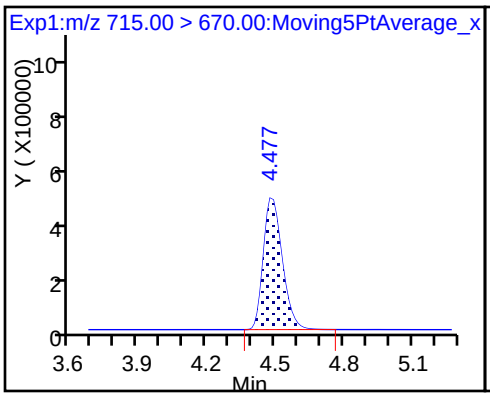
42 Perfluorotetradecanoic acid



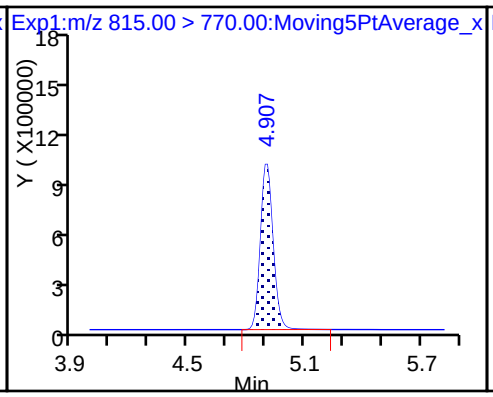
42 Perfluorotetradecanoic acid



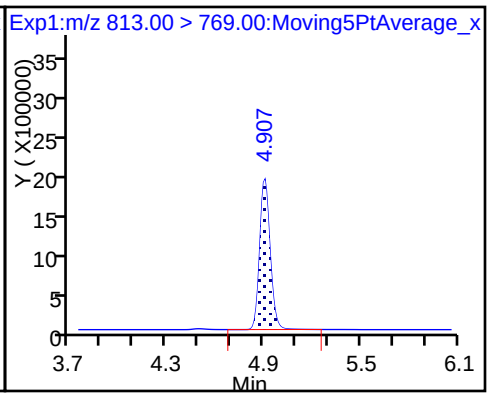
D 43 13C2-PFTeDA



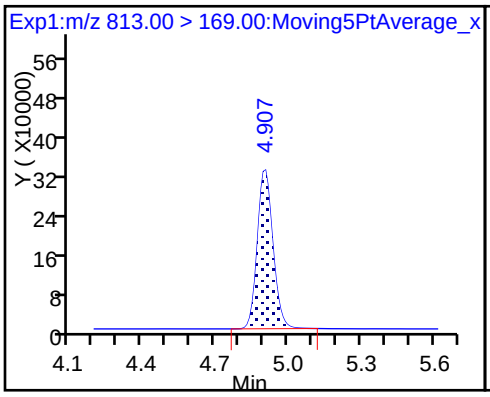
D 44 13C2-PFHxDA



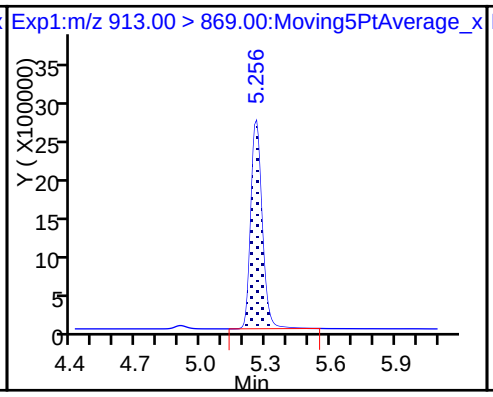
45 Perfluorohexadecanoic acid



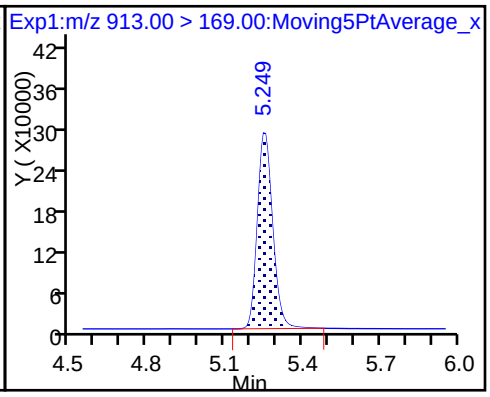
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d
Lims ID: IC L7 Full
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 01-Feb-2018 22:01:37 ALS Bottle#: 16 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L7-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 06-Feb-2018 11:45:03 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK002

First Level Reviewer: hannigana Date: 02-Feb-2018 15:08:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.430	1.416	0.014	0.550	6411782	2.55		102	28601	
2 Perfluorobutyric acid										
212.90 > 169.00	1.436	1.419	0.017	1.004	23861766	9.82		98.2	5299	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.649	1.663	-0.014	1.000	18460860	9.62		96.2	13066	
D 3 13C5-PFPeA										
267.90 > 223.00	1.649	1.663	-0.014	0.635	4035315	2.65		106	68889	
D 47 13C3-PFBS										
301.90 > 83.00	1.675	1.696	-0.021	0.645	84373	2.48		106	2394	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.675	1.698	-0.023	1.000	23701562	8.50		96.1	52853	
298.90 > 99.00	1.675	1.698	-0.023	1.000	10467033		2.26(1.25-3.74)	96.1	40998	
D 60 M2-4:2FTS										
329.00 > 81.00	1.861	1.902	-0.041	0.717	570453	NC			6026	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.861	1.904	-0.043	1.000	5256121	8.99		96.3	110368	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.897	1.937	-0.040	1.000	16877303	9.70		97.0	120076	
313.00 > 119.00	1.897	1.937	-0.040	1.000	1540428		10.96(5.03-15.10)	97.0	25140	
D 7 13C2 PFHxA										
315.00 > 270.00	1.897	1.937	-0.040	0.730	4205074	2.55		102	45363	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.232	2.268	-0.036	1.000	16755882	10.1		101	20893	
363.00 > 169.00	2.232	2.268	-0.036	1.000	6974205		2.40(1.13-3.40)	101	26781	
D 9 13C4-PFHpA										
367.00 > 322.00	2.232	2.268	-0.036	0.859	3983850	2.50		99.9	27338	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.245	2.281	-0.036	0.864	4945223	2.51		106	28853	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.245	2.281	-0.036	1.000	19331920	8.13		89.4	13883	
399.00 > 99.00	2.245	2.281	-0.036	1.000	6472500		2.99(1.50-4.49)	89.4	10160	
D 12 M2-6:2FTS										
429.00 > 81.00	2.576	2.598	-0.022	0.992	751178	2.22		93.4	10761	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.576	2.598	-0.022	1.000	5067031	8.91		94.0	43442	
D 14 13C4 PFOA										
417.00 > 372.00	2.597	2.622	-0.025	1.000	3875824	2.48		99.3	31481	
* 62 13C2-PFOA										
415.00 > 370.00	2.597	2.623	-0.026		4345393	2.50			25162	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.603	2.626	-0.023	1.002	17566083	9.95		99.5	6851	
413.00 > 169.00	2.603	2.626	-0.023	1.002	9176767		1.91(0.84-2.52)	99.5	27813	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.610	2.632	-0.022	1.000	16893479	9.39		98.6	41228	
449.00 > 99.00	2.610	2.632	-0.022	1.000	4829434		3.50(1.94-5.82)	98.6	25530	
D 18 13C4 PFOS										
503.00 > 80.00	2.979	2.993	-0.014	1.147	3158762	2.44		102	17171	
D 19 13C5 PFNA										
468.00 > 423.00	2.979	2.994	-0.015	1.147	3038951	2.39		95.7	23432	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.979	2.995	-0.016	1.000	13287777	9.11		98.2	8315	M
499.00 > 99.00	2.979	2.995	-0.016	1.000	3004516		4.42(2.31-6.93)	98.2	19506	
20 Perfluorononanoic acid										
463.00 > 419.00	2.979	2.997	-0.018	1.000	13238546	10.7		107	17109	
463.00 > 169.00	2.979	2.997	-0.018	1.000	3353338		3.95(1.90-5.69)	107	30470	
D 21 13C8 FOSA										
506.00 > 78.00	3.327	3.334	-0.007	1.281	4276710	2.39		95.5	30927	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.327	3.337	-0.010	1.000	17226340	10.2		102	28675	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.335	3.345	-0.010	1.000	4567339	9.69		101	34833	
D 26 M2-8:2FTS										
529.00 > 81.00	3.335	3.345	-0.010	1.284	918849	2.44		102	18677	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.354	-0.004	1.000	10909295	9.92		99.2	32628	
513.00 > 169.00	3.350	3.354	-0.004	1.000	1995693		5.47(2.36-7.09)	99.2	1703	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.354	-0.004	1.290	2692900	2.46		98.4	23500	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.502	3.508	-0.006	1.348	1485046	2.51		100	8565	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.509	3.513	-0.004	1.002	6693985	10.5		105	12901	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.666	3.666	0.0	1.000	8307600	9.52		98.8	49858	
599.00 > 99.00	3.659	3.666	-0.007	0.998	2891681		2.87(1.39-4.16)	98.8	32439	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.673	3.676	-0.003	1.415	1443022	2.38		95.2	8871	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.682	3.682	0.0	1.002	5657049	10.6		106	24690	
D 30 13C2 PFUnA										
565.00 > 520.00	3.682	3.682	0.0	1.418	2056325	2.43		97.1	27063	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.682	3.682	0.0	1.000	8175731	9.65		96.5	22298	
563.00 > 169.00	3.682	3.682	0.0	1.000	1725247		4.74(0.00-0.00)	96.5	20969	
D 36 13C2 PFDoA										
615.00 > 570.00	3.983	3.980	0.003	1.534	2199580	2.54		102	17761	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.983	3.980	0.003	1.000	9057396	9.80		98.0	25810	
613.00 > 169.00	3.983	3.980	0.003	1.000	2370158		3.82(2.13-6.40)	98.0	29907	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.263	4.245	0.018	1.000	9944697	10.1		101	20822	
663.00 > 169.00	4.254	4.245	0.009	0.998	3081081		3.23(1.25-3.76)	101	45812	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.501	4.485	0.016	1.733	2470800	2.32		92.6	14164	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.501	4.485	0.016	1.000	2535540	10.4		104	25588	
713.00 > 219.00	4.488	4.485	0.003	0.997	1784685		1.42(0.71-2.13)	104	19178	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.914	4.905	0.009	1.000	16705853	9.89		98.9	7614	
813.00 > 169.00	4.914	4.905	0.009	1.000	3126756		5.34(2.86-8.58)	98.9	14773	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.914	4.905	0.009	1.892	4388543	2.38		95.2	15112	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.240	5.257	-0.017	1.000	20575557	10.6		106	2726	
913.00 > 169.00	5.233	5.257	-0.024	0.999	2704477		7.61(0.00-0.00)	106	3116	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL7_00003 Amount Added: 1.00 Units: mL

Report Date: 06-Feb-2018 11:45:04 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Injection Date: 01-Feb-2018 22:01:37 Instrument ID: A8_N

Lims ID: IC L7 Full

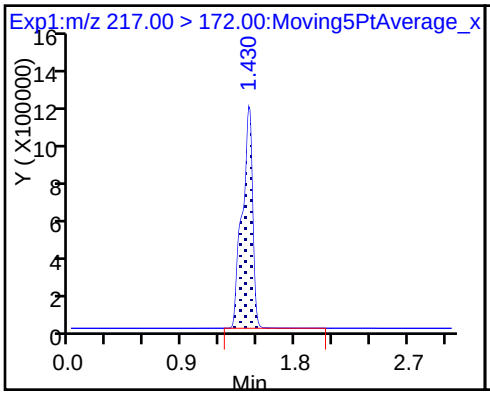
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 8

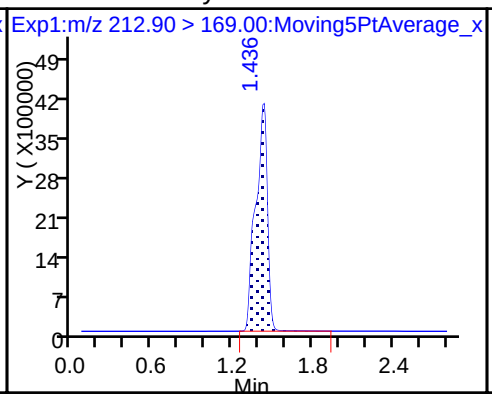
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

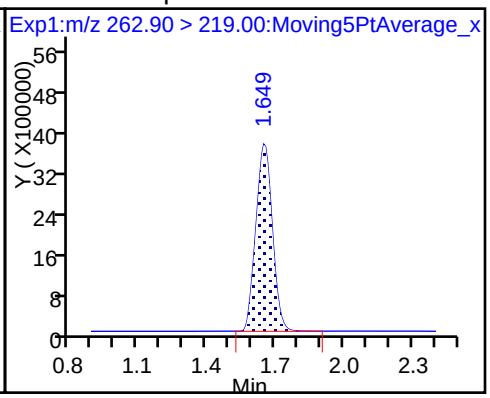
D 1 13C4 PFBA



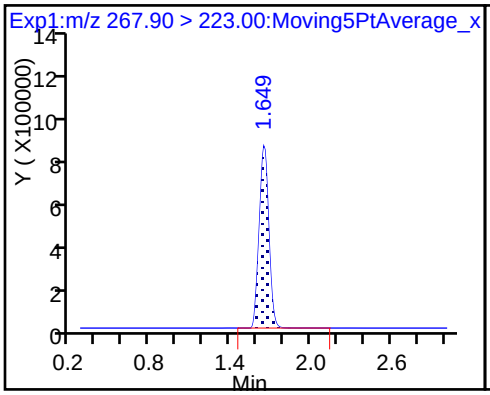
2 Perfluorobutyric acid



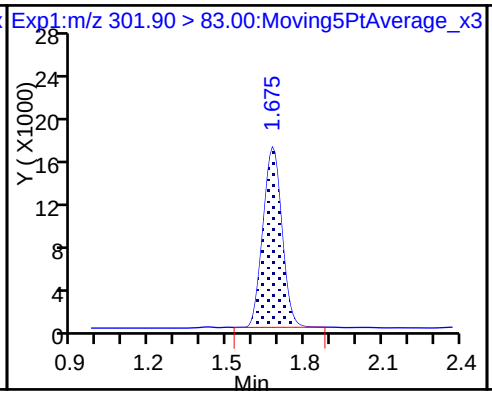
4 Perfluoropentanoic acid



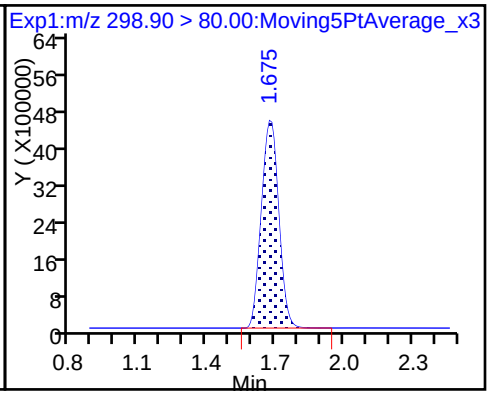
D 3 13C5-PFPeA



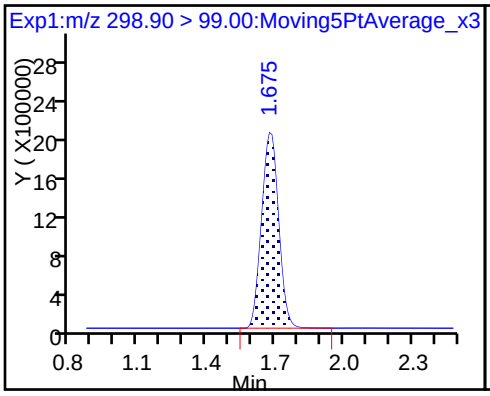
D 47 13C3-PFBS



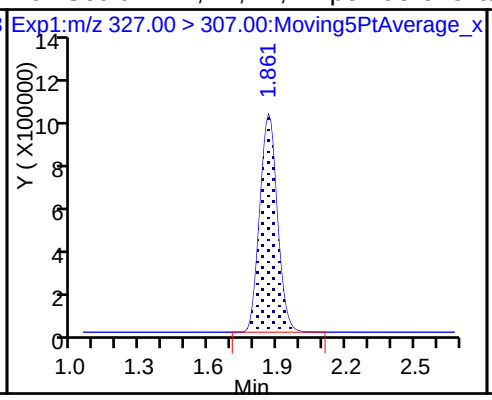
5 Perfluorobutanesulfonic acid



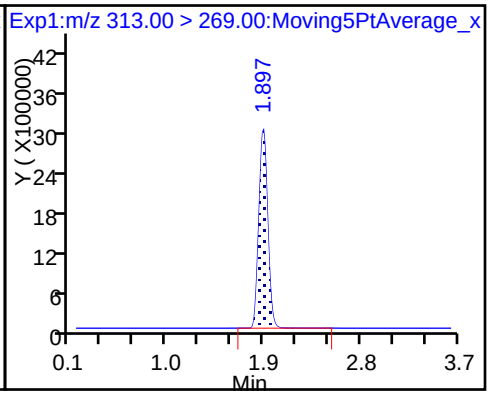
5 Perfluorobutanesulfonic acid



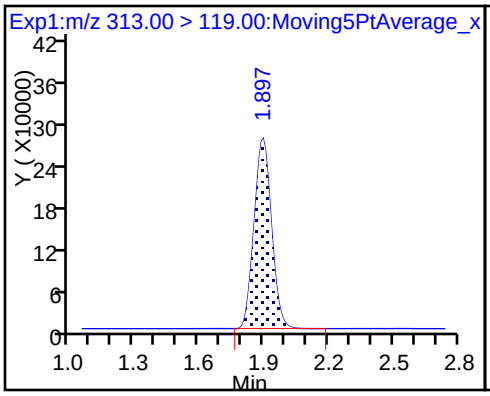
61 Sodium 1H,1H,2H,2H-perfluorohexane



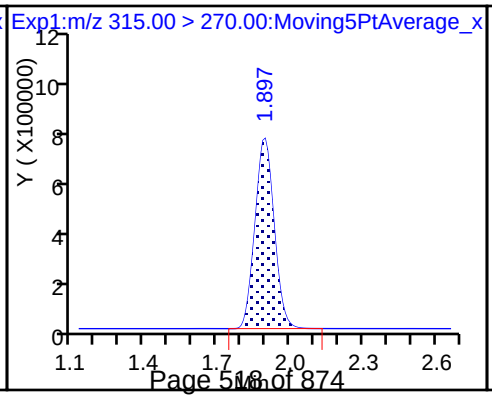
6 Perfluorohexanoic acid



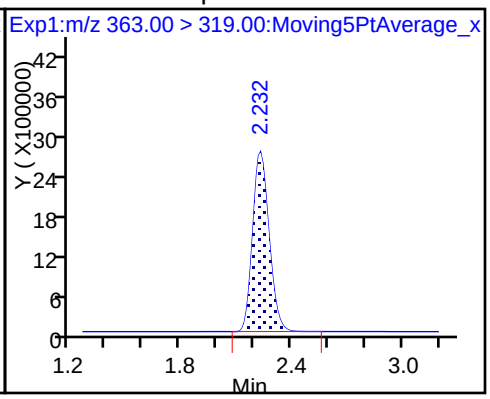
6 Perfluorohexanoic acid



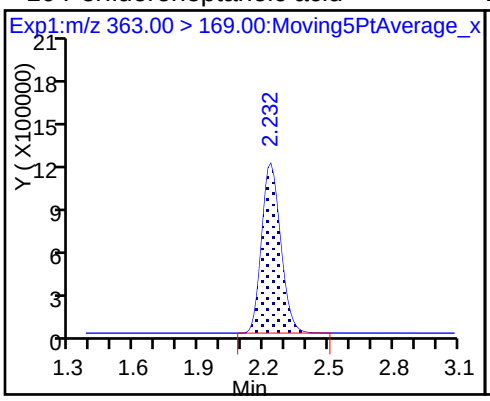
D 7 13C2 PFHxA



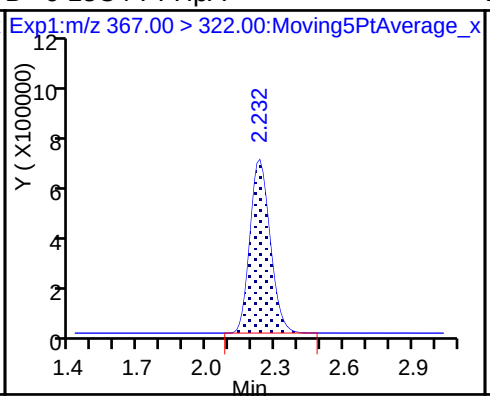
10 Perfluoroheptanoic acid



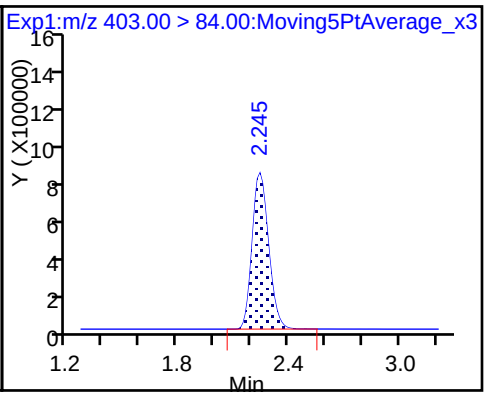
10 Perfluoroheptanoic acid



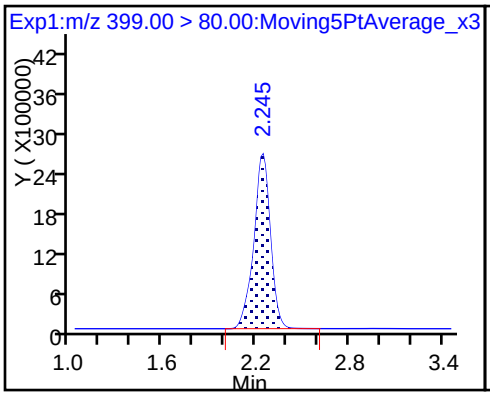
D 9 13C4-PFHpA



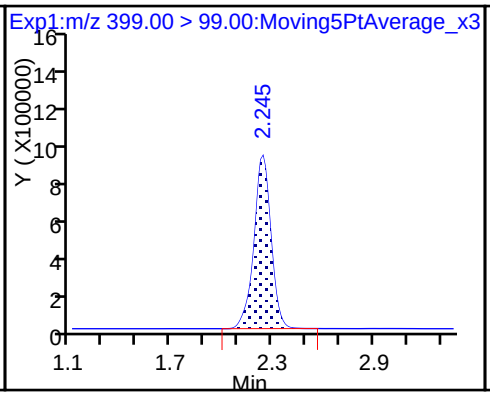
D 11 18O2 PFHxS



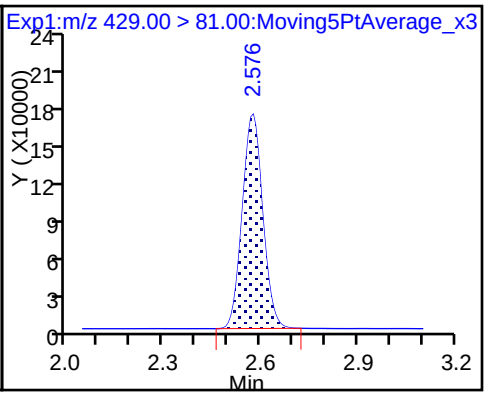
8 Perfluorohexanesulfonic acid



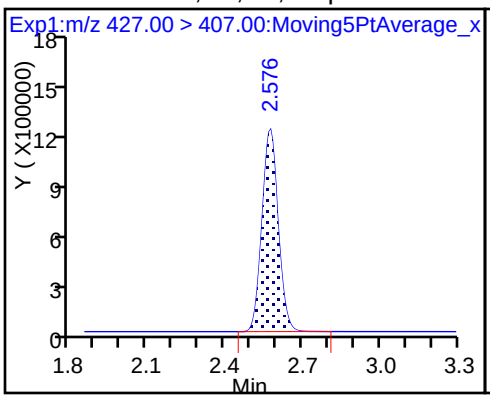
8 Perfluorohexanesulfonic acid



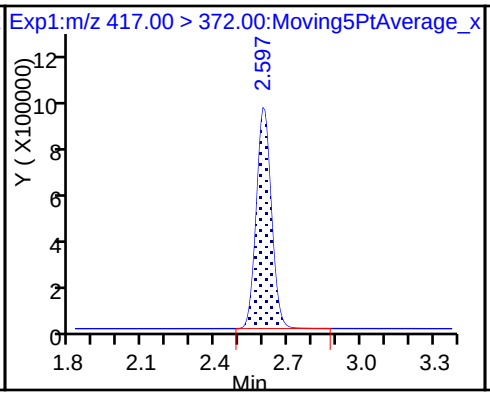
D 12 M2-6:2FTS



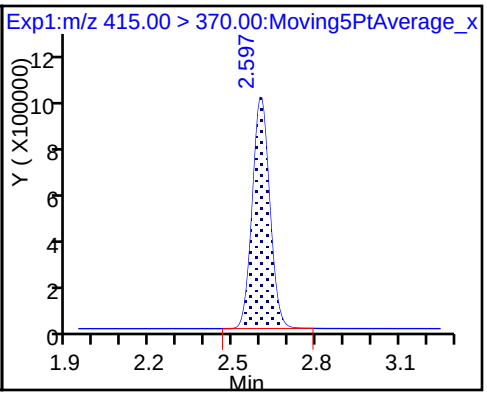
13 Sodium 1H,1H,2H,2H-perfluorooctane



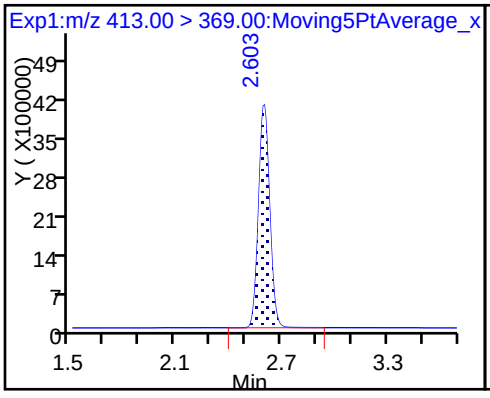
D 14 13C4 PFOA



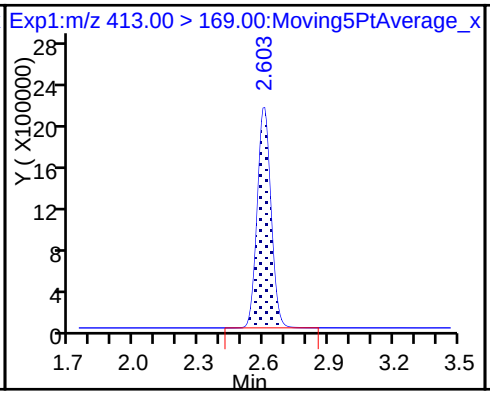
* 62 13C2-PFOA



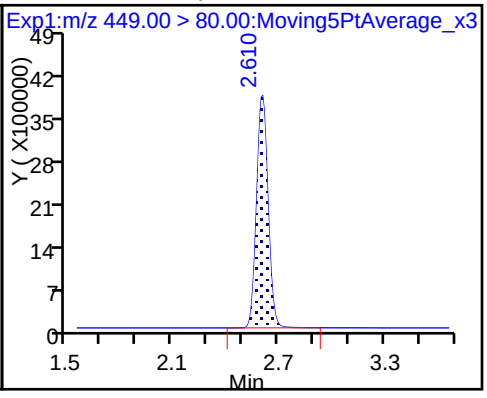
15 Perfluorooctanoic acid



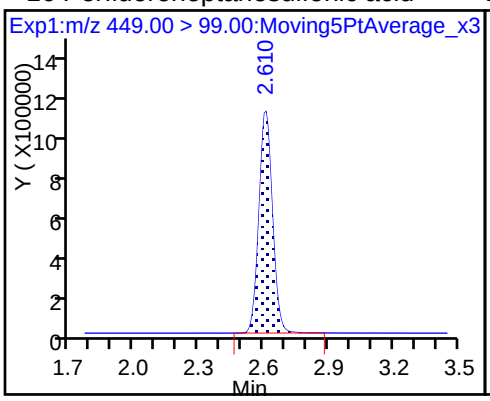
15 Perfluorooctanoic acid



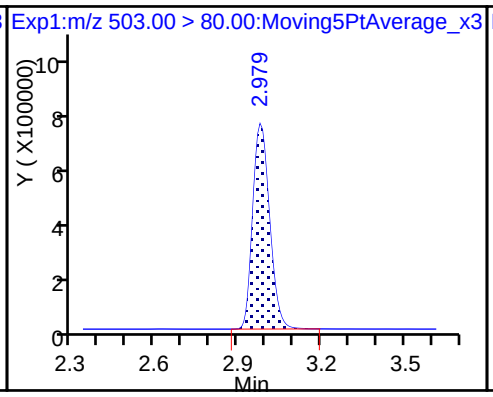
16 Perfluoroheptanesulfonic acid



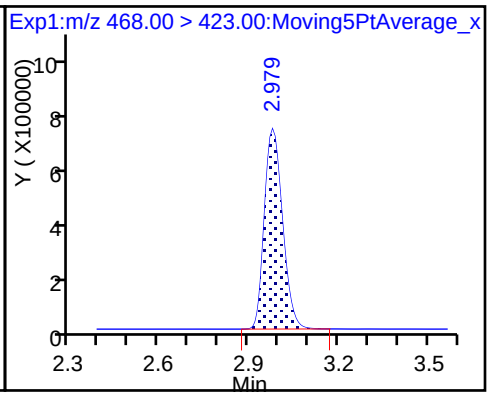
16 Perfluoroheptanesulfonic acid



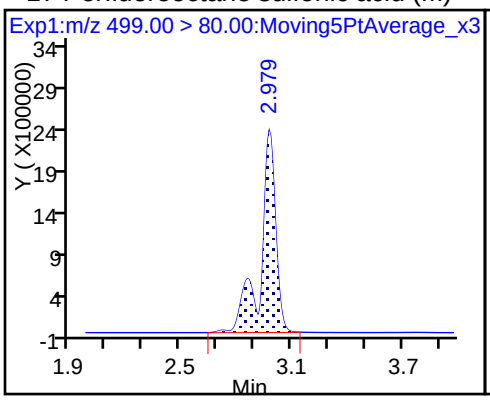
D 18 13C4 PFOS



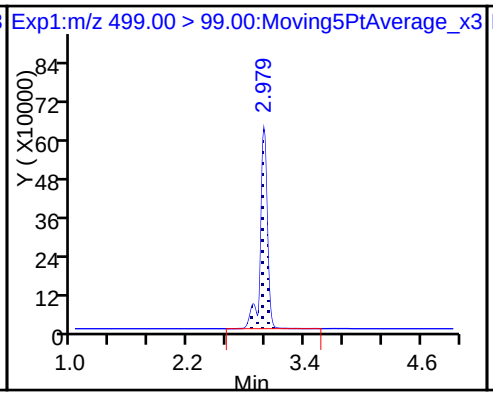
D 19 13C5 PFNA



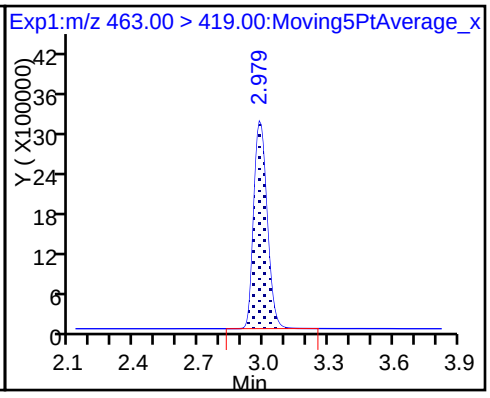
17 Perfluorooctane sulfonic acid (M)



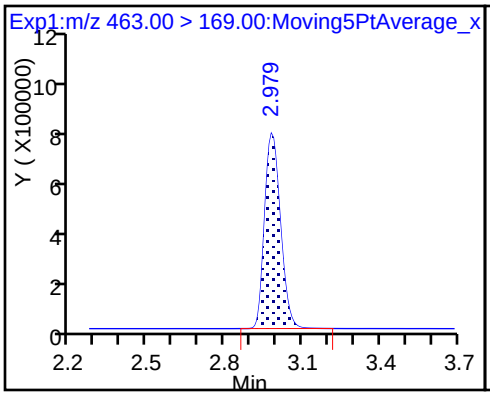
17 Perfluorooctane sulfonic acid



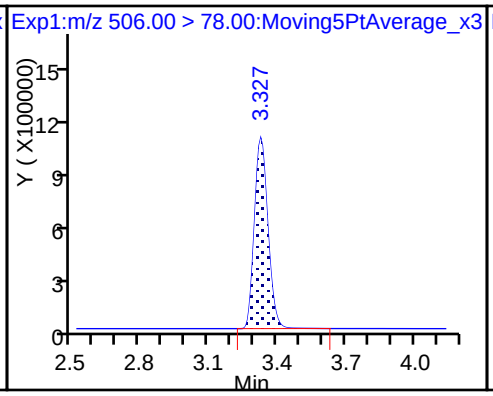
20 Perfluorononanoic acid



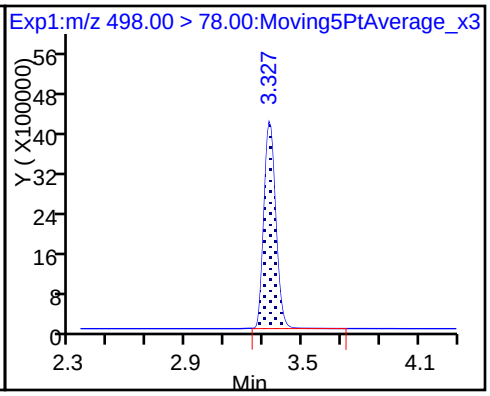
20 Perfluorononanoic acid



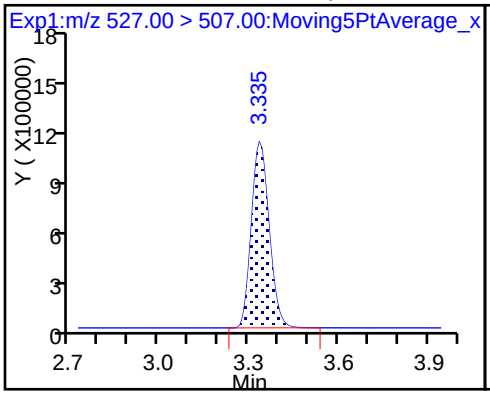
D 21 13C8 FOSA



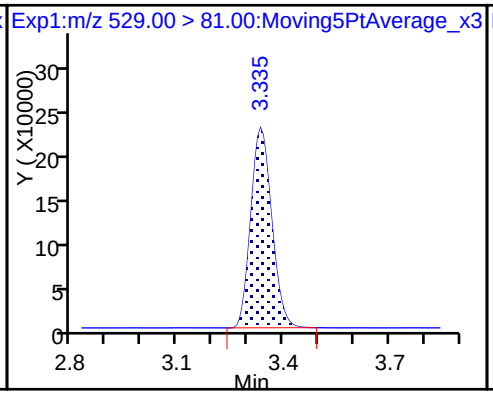
22 Perfluorooctane Sulfonamide



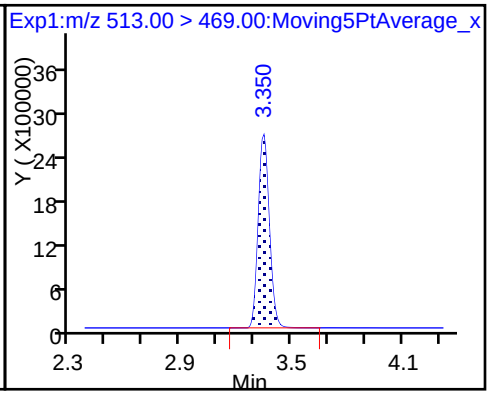
25 Sodium 1H,1H,2H,2H-perfluorodecane



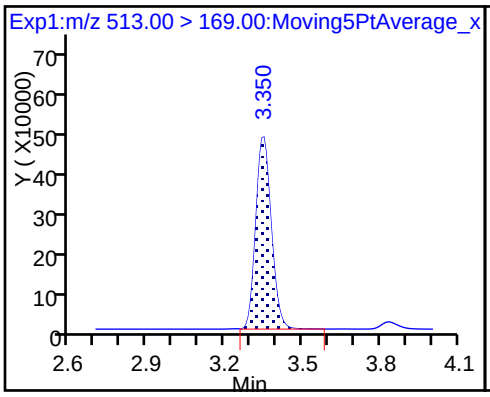
D 26 M2-8:2FTS



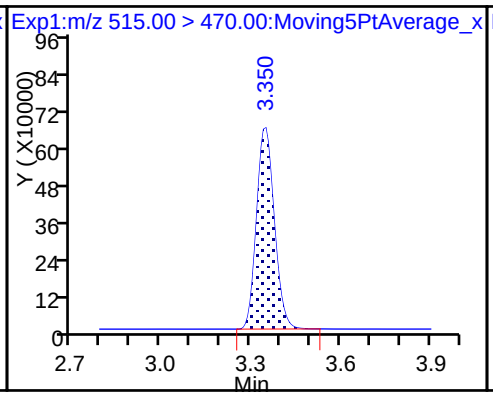
24 Perfluorodecanoic acid



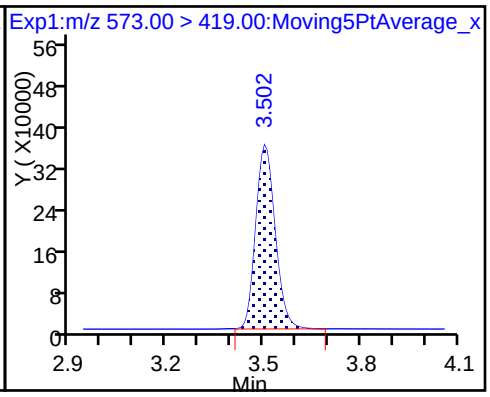
24 Perfluorodecanoic acid



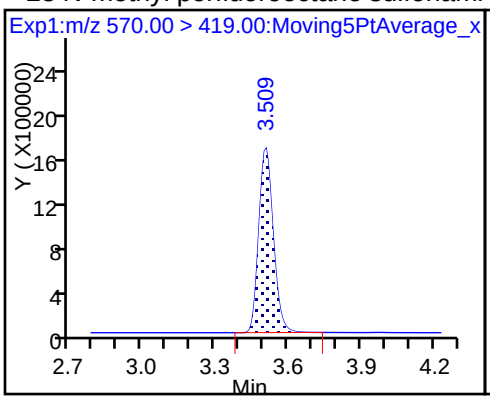
D 23 13C2 PFDA



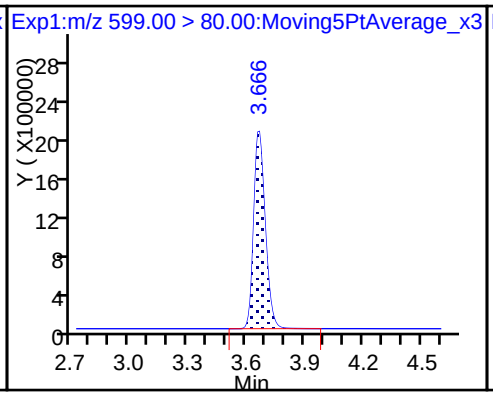
D 27 d3-NMeFOSAA



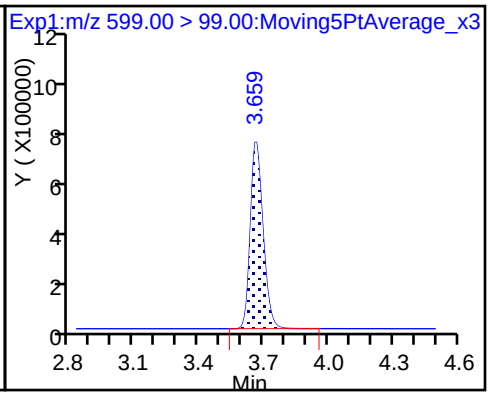
28 N-methyl perfluorooctane sulfonami



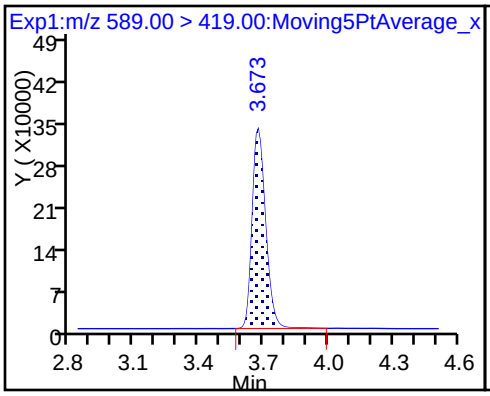
29 Perfluorodecane Sulfonic acid



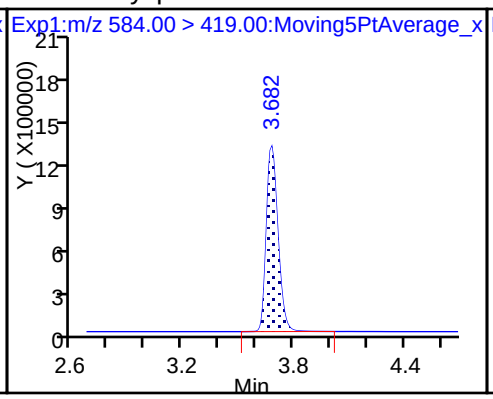
29 Perfluorodecane Sulfonic acid



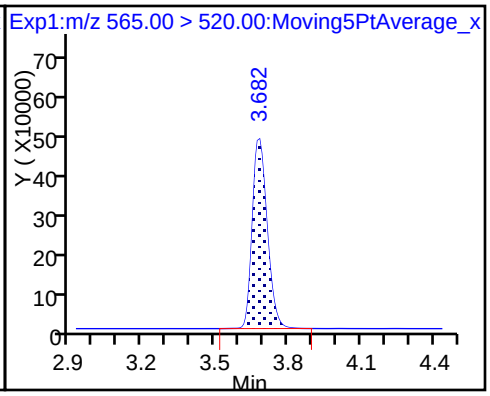
D 32 d5-NEtFOSAA



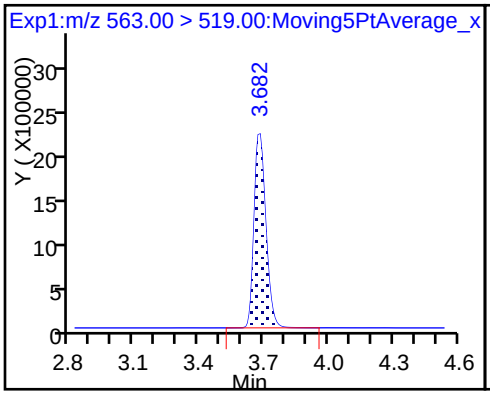
33 N-ethyl perfluorooctane sulfonamid



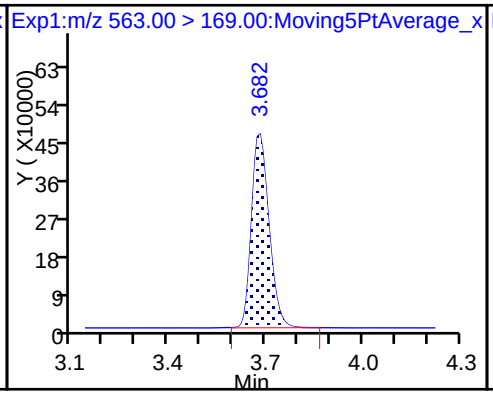
D 30 13C2 PFUnA



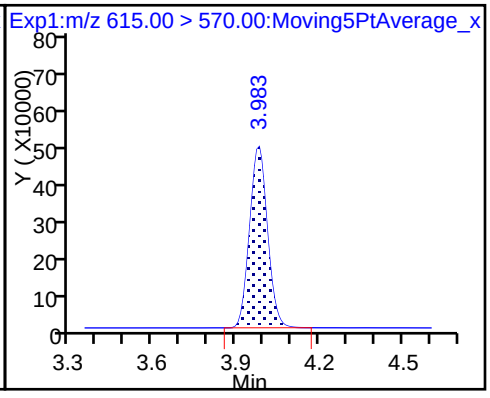
31 Perfluoroundecanoic acid



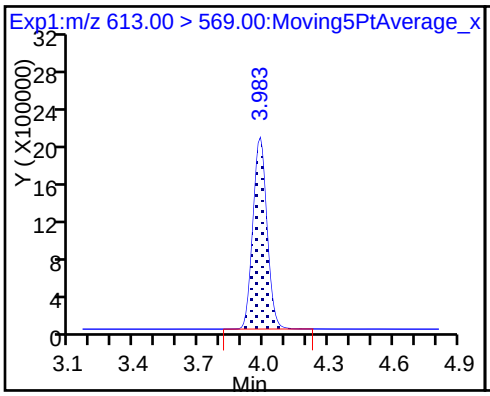
31 Perfluoroundecanoic acid



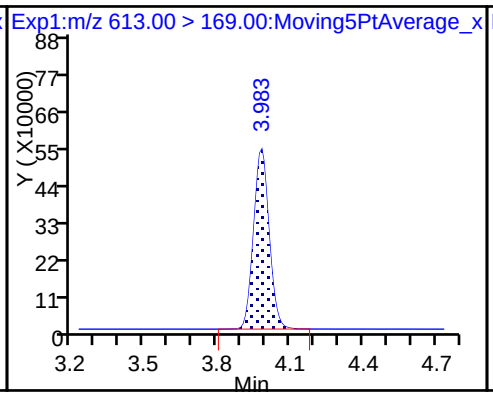
D 36 13C2 PFDoA



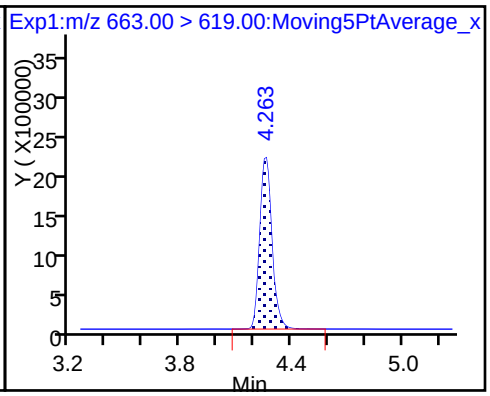
37 Perfluorododecanoic acid



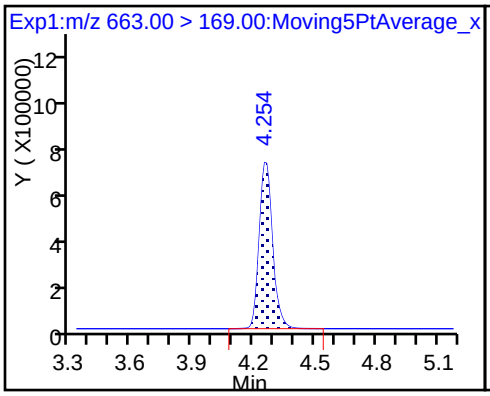
37 Perfluorododecanoic acid



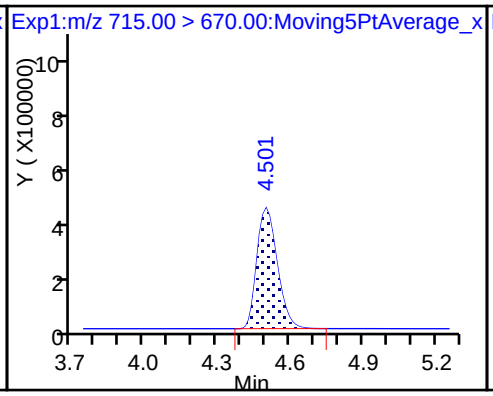
41 Perfluorotridecanoic acid



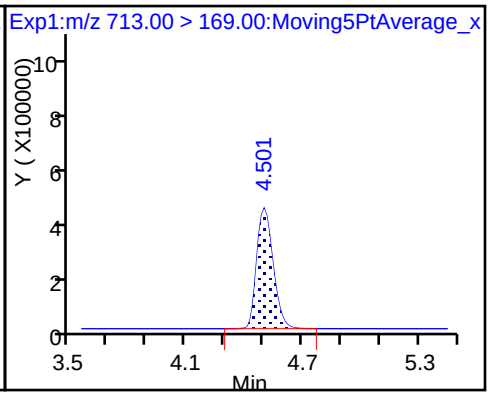
41 Perfluorotridecanoic acid



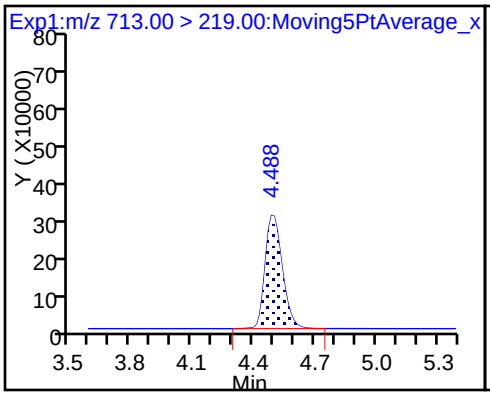
D 43 13C2-PFTeDA



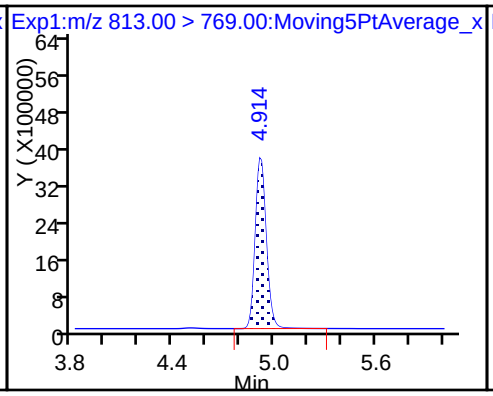
42 Perfluorotetradecanoic acid



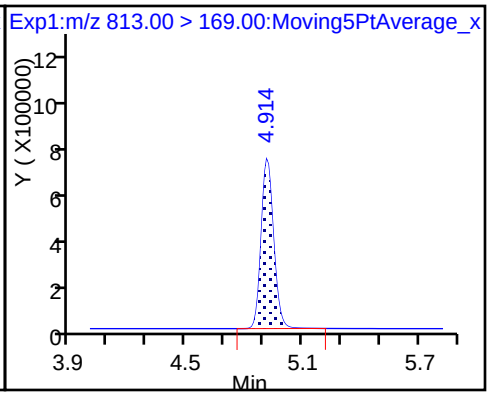
42 Perfluorotetradecanoic acid



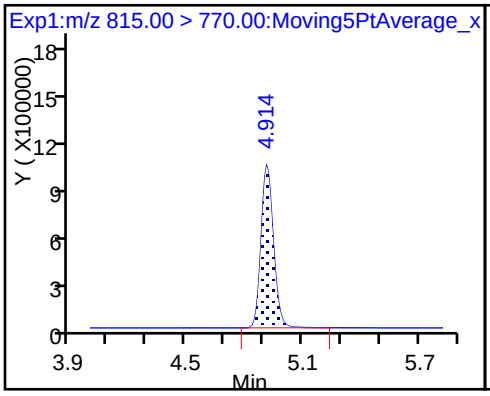
45 Perfluorohexadecanoic acid



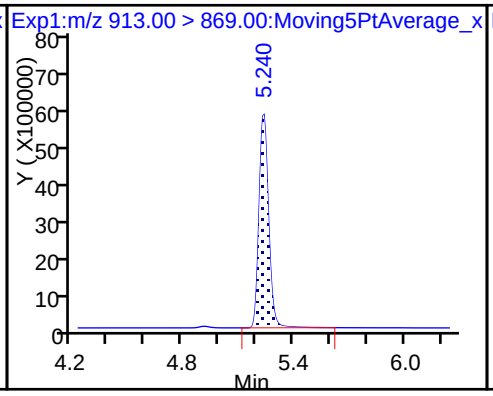
45 Perfluorohexadecanoic acid



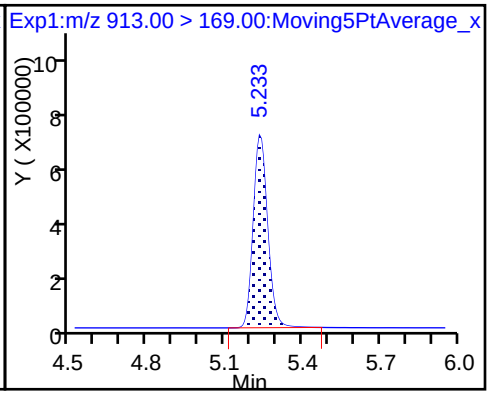
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

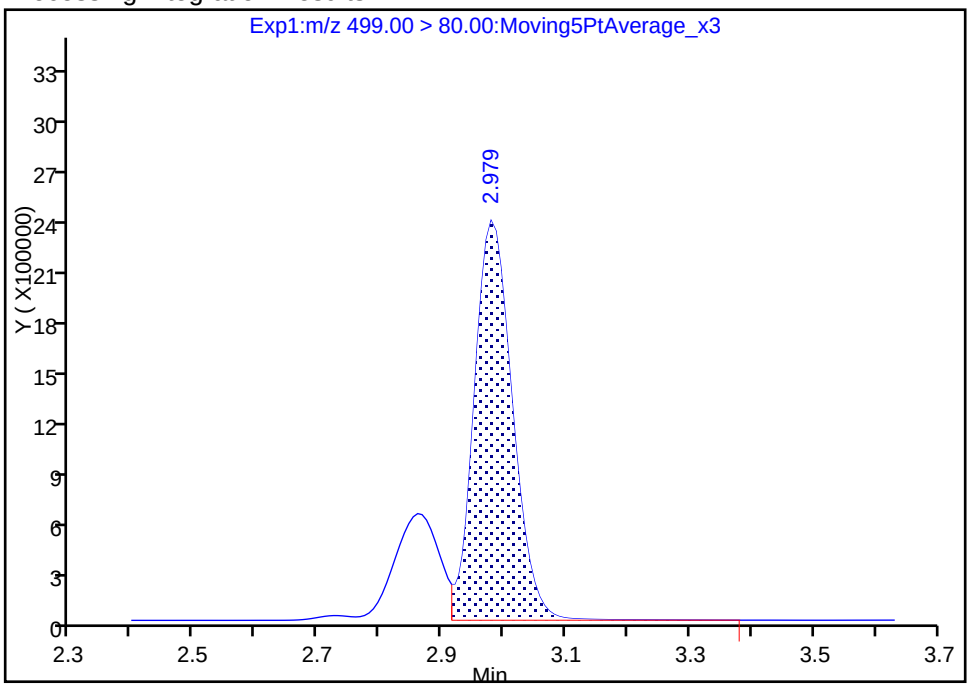
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d
Injection Date: 01-Feb-2018 22:01:37 Instrument ID: A8_N
Lims ID: IC L7 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

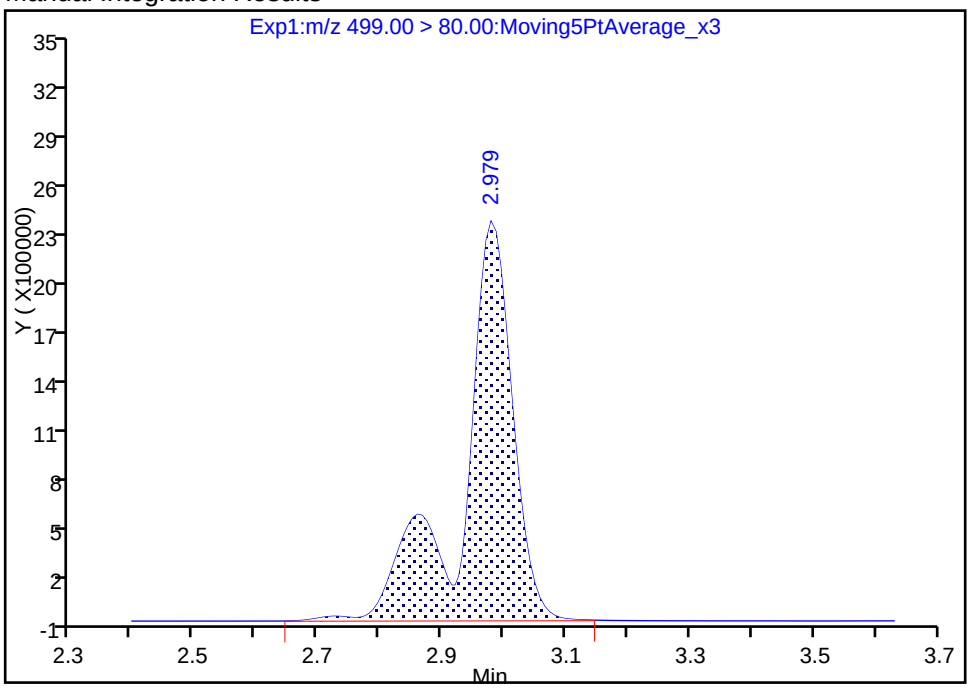
Processing Integration Results

RT: 2.98
Area: 10088721
Amount: 7.157261
Amount Units: ng/ml



Manual Integration Results

RT: 2.98
Area: 13287777
Amount: 9.108548
Amount Units: ng/ml



Reviewer: hannigana, 02-Feb-2018 15:08:27
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208660/2	2018.02.15LLICAL_002.d
Level 2	IC 320-208660/3	2018.02.15LLICAL_003.d
Level 3	IC 320-208660/4	2018.02.15LLICAL_004.d
Level 4	IC 320-208660/5	2018.02.15LLICALA_005.d
Level 5	IC 320-208660/6	2018.02.15LLICALA_006.d
Level 6	IC 320-208660/7	2018.02.15LLICALA_007.d
Level 7	IC 320-208660/8	2018.02.15LLICALA_008.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	0.9332 0.9553	0.9193 0.9369	0.9260	0.9344	0.9500	AveID		0.9364				1.4		35.0			
Perfluoropentanoic acid (PFPeA)	1.2201 1.1592	1.3034 1.1581	1.1424	1.1788	1.1731	AveID		1.1907				4.7		35.0			
Perfluorobutanesulfonic acid (PFBS)	76.858 71.024	76.246 67.431	77.425	77.319	74.290	AveID		74.370				5.1		50.0			
4:2 FTS	15.533 11.939	14.219 12.510	14.765	14.621	13.048	AveID		13.805				9.6		35.0			
Perfluorohexanoic acid (PFHxA)	1.1939 0.9996	1.0434 0.9947	0.9927	0.9523	1.0365	AveID		1.0305				7.6		35.0			
Perfluoroheptanoic acid (PFHpA)	1.0985 1.0527	1.1441 1.0606	1.0422	1.0629	1.0368	AveID		1.0711				3.5		35.0			
Perfluorohexanesulfonic acid (PFHxS)	1.3516 1.0371	1.1639 1.0566	1.0030	1.0292	1.0779	AveID		1.1028				11.0		35.0			
6:2FTS	1.8959 1.6547	1.6876 1.7469	1.5605	1.6575	1.6572	AveID		1.6943				6.2		35.0			
Perfluorooctanoic acid (PFOA)	1.1325 1.1034	1.0090 1.1114	1.0862	1.1379	1.1384	AveID		1.1027				4.1		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.3770 1.3261	1.3293 1.2509	1.2755	1.3497	1.3373	AveID		1.3208				3.3		50.0			
Perfluorooctanesulfonic acid (PFOS)	1.1513 1.0826	1.0307 1.0785	1.0050	1.0813	1.0863	AveID		1.0737				4.3		35.0			
Perfluorononanoic acid (PFNA)	0.9926 1.0546	1.0534 1.0270	1.0282	1.0145	1.0341	AveID		1.0292				2.1		35.0			
8:2FTS	1.4344 1.2103	1.2512 1.2806	1.2163	1.2963	1.2139	AveID		1.2719				6.2		35.0			
Perfluorooctane Sulfonamide (FOSA)	0.9095 1.0003	0.9658 0.9225	1.0080	0.9795	1.0392	AveID		0.9750				4.8		35.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	1.0251 0.9730	0.9400 0.9628	0.9607	0.9953	0.9859	AveID		0.9775				2.8		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.4096 1.0764	1.1072 1.1286	1.0080	0.9931	1.0827	AveID		1.1151				12.5		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.6733 0.6721	0.6444 0.6512	0.6242	0.6481	0.6828	AveID		0.6566				3.1		50.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	1.0504 0.9793	0.9010 0.9662	1.0273	0.9306	0.9218	AveID		0.9681				5.7		35.0			
Perfluoroundecanoic acid (PFUnA)	1.3896 0.9718	1.2284 1.0335	1.0310	0.8841	0.9463	AveID		1.0693				16.6		35.0			
Perfluorododecanoic acid (PFDoA)	0.9379 1.0778	1.0369 1.0463	0.9589	0.9313	1.0723	AveID		1.0088				6.3		35.0			
Perfluorotridecanoic Acid (PFTriA)	0.9872 0.9303	0.9128 0.9480	0.9483	0.9147	0.9504	AveID		0.9417				2.7		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.2746 0.2735	0.2659 0.2640	0.2461	0.2469	0.2817	AveID		0.2647				5.2		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.6974 0.9518	1.4097 0.9494	1.0148	0.9618	0.9631	L2ID	0.0194	0.9532							0.9990		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	0.9959 0.9936	0.9427 0.9843	1.0120	1.0365	0.9646	AveID		0.9900				3.1		50.0			
13C4 PFBA	1.2587 1.3183	1.2180 1.4040	1.2620	1.3268	1.3152	Ave		1.3004				4.7		50.0			
13C5 PFPeA	0.9063 0.9224	0.8795 0.9829	0.9374	0.9349	0.9319	Ave		0.9279				3.4		50.0			
13C3-PFBS	0.0237 0.0269	0.0223 0.0276	0.0234	0.0243	0.0254	Ave		0.0248				7.8		50.0			
13C2 PFHxA	1.0018 0.9963	0.9412 1.0160	0.9921	1.0246	1.0140	Ave		0.9980				2.8		50.0			
13C4-PFHpA	0.9236 0.9517	0.9030 0.9629	0.9557	0.9372	0.9832	Ave		0.9453				2.8		50.0			
18O2 PFHxS	1.3342 1.3658	1.2817 1.3929	1.3394	1.2756	1.3348	Ave		1.3321				3.2		50.0			
M2-6:2FTS	0.2251 0.2455	0.2242 0.2401	0.2371	0.2459	0.2427	Ave		0.2372				3.8		50.0			
13C4 PFOA	0.9129 0.8990	0.8843 0.9025	0.9216	0.9096	0.9112	Ave		0.9059				1.3		50.0			
13C4 PFOS	0.8781 0.9543	0.8685 0.9923	0.9259	0.8690	0.9280	Ave		0.9166				5.2		50.0			
13C5 PFNA	0.6880 0.6975	0.6860 0.7078	0.6987	0.7078	0.7093	Ave		0.6993				1.4		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C8 FOSA	1.3416 1.3084	1.2721 1.3491	1.2893	1.3093	1.3530	Ave		1.3175				2.4		50.0			
M2-8:2FTS	0.2076 0.2238	0.2116 0.2168	0.2254	0.2110	0.2327	Ave		0.2184				4.2		50.0			
13C2 PFDA	0.5802 0.5737	0.5494 0.5813	0.5725	0.5793	0.5986	Ave		0.5764				2.5		50.0			
d3-NMeFOSAA	0.1536 0.1789	0.1611 0.1850	0.1626	0.1634	0.1762	Ave		0.1687				6.7		50.0			
d5-NEtFOSAA	0.1800 0.1753	0.1752 0.1871	0.1737	0.1723	0.1823	Ave		0.1780				3.0		50.0			
13C2 PFUnA	0.4474 0.4260	0.4352 0.4166	0.4641	0.4398	0.4558	Ave		0.4407				3.8		50.0			
13C2 PFDoA	0.4054 0.4162	0.3927 0.4483	0.4163	0.4222	0.4381	Ave		0.4199				4.5		50.0			
13C2-PFTeDA	0.3547 0.3704	0.3548 0.3941	0.3636	0.3683	0.3883	Ave		0.3706				4.2		50.0			
13C2-PFHxDA	0.4868 0.5157	0.4671 0.5633	0.4717	0.4828	0.5135	Ave		0.5001				6.7		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208660/2	2018.02.15LLICAL_002.d
Level 2	IC 320-208660/3	2018.02.15LLICAL_003.d
Level 3	IC 320-208660/4	2018.02.15LLICAL_004.d
Level 4	IC 320-208660/5	2018.02.15LLICALA_005.d
Level 5	IC 320-208660/6	2018.02.15LLICALA_006.d
Level 6	IC 320-208660/7	2018.02.15LLICALA_007.d
Level 7	IC 320-208660/8	2018.02.15LLICALA_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	56341 12057856	119741 22290648	588652	2414954	5686979	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	53044 10236942	122583 19290451	539464	2146647	4975289	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	77159 16142738	160858 27917989	806208	3238467	7594032	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	16476 2866992	31694 5472525	162437	647037	1409217	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	57372 9534761	105027 17125411	496136	1900651	4783696	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	48661 9591435	110489 17306560	501773	1940466	4639328	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	78715 12339995	145183 22693914	615839	2327250	5958917	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
6:2FTS		AveID	19406 3686899	38351 6739268	176678	752727	1735257	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	49591 9497642	95420 16997846	504254	2016237	4720913	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	55211 11534246	117546 20025386	566348	2175007	5376906	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanesulfonic acid (PFOS)		AveID	44998 9179603	88840 16829591	434989	1698515	4257556	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	32759 7042071	77282 12318792	361885	1398732	3338403	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2FTS		AveID	13684 2484459	27119 4507537	132305	510493	1231624	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorooctane Sulfonamide (FOSA)		AveID	58527 12529434	131388 21089893	654670	2498130	6399497	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanoic acid (PFDA)		AveID	28525 5344360	55222 9484568	277038	1123042	2686260	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	10387 1843893	19074 3539225	82575	316174	868194	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	27335 5919970	57699 10555415	280663	1057504	2779789	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	9068 1643793	16881 3063005	89887	312409	764993	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid (PFUnA)		AveID	29818 3963592	57174 7296815	241024	757359	1962886	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid (PFDoA)		AveID	18240 4294422	43543 7948969	201096	765815	2138246	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic Acid (PFTriA)		AveID	19198 3706809	38329 7201728	198888	752164	1895104	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	4672 969776	10088 1763312	45077	177127	497977	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	39637 4699221	70424 9061965	241108	904535	2250877	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	23256 4905987	47092 9395747	240450	974785	2254402	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PFOA	Ave	6037619 6310811	6512551 5947991	6357127	6461206	5986049	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PFOA	Ave	4347348 4415477	4702542 4164286	4722133	4552628	4241224	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3-PFBS	13PFOA	Ave	105616 119557	110976 108892	109546	110160	107540	2.33 2.33	2.33 2.33	2.33	2.33	2.33
13C2 PFHxA	13PFOA	Ave	4805429 4769108	5032796 4304355	4997686	4989617	4615171	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4-PFHpA	13PFOA	Ave	4429963 4555544	4828517 4079334	4814370	4564071	4474809	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PFOA	Ave	6054238 6184802	6483422 5582233	6382710	5876658	5746994	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2FTS	13PFOA	Ave	1025720 1116434	1138640 966489	1134578	1137721	1049312	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PFOA	Ave	4378987 4303628	4728440 3823432	4642472	4429606	4146971	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PFOA	Ave	4026378 4367328	4439791 4018963	4458927	4045688	4037623	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PFOA	Ave	3300225 3338701	3668248 2998617	3519598	3446732	3228387	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PFOA	Ave	6435180 6263072	6801836 5715623	6494526	6376224	6157928	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2FTS	13PFOA	Ave	953981 1026344	1083757 879981	1087739	984526	1014578	2.40 2.40	2.40 2.40	2.40	2.40	2.40

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	2782762 2746289	2937447 2462652	2883687	2820909	2724566	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	736860 856530	861327 783958	819198	795943	801910	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	863325 839234	936813 792580	874980	839239	829886	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2145870 2039243	2327088 1764989	2337703	2141615	2074291	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	1944725 1992225	2099643 1899251	2097244	2055837	1994033	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFTeDA	13PF OA	Ave	1701450 1773146	1896977 1669584	1831428	1793548	1767461	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFHxDA	13PF OA	Ave	2335115 2468689	2497756 2386294	2375962	2351088	2337216	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208660/2	2018.02.15LLICAL_002.d
Level 2	IC 320-208660/3	2018.02.15LLICAL_003.d
Level 3	IC 320-208660/4	2018.02.15LLICAL_004.d
Level 4	IC 320-208660/5	2018.02.15LLICALA_005.d
Level 5	IC 320-208660/6	2018.02.15LLICALA_006.d
Level 6	IC 320-208660/7	2018.02.15LLICALA_007.d
Level 7	IC 320-208660/8	2018.02.15LLICALA_008.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanoic acid (PFBA)	0.0	-1.8	-1.1	-0.2	1.5	2.0	25	25	25	25	25	25
Perfluoropentanoic acid (PFPeA)	-2.7	9.5	-4.1	-1.0	-1.5	-2.6	25	25	25	25	25	25
Perfluorobutanesulfonic acid (PFBS)	-9.3	2.5	4.1	4.0	-0.1	-4.5	25	25	25	25	25	25
4:2 FTS	-9.4	3.0	7.0	5.9	-5.5	-13.5	25	25	25	25	25	25
Perfluorohexanoic acid (PFHxA)	-3.5	1.3	-3.7	-7.6	0.6	-3.0	25	25	25	25	25	25
Perfluoroheptanoic acid (PFHpA)	-1.0	6.8	-2.7	-0.8	-3.2	-1.7	25	25	25	25	25	25
Perfluorohexanesulfonic acid (PFHxS)	-4.2	5.5	-9.0	-6.7	-2.3	-6.0	25	25	25	25	25	25
6:2FTS	3.1	-0.4	-7.9	-2.2	-2.2	-2.3	25	25	25	25	25	25
Perfluorooctanoic acid (PFOA)	0.8	-8.5	-1.5	3.2	3.2	0.1	25	25	25	25	25	25
Perfluoroheptanesulfonic Acid (PFHpS)	-5.3	0.6	-3.4	2.2	1.2	0.4	25	25	25	25	25	25
Perfluorooctanesulfonic acid (PFOS)	0.4	-4.0	-6.4	0.7	1.2	0.8	25	25	25	25	25	25
Perfluorononanoic acid (PFNA)	-0.2	2.3	-0.1	-1.4	0.5	2.5	25	25	25	25	25	25
8:2FTS	0.7	-1.6	-4.4	1.9	-4.6	-4.8	25	25	25	25	25	25
Perfluorooctane Sulfonamide (FOSA)	-5.4	-0.9	3.4	0.5	6.6	2.6	25	25	25	25	25	25
Perfluorodecanoic acid (PFDA)	-1.5	-3.8	-1.7	1.8	0.9	-0.5	25	25	25	25	25	25

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.2	-0.7	-9.6	-10.9	-2.9	-3.5	25	25	25	25	25	25
Perfluorodecanesulfonic acid (PFDS)	-0.8	-1.9	-4.9	-1.3	4.0	2.4	25	25	25	25	25	25
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	-0.2	-6.9	6.1	-3.9	-4.8	1.2	25	25	25	25	25	25
Perfluoroundecanoic acid (PFUnA)	-3.3	14.9	-3.6	-17.3	-11.5	-9.1	25	25	25	25	25	25
Perfluorododecanoic acid (PFDoA)	3.7	2.8	-4.9	-7.7	6.3	6.8	25	25	25	25	25	25
Perfluorotridecanoic Acid (PFTriA)	0.7	-3.1	0.7	-2.9	0.9	-1.2	25	25	25	25	25	25
Perfluorotetradecanoic acid (PFTeA)	-0.2	0.5	-7.0	-6.7	6.4	3.3	25	25	25	25	25	25
Perfluoro-n-hexadecanoic acid (PFHxDA)	-0.6	7.2	-1.7	-1.1	0.2	-0.6	25	25	25	25	25	25
Perfluoro-n-octadecanoic acid (PFODA)	-0.6	-4.8	2.2	4.7	-2.6	0.4	25	25	25	25	25	25

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Lims ID: IC L1 Full
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 15-Feb-2018 14:00:20 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L1-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:23 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: roycea Date: 15-Feb-2018 15:23:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.395	1.401	-0.006	0.536	6037619	2.42		96.8	72296	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.401	1.404	-0.003	1.004	56341	0.0249		99.6	13.3	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.644	1.648	-0.004	0.632	4347348	2.44		97.7	72782	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.644	1.649	-0.005	1.000	53044	0.0256		102	13.9	M
D 47 13C3-PFBS										
301.90 > 83.00	1.679	1.680	-0.001	0.646	105616	2.22		95.5	2403	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.679	1.683	-0.004	1.000	77159	0.0228		103	938	
298.90 > 99.00	1.679	1.683	-0.004	1.000	30340		2.54(1.25-3.74)	103	416	
D 60 M2-4:2FTS										
329.00 > 81.00	1.883	1.891	-0.008	0.724	678992	NC			9458	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.883	1.891	-0.008	1.000	16476	0.0263		113	753	
D 7 13C2 PFHxA										
315.00 > 270.00	1.922	1.925	-0.003	0.739	4805429	2.51		100	118453	
6 Perfluorohexanoic acid										RM
313.00 > 269.00	1.922	1.926	-0.004	1.000	57372	0.0290		116	137	R
313.00 > 119.00	1.912	1.926	-0.014	0.995	3570		16.07(5.03-15.10)	116	39.1	M
D 9 13C4-PFHpA										
367.00 > 322.00	2.238	2.251	-0.013	0.861	4429963	2.44		97.7	80019	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.238	2.251	-0.013	1.000	48661	0.0256		103	50.1	
363.00 > 169.00	2.238	2.251	-0.013	1.000	19585		2.48(1.13-3.40)	103	139	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.251	2.262	-0.011	1.000	78715	0.0279		123	381	
399.00 > 99.00	2.251	2.262	-0.011	1.000	23130		3.40(1.50-4.49)	123	78.8	
D 11 18O2 PFHxS										
403.00 > 84.00	2.251	2.264	-0.013	0.866	6054238	2.37		100	81280	
D 12 M2-6:2FTS										
429.00 > 81.00	2.574	2.588	-0.014	0.990	1025720	2.25		94.9	26120	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.581	2.589	-0.008	1.003	19406	0.0265		112	1113	
D 14 13C4 PFOA										
417.00 > 372.00	2.601	2.614	-0.013	1.000	4378987	2.52		101	115012	
* 62 13C2-PFOA										
415.00 > 370.00	2.601	2.614	-0.013		4796595	2.50			87103	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.601	2.614	-0.013	1.000	49591	0.0257		103	5.6	M
413.00 > 169.00	2.607	2.614	-0.007	1.002	28013		1.77(0.84-2.52)	103	7.3	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.607	2.620	-0.013	1.000	55211	0.0248		104	1094	
449.00 > 99.00	2.614	2.620	-0.006	1.003	15310		3.61(1.94-5.82)	104	271	
D 18 13C4 PFOS										
503.00 > 80.00	2.967	2.981	-0.014	1.141	4026378	2.29		95.8	66594	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.967	2.982	-0.015	1.000	44998	0.0249		107	264	
499.00 > 99.00	2.967	2.982	-0.015	1.000	9436		4.77(2.31-6.93)	107	78.5	M
D 19 13C5 PFNA										
468.00 > 423.00	2.967	2.983	-0.016	1.141	3300225	2.46		98.4	66711	
20 Perfluorononanoic acid										M
463.00 > 419.00	2.967	2.983	-0.016	1.000	32759	0.0241		96.4	41.3	M
463.00 > 169.00	2.967	2.983	-0.016	1.000	9009		3.64(1.90-5.69)	96.4	267	
D 21 13C8 FOSA										
506.00 > 78.00	3.330	3.330	0.0	1.280	6435180	2.55		102	67006	
D 26 M2-8:2FTS										
529.00 > 81.00	3.315	3.330	-0.015	1.274	953981	2.28		95.1	26031	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.315	3.330	-0.015	1.000	13684	0.0270		113	720	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.330	3.333	-0.003	1.000	58527	0.0233		93.3	1034	
D 23 13C2 PFDA										
515.00 > 470.00	3.330	3.340	-0.010	1.280	2782762	2.52		101	34649	
24 Perfluorodecanoic acid										M
513.00 > 469.00	3.330	3.341	-0.011	1.000	28525	0.0262		105	115	
513.00 > 169.00	3.330	3.341	-0.011	1.000	4707		6.06(2.36-7.09)	105	130	M
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.481	3.493	-0.012	1.339	736860	2.28		91.1	22341	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.481	3.497	-0.016	1.000	10387	0.0316		126	123	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.634	3.648	-0.014	1.000	27335	0.0247		103	870	
599.00 > 99.00	3.634	3.648	-0.014	1.000	8340		3.28(1.39-4.16)	103	161	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.648	3.660	-0.012	1.403	863325	2.53		101	2121	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.648	3.666	-0.018	1.000	9068	0.0271		108	289	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.655	3.668	-0.013	1.000	29818	0.0325		130	75.8	
563.00 > 169.00	3.655	3.668	-0.013	1.000	6414		4.65(0.00-0.00)	130	440	
D 30 13C2 PFUnA										
565.00 > 520.00	3.655	3.669	-0.014	1.405	2145870	2.54		102	55162	
D 36 13C2 PFDoA										
615.00 > 570.00	3.941	3.960	-0.019	1.515	1944725	2.41		96.6	20732	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.951	3.961	-0.010	1.003	18240	0.0232		93.0	34.8	
613.00 > 169.00	3.941	3.961	-0.020	1.000	3987		4.57(2.13-6.40)	93.0	232	
41 Perfluorotridecanoic acid										R
663.00 > 619.00	4.203	4.221	-0.018	1.000	19198	0.0262		105	40.9	R
663.00 > 169.00	4.203	4.221	-0.018	1.000	4742		4.05(1.25-3.76)	105	157	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.443	4.459	-0.016	1.708	1701450	2.39		95.7	19999	
42 Perfluorotetradecanoic acid										M
713.00 > 169.00	4.443	4.459	-0.016	1.000	4672	0.0259		104	232	
713.00 > 219.00	4.432	4.459	-0.027	0.997	3716		1.26(0.71-2.13)	104	109	M
D 44 13C2-PFHxDA										
815.00 > 770.00	4.841	4.867	-0.026	1.861	2335115	2.43		97.3	15386	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.851	4.871	-0.020	1.002	39637	0.0242		96.6	14.5	
813.00 > 169.00	4.841	4.871	-0.030	1.000	7481		5.30(2.86-8.58)	96.6	199	
46 Perfluorooctadecanoic acid										M
913.00 > 869.00	5.185	5.216	-0.031	1.000	23256	0.0252		101	5.9	
913.00 > 169.00	5.185	5.216	-0.031	1.000	3022		7.70(0.00-0.00)	101	36.6	M

QC Flag Legend

Processing Flags

NC - Not Calibrated

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL1_00003 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:24 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d

Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N

Lims ID: IC L1 Full

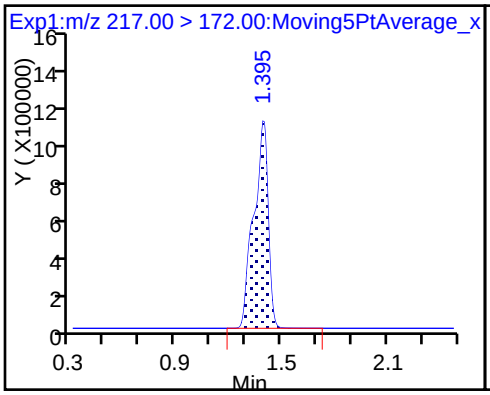
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2

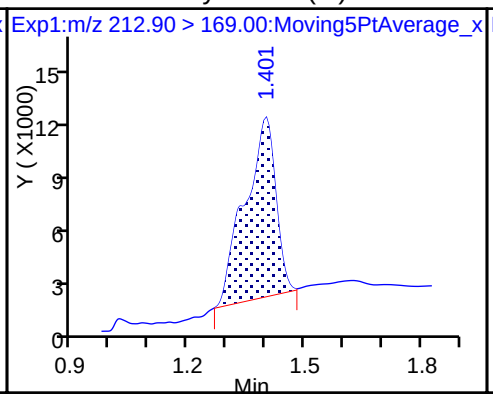
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

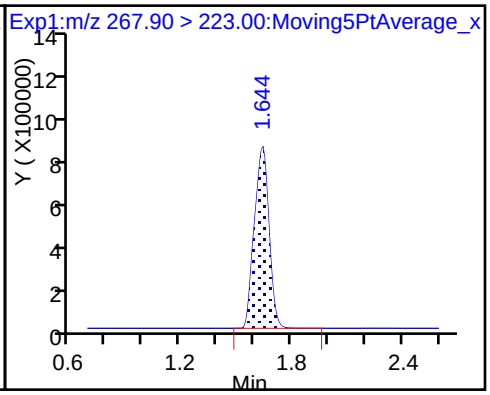
D 1 13C4 PFBA



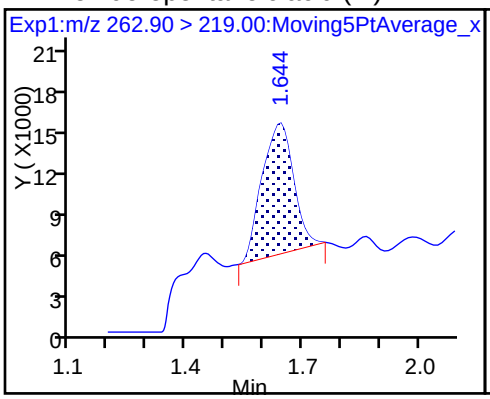
2 Perfluorobutyric acid (M)



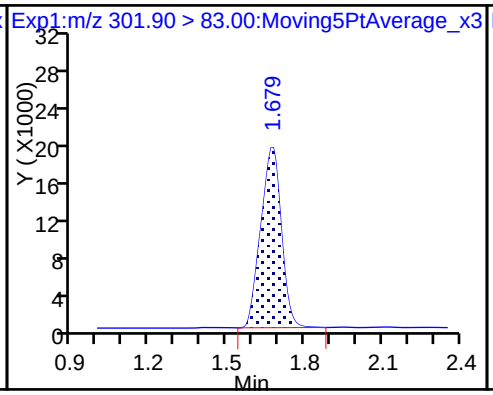
D 3 13C5-PFPeA



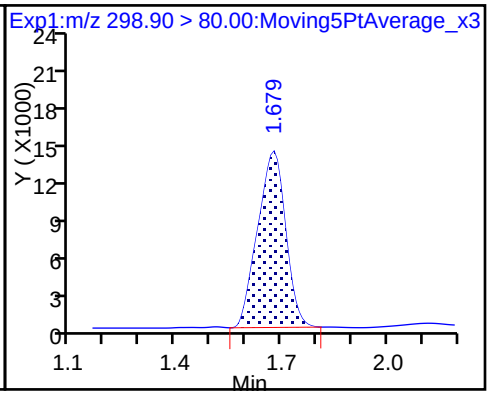
4 Perfluoropentanoic acid (M)



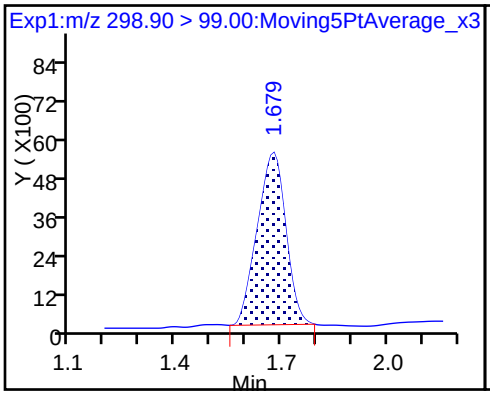
D 47 13C3-PFBS



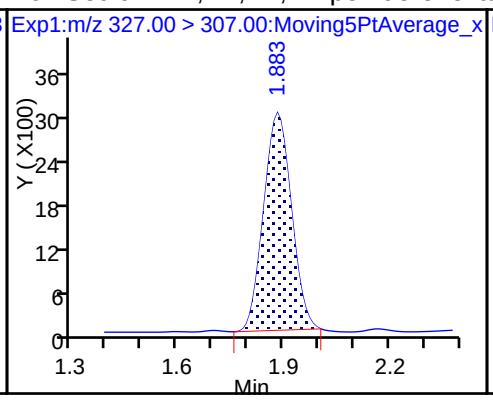
5 Perfluorobutanesulfonic acid



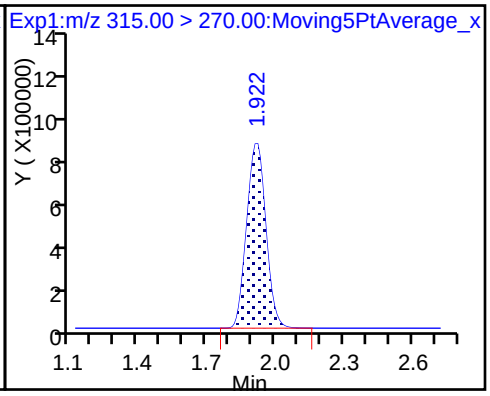
5 Perfluorobutanesulfonic acid



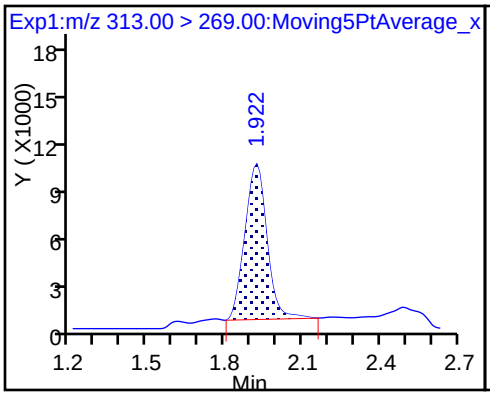
61 Sodium 1H,1H,2H,2H-perfluorohexa



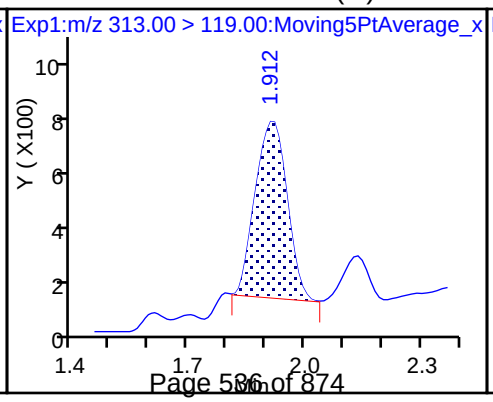
D 7 13C2 PFHxA



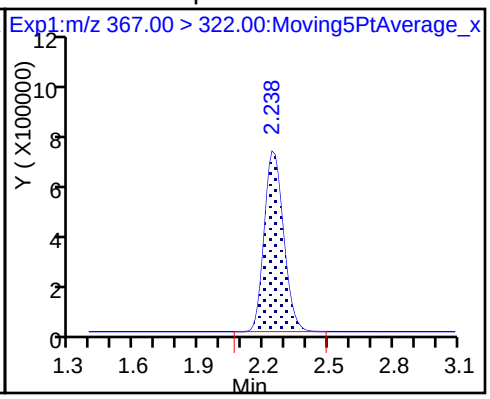
6 Perfluorohexanoic acid



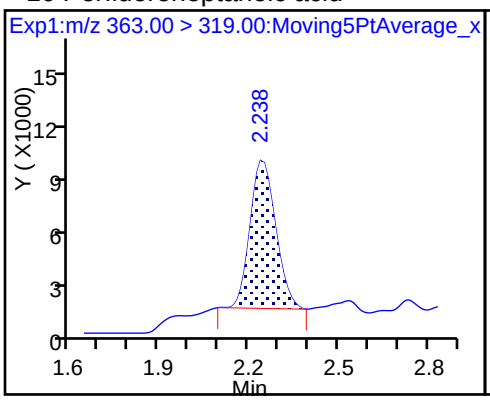
6 Perfluorohexanoic acid (M)



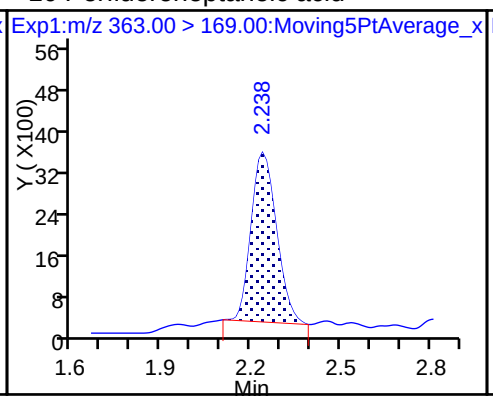
D 9 13C4-PFHpA



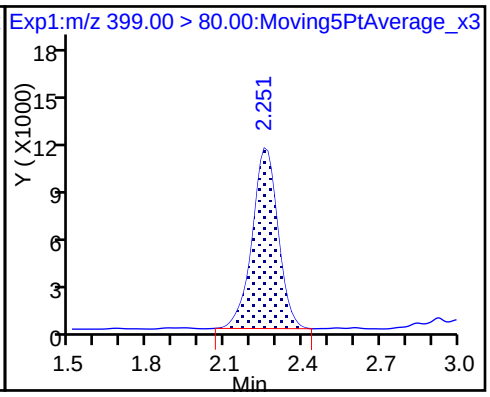
10 Perfluoroheptanoic acid



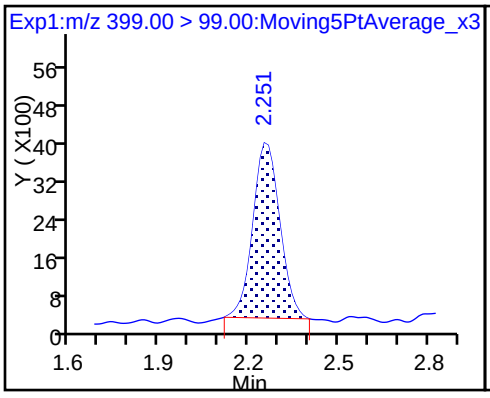
10 Perfluoroheptanoic acid



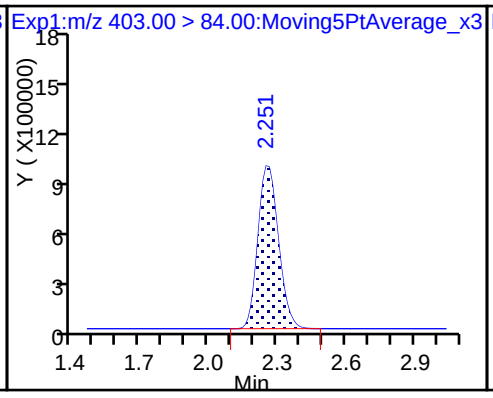
8 Perfluorohexanesulfonic acid



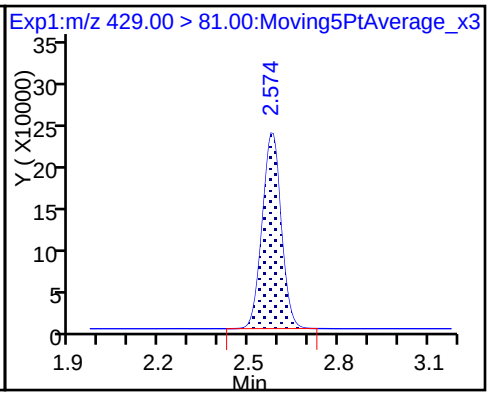
8 Perfluorohexanesulfonic acid



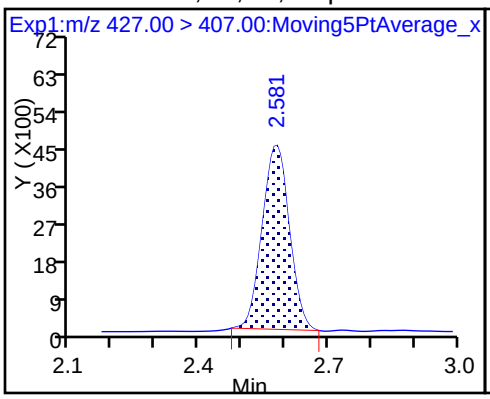
D 11 18O2 PFHxS



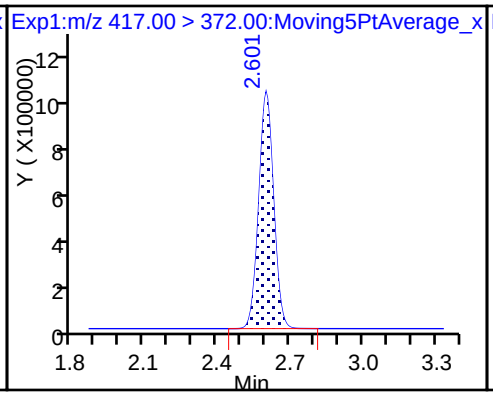
D 12 M2-6:2FTS



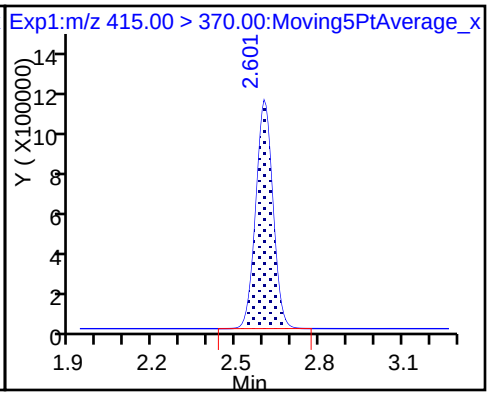
13 Sodium 1H,1H,2H,2H-perfluorooctane



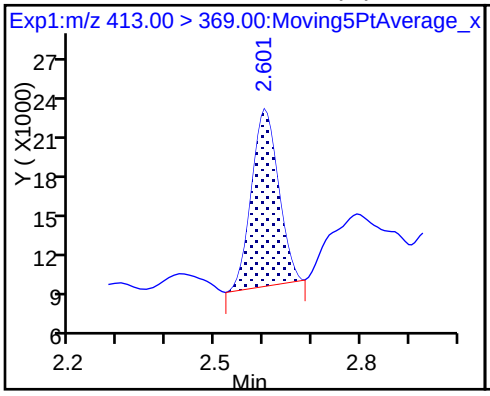
D 14 13C4 PFOA



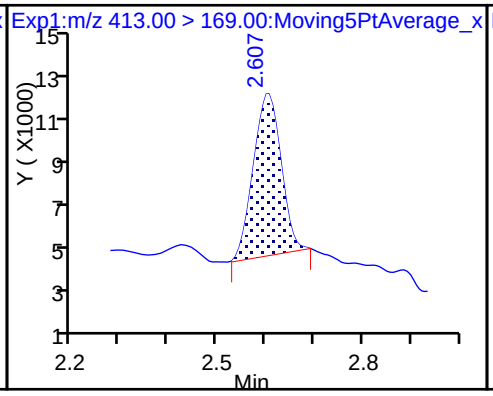
* 62 13C2-PFOA



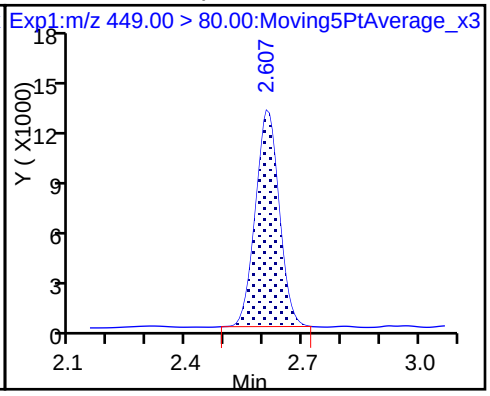
15 Perfluorooctanoic acid (M)



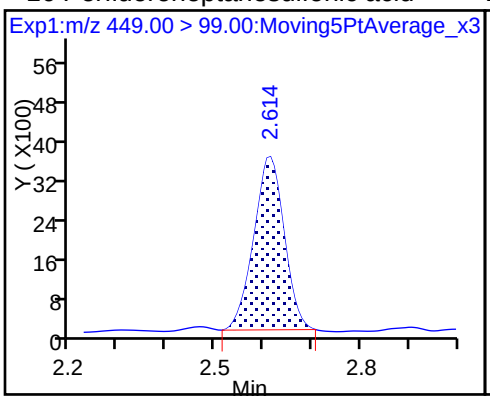
15 Perfluorooctanoic acid



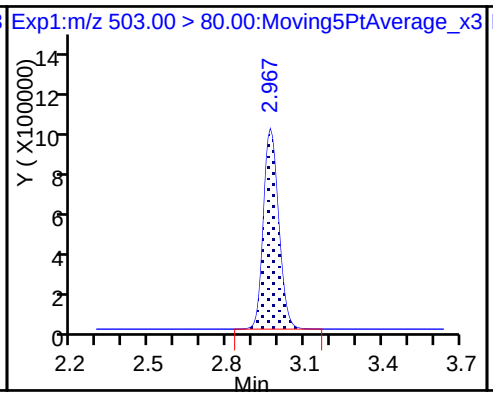
16 Perfluoroheptanesulfonic acid



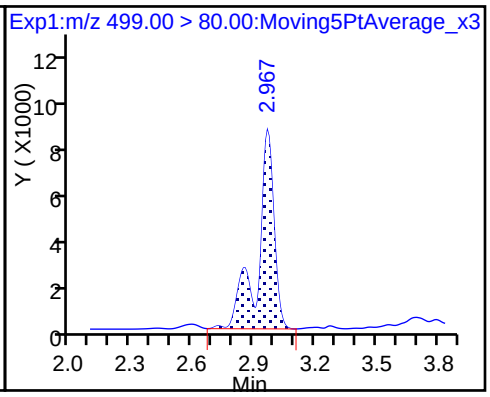
16 Perfluoroheptanesulfonic acid



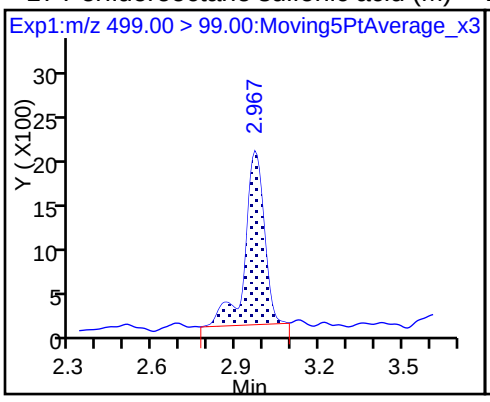
D 18 13C4 PFOS



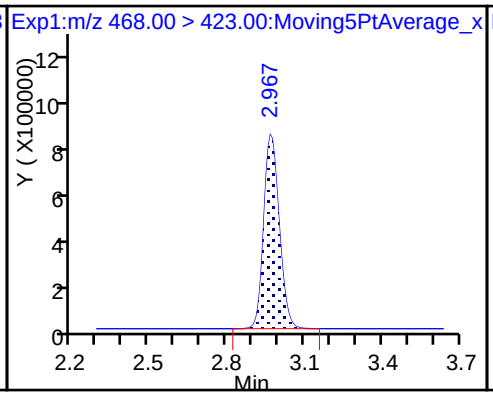
17 Perfluorooctane sulfonic acid



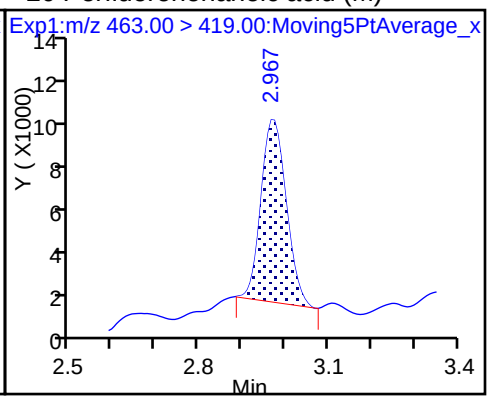
17 Perfluorooctane sulfonic acid (M)



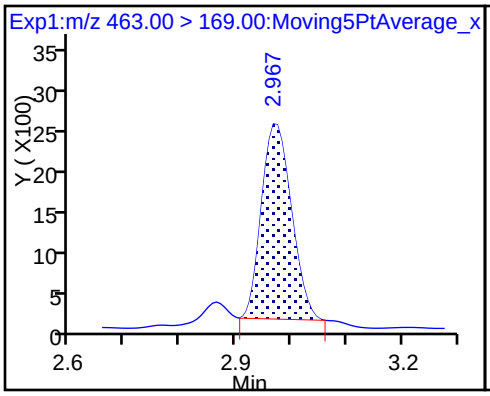
D 19 13C5 PFNA



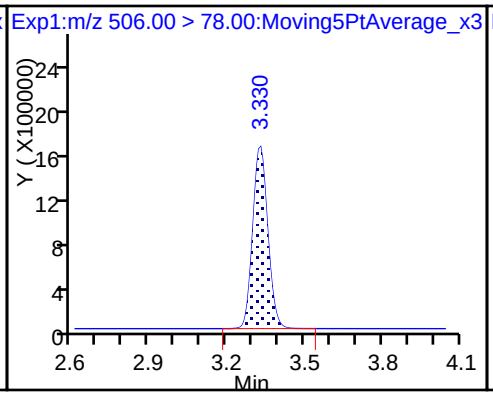
20 Perfluorononanoic acid (M)



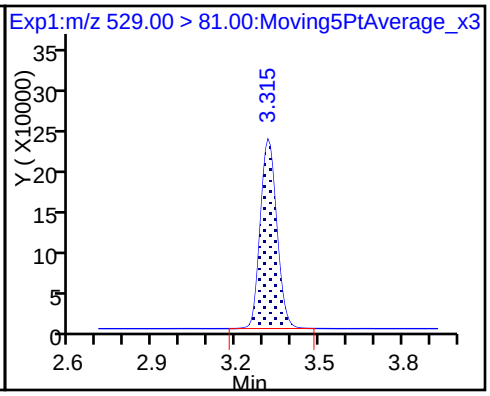
20 Perfluorononanoic acid



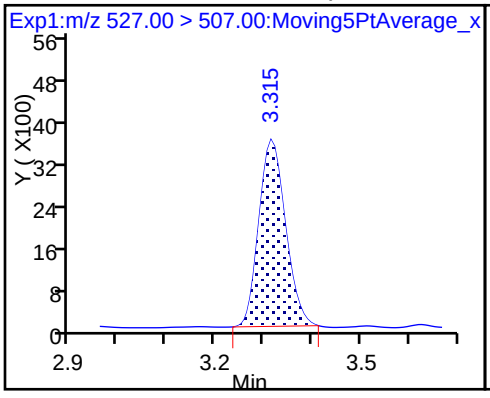
D 21 13C8 FOSA



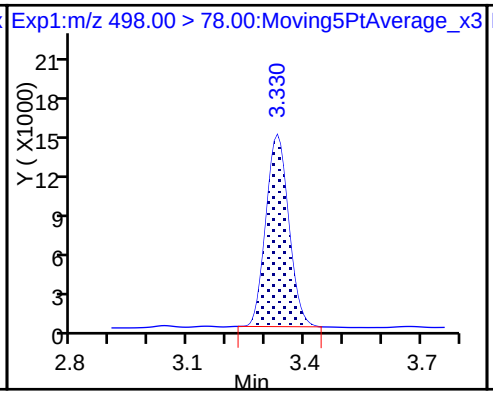
D 26 M2-8:2FTS



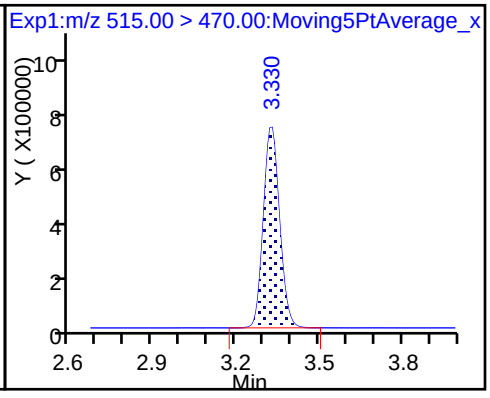
25 Sodium 1H,1H,2H,2H-perfluorodecane



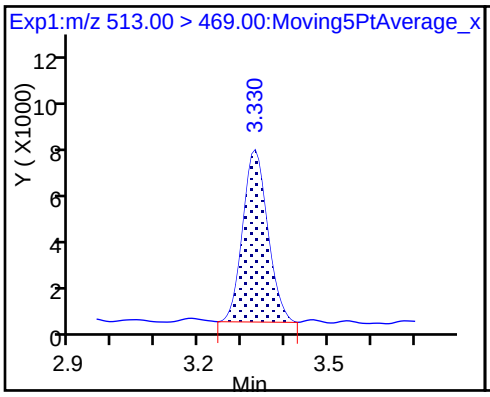
22 Perfluorooctane Sulfonamide



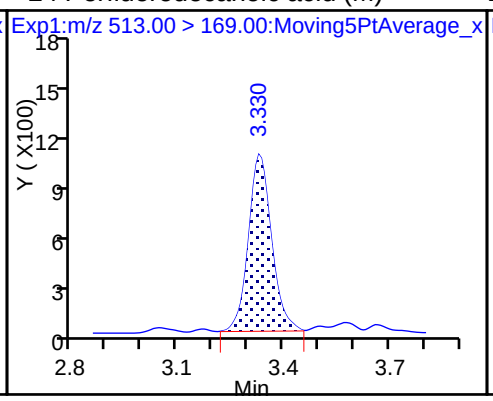
D 23 13C2 PFDA



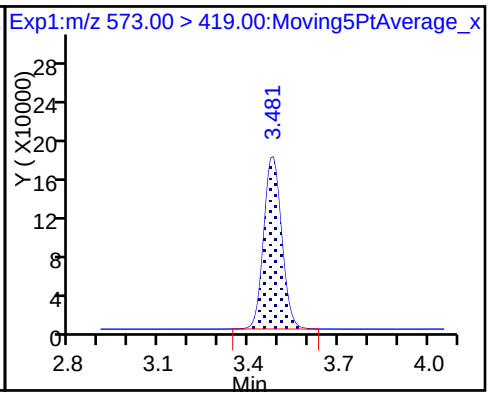
24 Perfluorodecanoic acid



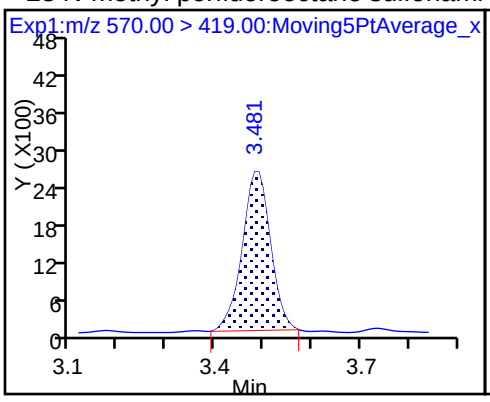
24 Perfluorodecanoic acid (M)



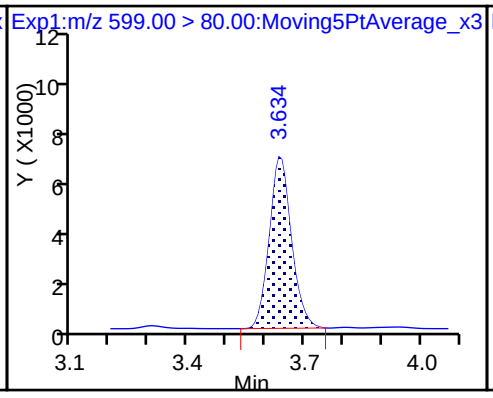
D 27 d3-NMeFOSAA



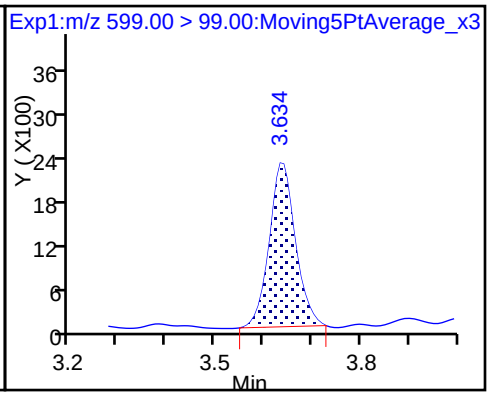
28 N-methyl perfluorooctane sulfonami



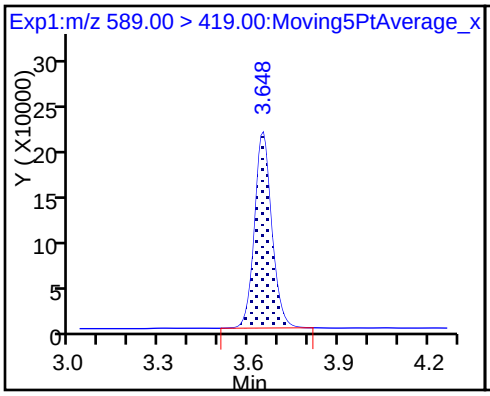
29 Perfluorodecane Sulfonic acid



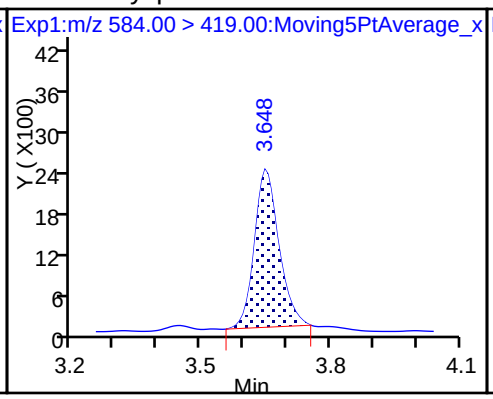
29 Perfluorodecane Sulfonic acid



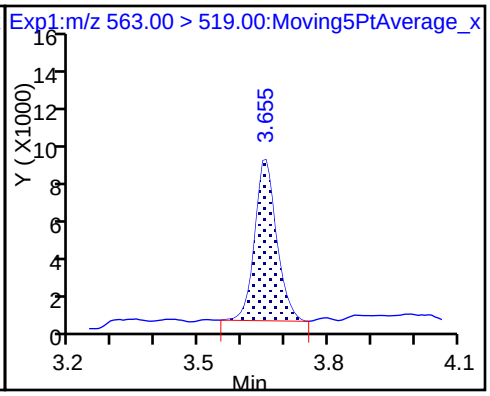
D 32 d5-NEtFOSAA



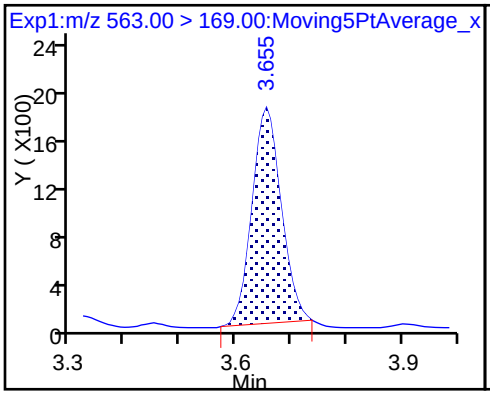
33 N-ethyl perfluorooctane sulfonamid



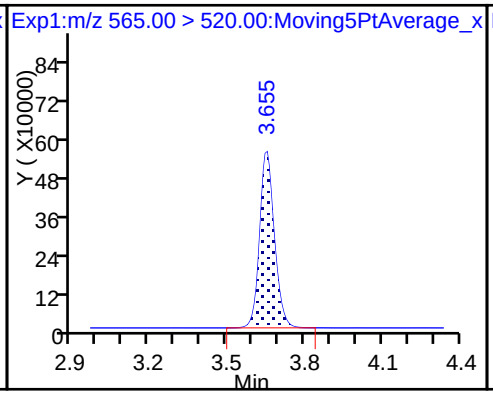
31 Perfluoroundecanoic acid



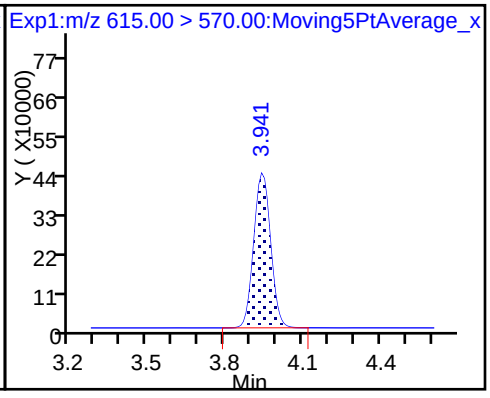
31 Perfluoroundecanoic acid



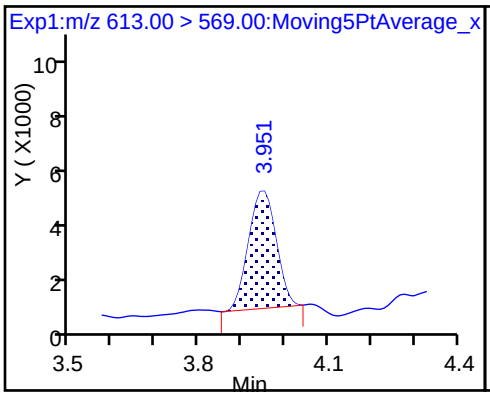
D 30 13C2 PFUnA



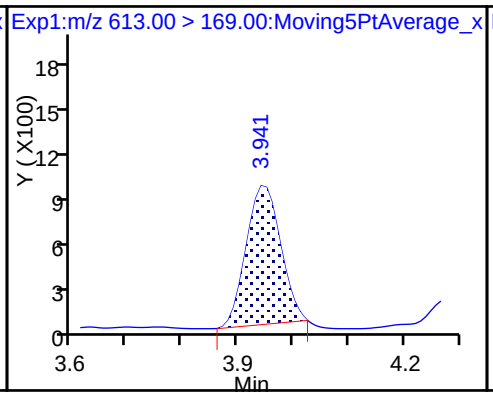
D 36 13C2 PFDoA



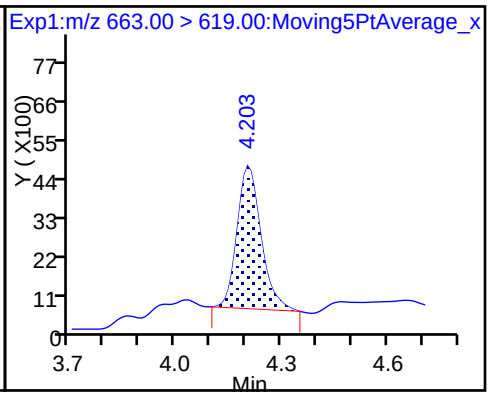
37 Perfluorododecanoic acid



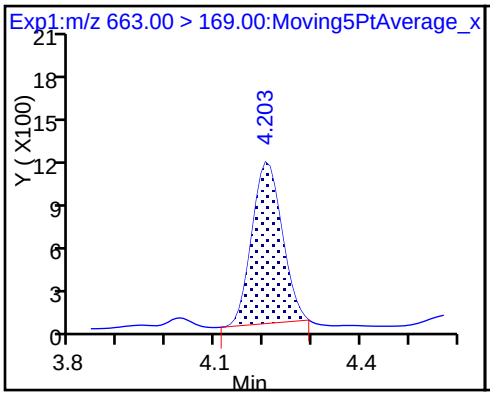
37 Perfluorododecanoic acid



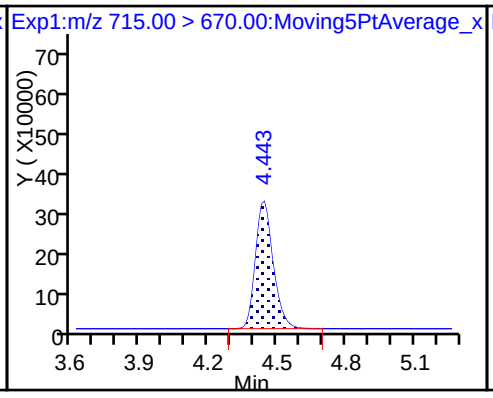
41 Perfluorotridecanoic acid



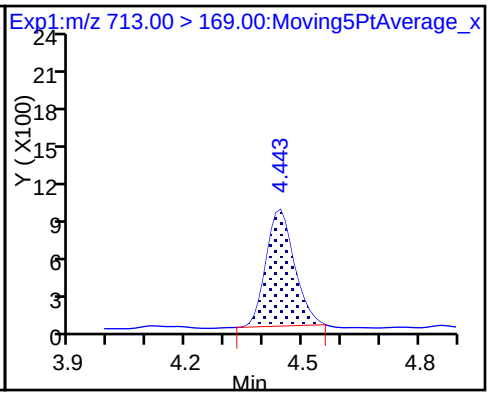
41 Perfluorotridecanoic acid



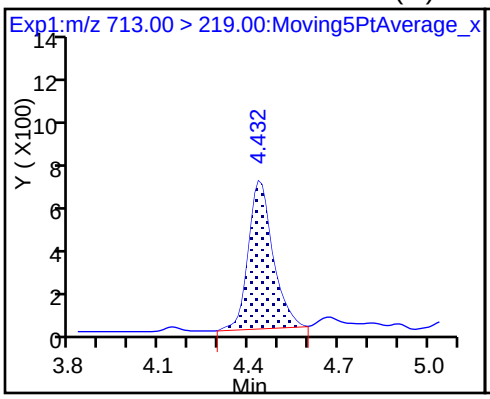
D 43 13C2-PFTeDA



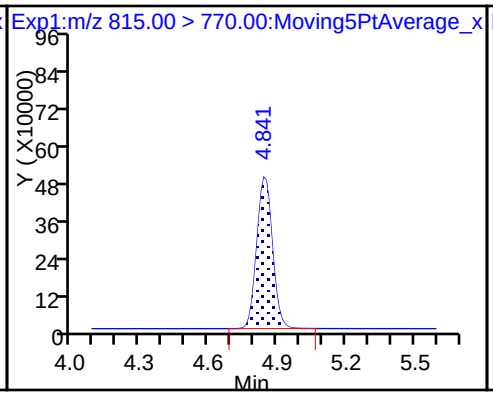
42 Perfluorotetradecanoic acid



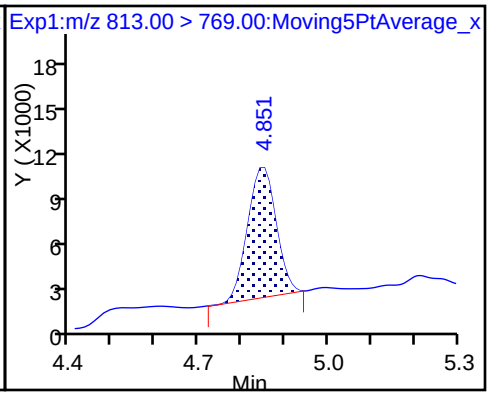
42 Perfluorotetradecanoic acid (M)



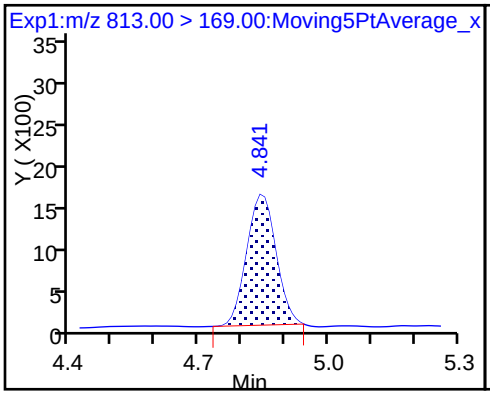
D 44 13C2-PFHxDA



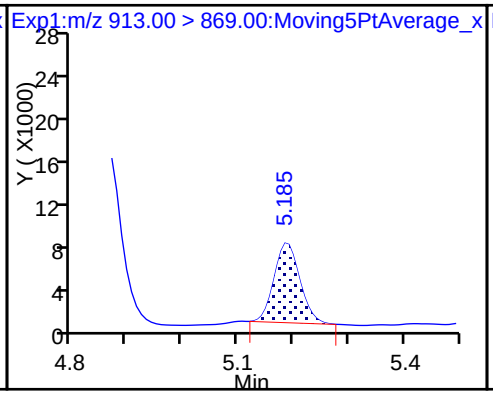
45 Perfluorohexadecanoic acid



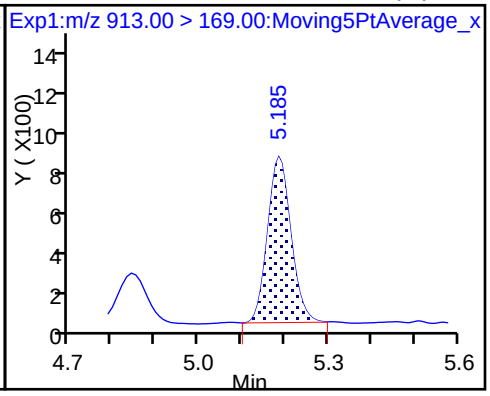
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

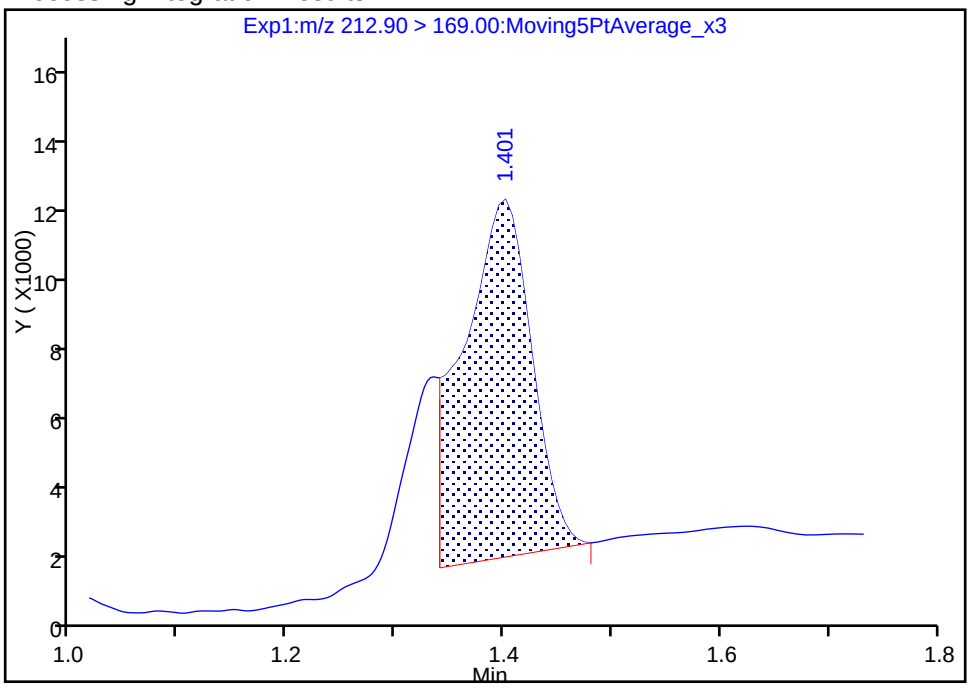
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

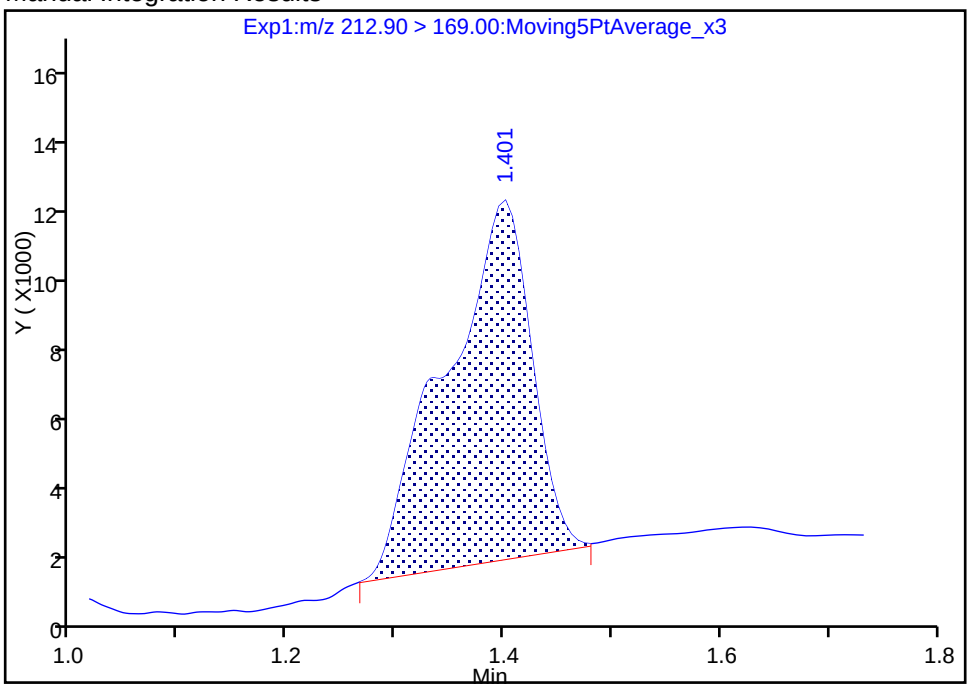
Processing Integration Results

RT: 1.40
Area: 44193
Amount: 0.020844
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 56341
Amount: 0.024912
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:21:08
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

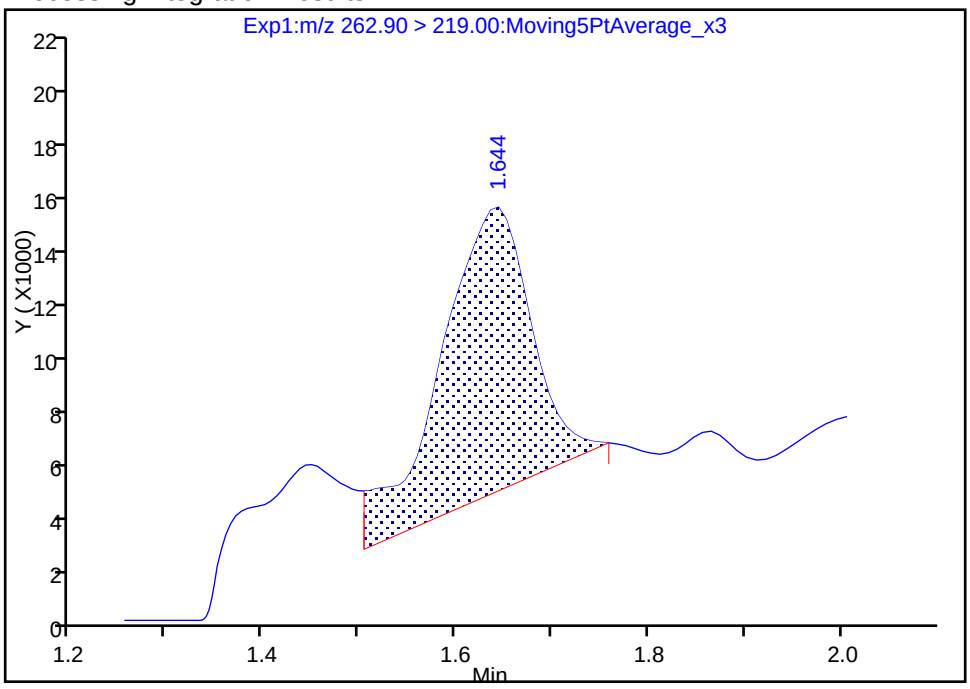
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

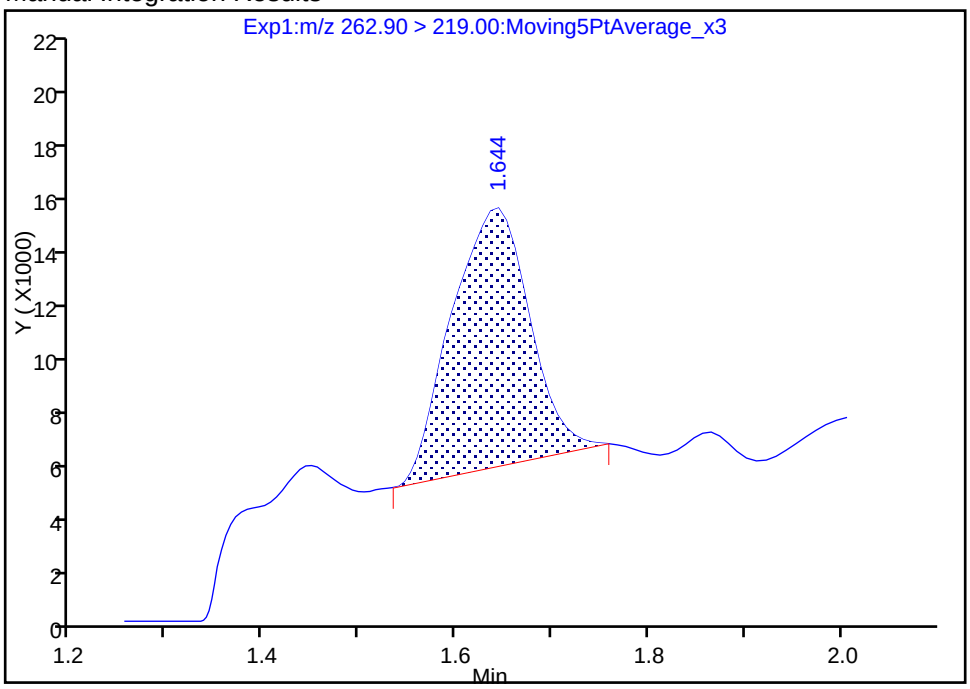
Processing Integration Results

RT: 1.64
Area: 68720
Amount: 0.028321
Amount Units: ng/ml



Manual Integration Results

RT: 1.64
Area: 53044
Amount: 0.025618
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:21:35
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

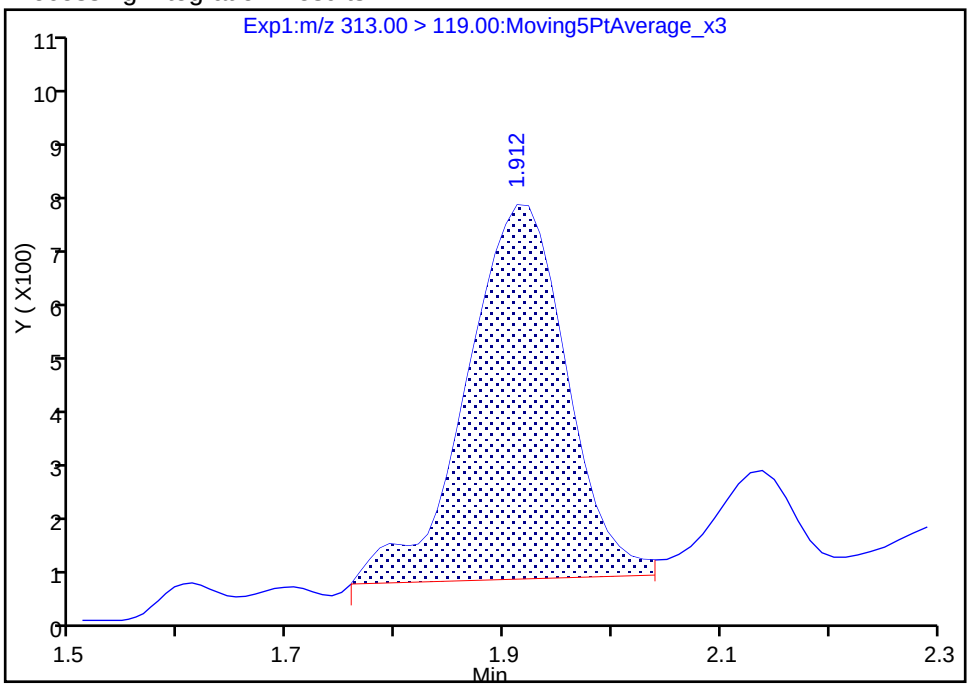
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 2

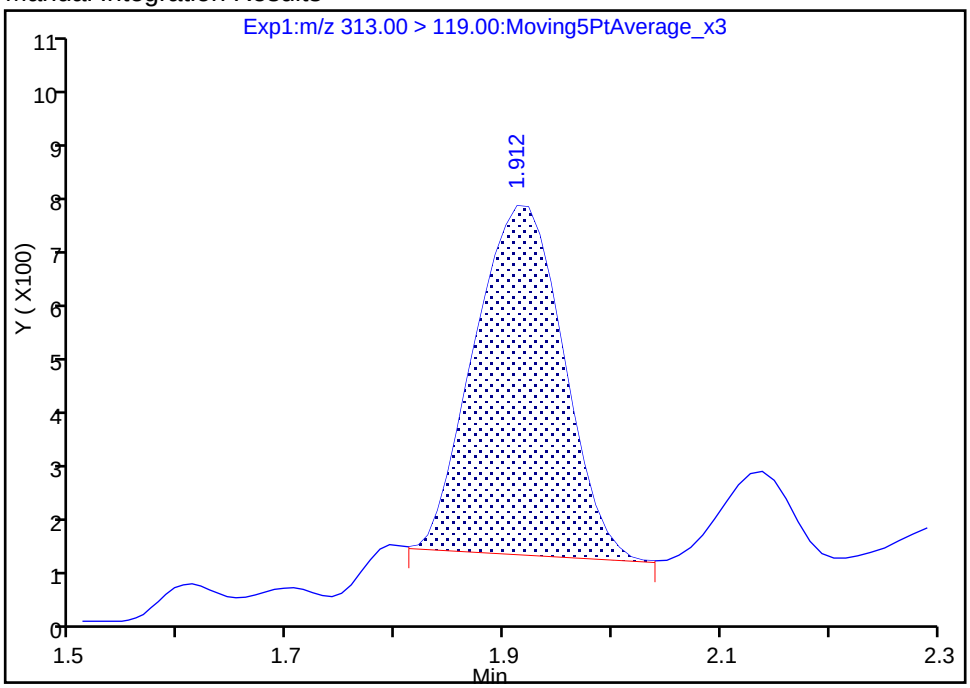
Processing Integration Results

RT: 1.91
Area: 4316
Amount: 0.027652
Amount Units: ng/ml



Manual Integration Results

RT: 1.91
Area: 3570
Amount: 0.028965
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:21:54
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

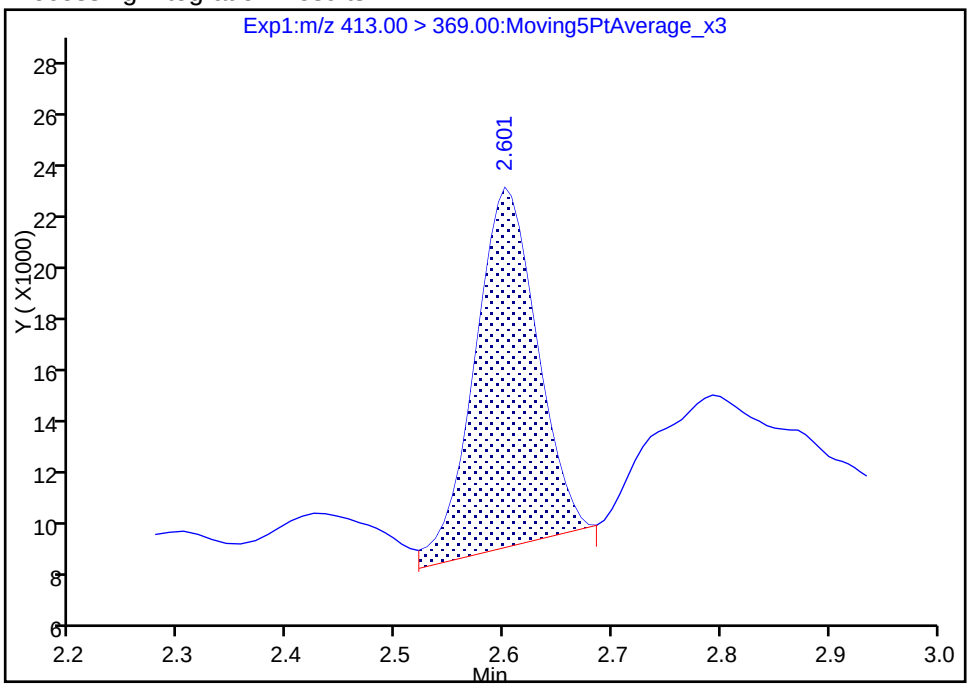
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

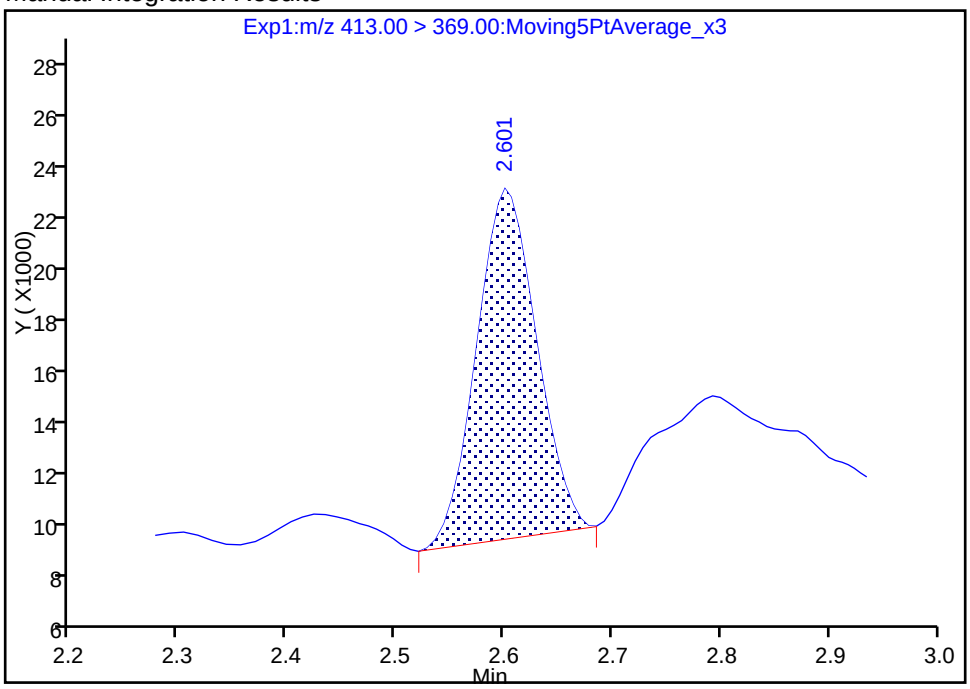
Processing Integration Results

RT: 2.60
Area: 52800
Amount: 0.024259
Amount Units: ng/ml



Manual Integration Results

RT: 2.60
Area: 49591
Amount: 0.025675
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:20:34
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

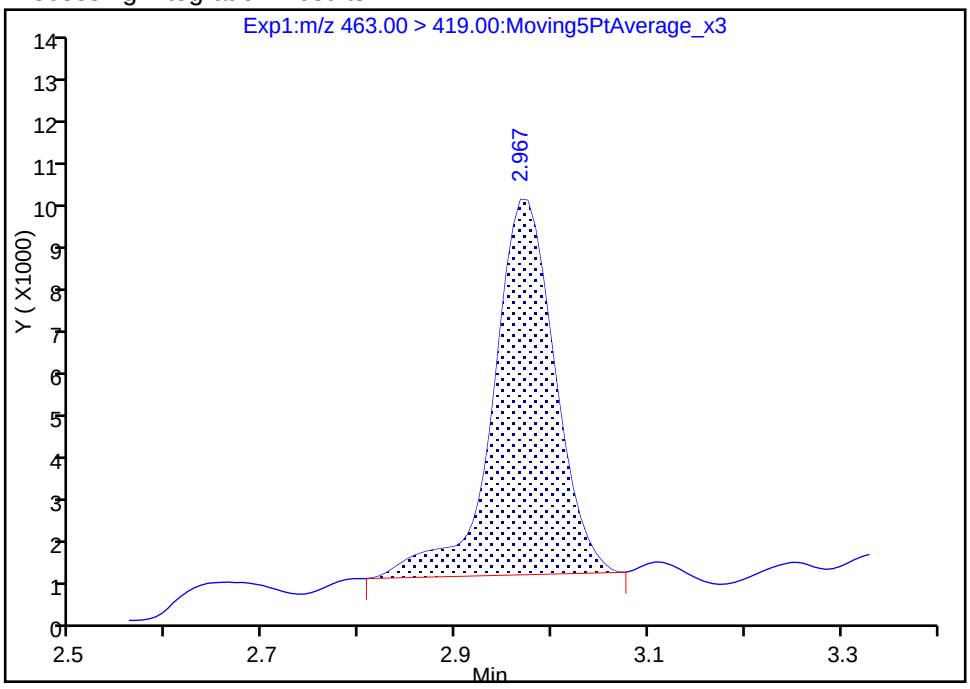
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

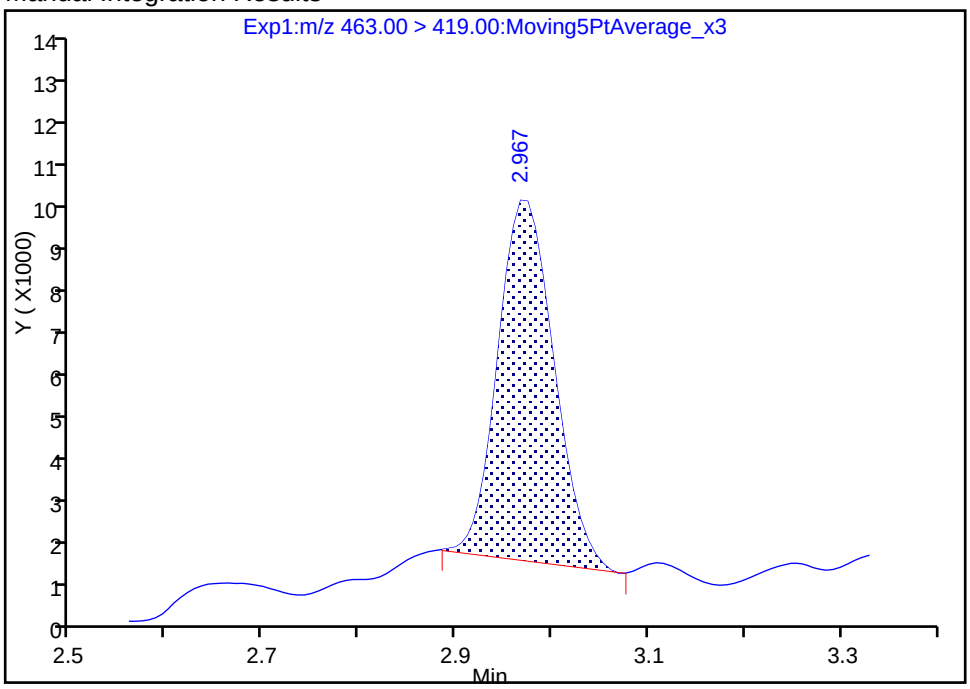
Processing Integration Results

RT: 2.97
Area: 37796
Amount: 0.027002
Amount Units: ng/ml



Manual Integration Results

RT: 2.97
Area: 32759
Amount: 0.024111
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:22:15
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

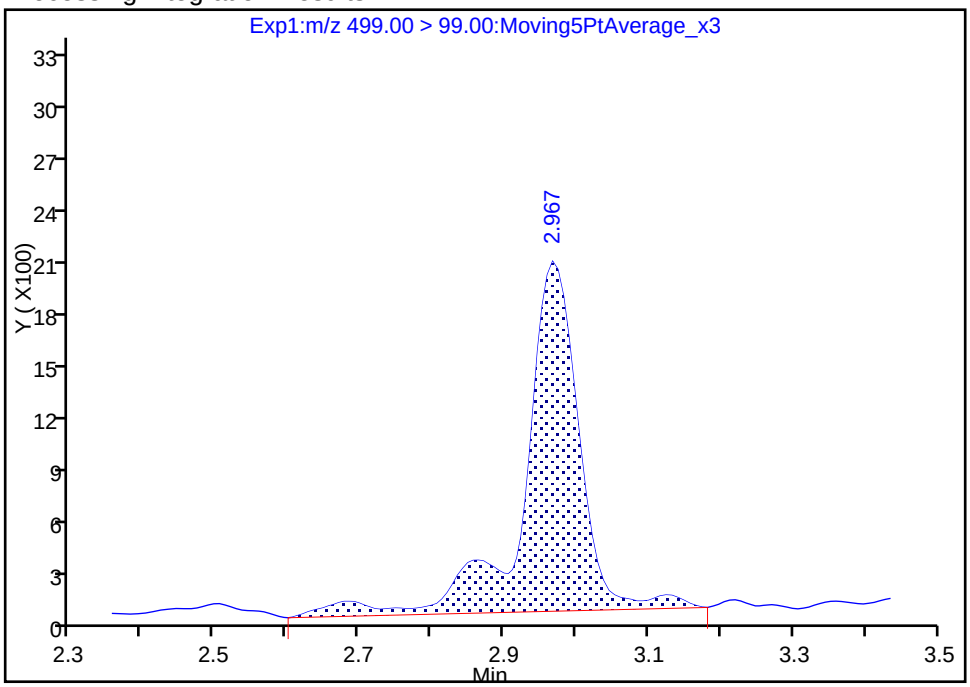
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

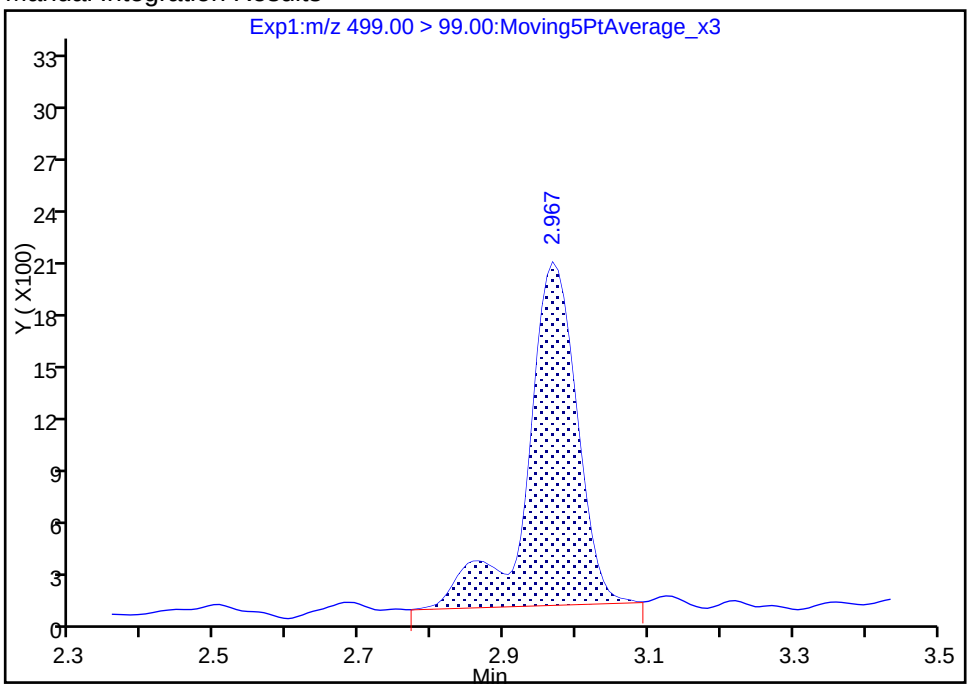
Processing Integration Results

RT: 2.97
Area: 10881
Amount: 0.025032
Amount Units: ng/ml



Manual Integration Results

RT: 2.97
Area: 9436
Amount: 0.024878
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:20:49
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

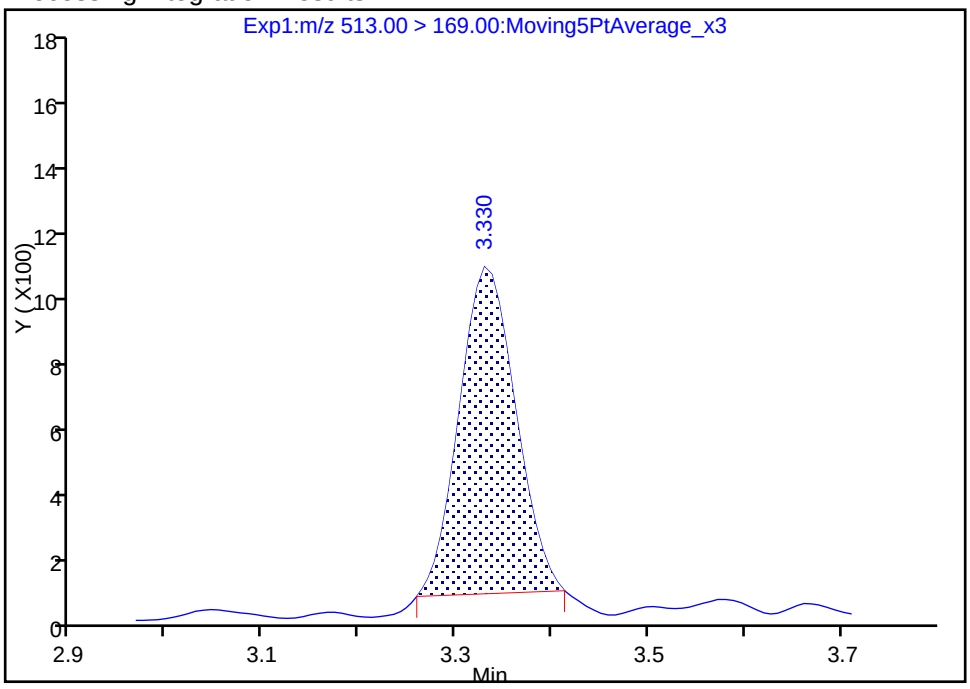
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

24 Perfluorodecanoic acid, CAS: 335-76-2

Signal: 2

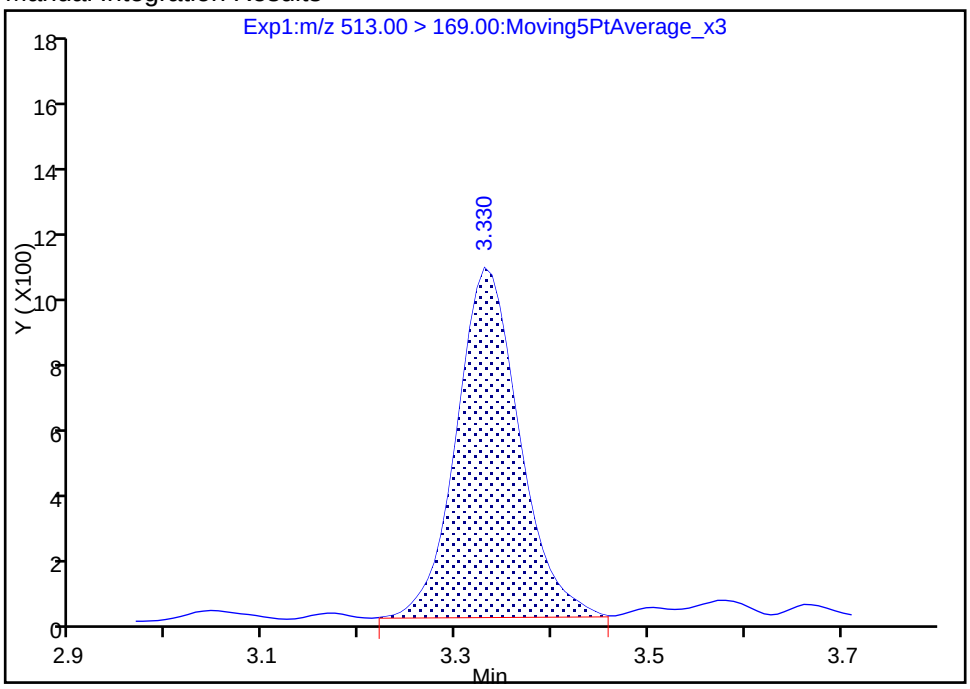
Processing Integration Results

RT: 3.33
Area: 3939
Amount: 0.026143
Amount Units: ng/ml



Manual Integration Results

RT: 3.33
Area: 4707
Amount: 0.026215
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:23:05
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

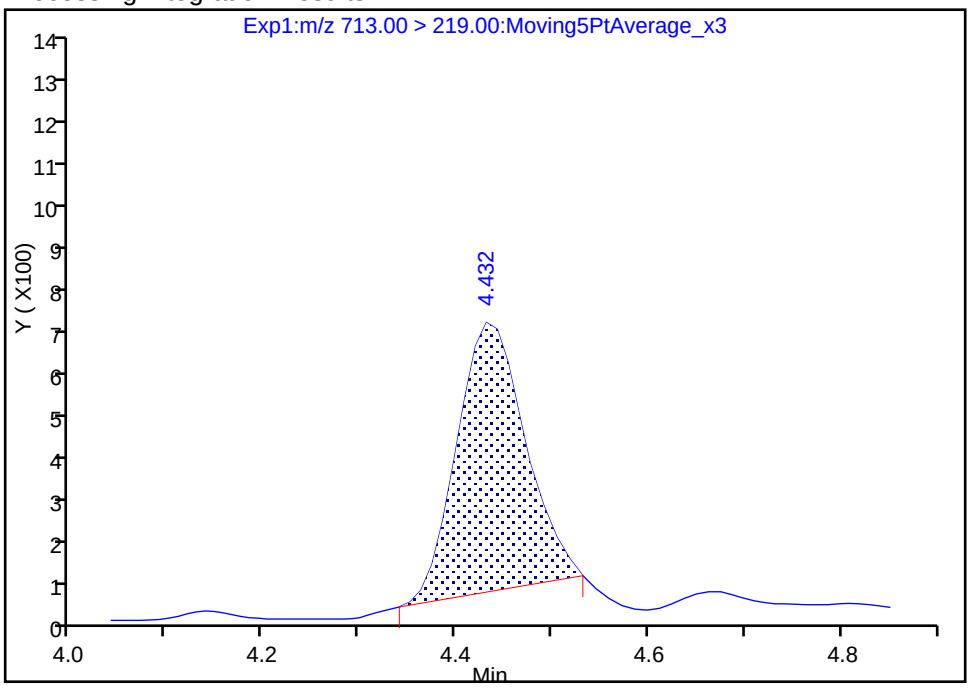
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

42 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 2

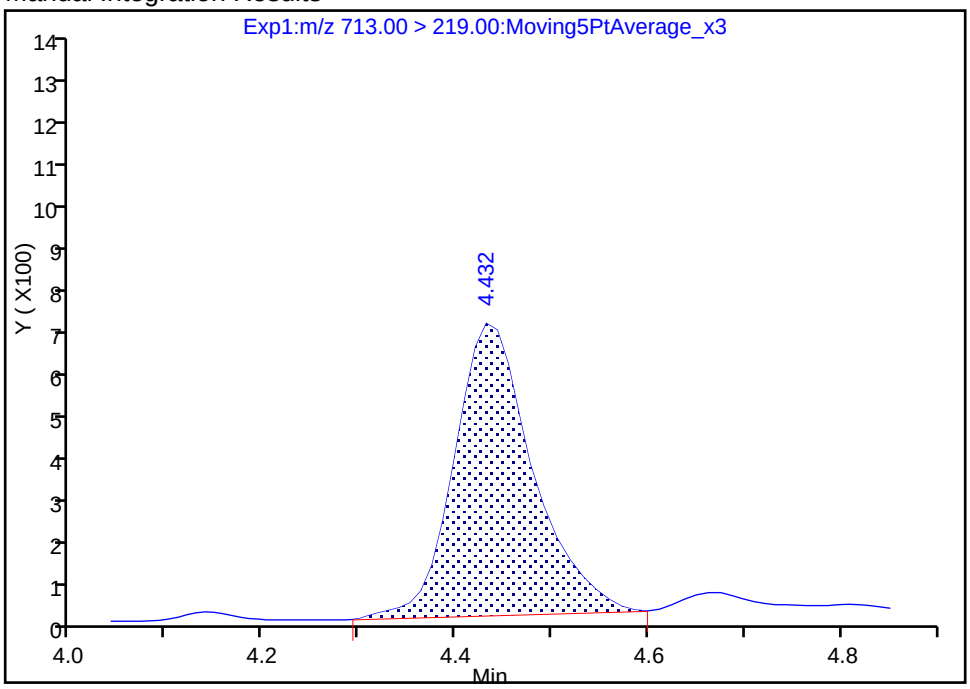
Processing Integration Results

RT: 4.43
Area: 2960
Amount: 0.026569
Amount Units: ng/ml



Manual Integration Results

RT: 4.43
Area: 3716
Amount: 0.025936
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:22:34
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

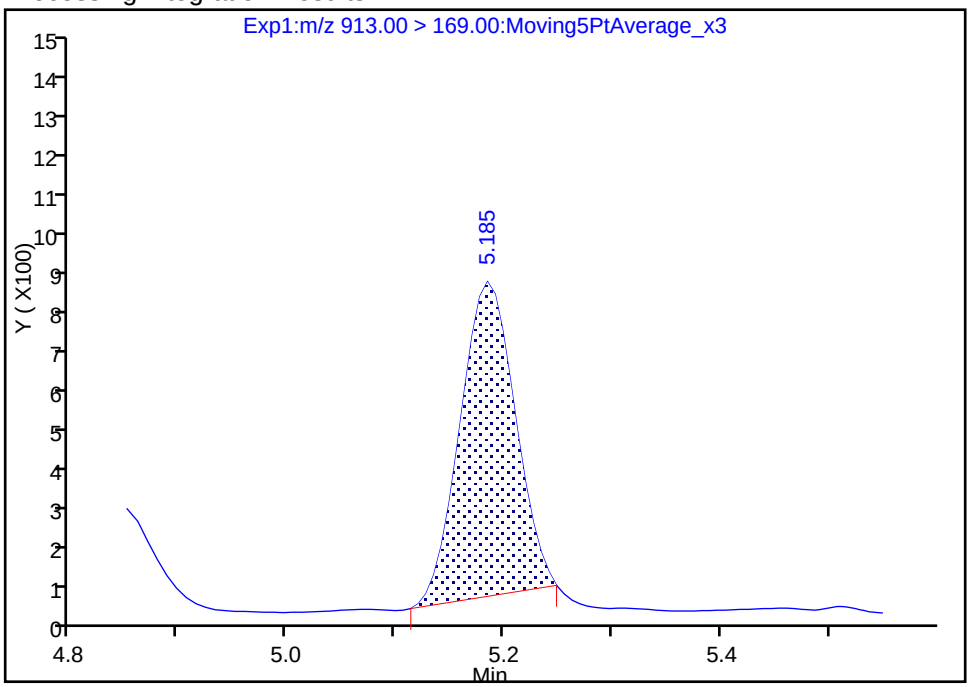
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_002.d
Injection Date: 15-Feb-2018 14:00:20 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

46 Perfluorooctadecanoic acid, CAS: 16517-11-6

Signal: 2

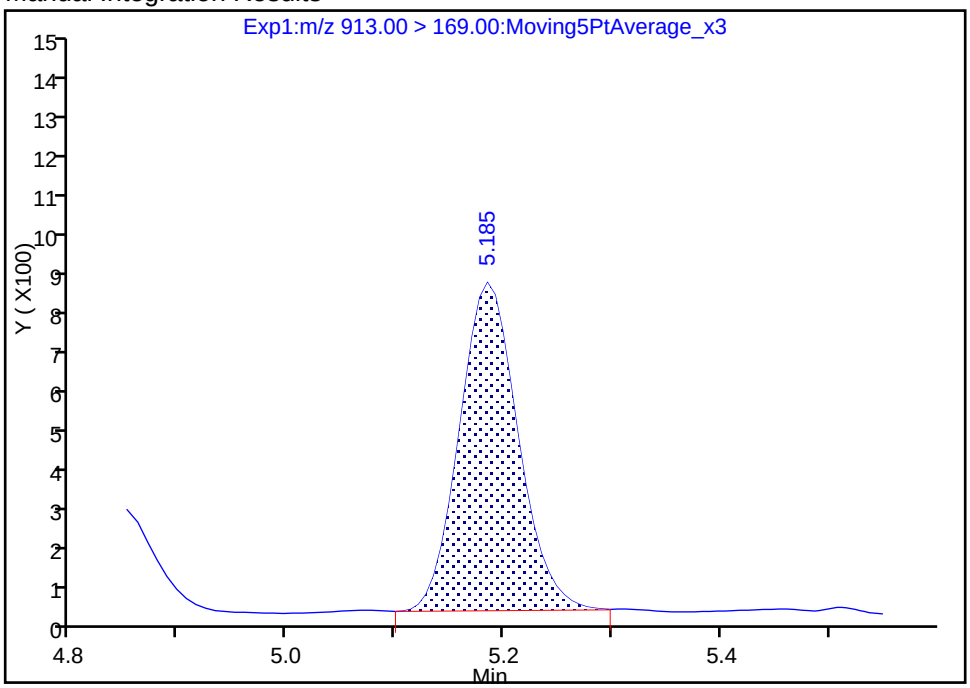
Processing Integration Results

RT: 5.18
Area: 2713
Amount: 0.024978
Amount Units: ng/ml



Manual Integration Results

RT: 5.18
Area: 3022
Amount: 0.025151
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:26:37
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d
Lims ID: IC L2 Full
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 15-Feb-2018 14:08:10 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L2-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:31 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: roycea Date: 15-Feb-2018 15:26:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.396	1.401	-0.005	0.538	6512551	2.34		93.7	82554	
2 Perfluorobutyric acid										
212.90 > 169.00	1.402	1.404	-0.002	1.004	119741	0.0491		98.2	29.6	
D 3 13C5-PFPeA										
267.90 > 223.00	1.646	1.648	-0.002	0.634	4702542	2.37		94.8	57897	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.646	1.649	-0.003	1.000	122583	0.0547		109	33.6	M
D 47 13C3-PFBS										
301.90 > 83.00	1.672	1.680	-0.008	0.644	110976	2.09		90.0	2881	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.681	1.683	-0.002	1.005	160858	0.0453		103	1934	
298.90 > 99.00	1.681	1.683	-0.002	1.005	65123		2.47(1.25-3.74)	103	848	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.885	1.891	-0.006	1.000	31694	0.0481		103	1933	
D 60 M2-4:2FTS										
329.00 > 81.00	1.885	1.891	-0.006	0.726	763394	NC			9909	
D 7 13C2 PFHxA										
315.00 > 270.00	1.914	1.925	-0.011	0.737	5032796	2.36		94.3	108831	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.914	1.926	-0.012	1.000	105027	0.0506		101	244	M
313.00 > 119.00	1.914	1.926	-0.012	1.000	10449		10.05(5.03-15.10)	101	128	M
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.240	2.251	-0.011	1.000	110489	0.0534		107	104	
363.00 > 169.00	2.240	2.251	-0.011	1.000	40712		2.71(1.13-3.40)	107	315	
D 9 13C4-PFHpA										
367.00 > 322.00	2.240	2.251	-0.011	0.863	4828517	2.39		95.5	88641	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.253	2.262	-0.009	1.000	145183	0.0480		106	687	
399.00 > 99.00	2.253	2.262	-0.009	1.000	44372		3.27(1.50-4.49)	106	133	
D 11 18O2 PFHxS										
403.00 > 84.00	2.253	2.264	-0.011	0.868	6483422	2.28		96.2	105781	
D 12 M2-6:2FTS										
429.00 > 81.00	2.576	2.588	-0.012	0.992	1138640	2.24		94.5	23818	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.576	2.589	-0.013	1.000	38351	0.0472		99.6	1419	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.597	2.614	-0.017	1.000	95420	0.0458		91.5	9.7	M
413.00 > 169.00	2.597	2.614	-0.017	1.000	58479		1.63(0.84-2.52)	91.5	14.3	M
* 62 13C2-PFOA										
415.00 > 370.00	2.597	2.614	-0.017		5347068	2.50			89292	
D 14 13C4 PFOA										
417.00 > 372.00	2.597	2.614	-0.017	1.000	4728440	2.44		97.6	91777	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.603	2.620	-0.017	1.000	117546	0.0479		101	2802	
449.00 > 99.00	2.603	2.620	-0.017	1.000	32032		3.67(1.94-5.82)	101	589	
D 18 13C4 PFOS										
503.00 > 80.00	2.964	2.981	-0.017	1.141	4439791	2.26		94.8	74352	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.964	2.982	-0.018	1.000	88840	0.0445		96.0	626	
499.00 > 99.00	2.964	2.982	-0.018	1.000	22321		3.98(2.31-6.93)	96.0	191	
20 Perfluorononanoic acid										
463.00 > 419.00	2.964	2.983	-0.019	1.000	77282	0.0512		102	90.5	
463.00 > 169.00	2.964	2.983	-0.019	1.000	16330		4.73(1.90-5.69)	102	382	
D 19 13C5 PFNA										
468.00 > 423.00	2.964	2.983	-0.019	1.141	3668248	2.45		98.1	59656	
D 21 13C8 FOSA										
506.00 > 78.00	3.319	3.330	-0.011	1.278	6801836	2.41		96.5	62097	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.311	3.330	-0.019	1.000	27119	0.0471		98.4	997	
D 26 M2-8:2FTS										
529.00 > 81.00	3.311	3.330	-0.019	1.275	1083757	2.32		96.9	26622	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.327	3.333	-0.006	1.002	131388	0.0495		99.1	2946	
D 23 13C2 PFDA										
515.00 > 470.00	3.319	3.340	-0.021	1.278	2937447	2.38		95.3	30255	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.319	3.341	-0.022	1.000	55222	0.0481		96.2	226	
513.00 > 169.00	3.319	3.341	-0.022	1.000	11695		4.72(2.36-7.09)	96.2	249	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.478	3.493	-0.015	1.339	861327	2.39		95.5	23334	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.478	3.497	-0.019	1.000	19074	0.0496		99.3	267	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.631	3.648	-0.017	1.000	57699	0.0473		98.1	2129	
599.00 > 99.00	3.631	3.648	-0.017	1.000	18844		3.06(1.39-4.16)	98.1	478	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.638	3.660	-0.022	1.401	936813	2.46		98.4	2063	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.645	3.666	-0.021	1.002	16881	0.0465		93.1	438	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.651	3.668	-0.017	1.002	57174	0.0574		115	146	
563.00 > 169.00	3.651	3.668	-0.017	1.002	10503		5.44(0.00-0.00)	115	1050	
D 30 13C2 PFUnA										
565.00 > 520.00	3.645	3.669	-0.024	1.403	2327088	2.47		98.8	45446	
D 36 13C2 PFDoA										
615.00 > 570.00	3.936	3.960	-0.024	1.516	2099643	2.34		93.5	25802	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.936	3.961	-0.025	1.000	43543	0.0514		103	87.8	
613.00 > 169.00	3.936	3.961	-0.025	1.000	10896		4.00(2.13-6.40)	103	476	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.198	4.221	-0.023	1.000	38329	0.0485		96.9	80.3	
663.00 > 169.00	4.198	4.221	-0.023	1.000	10455		3.67(1.25-3.76)	96.9	396	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.439	4.459	-0.020	1.000	10088	0.0502		100	451	
713.00 > 219.00	4.428	4.459	-0.031	0.997	8209		1.23(0.71-2.13)	100	177	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.439	4.459	-0.020	1.709	1896977	2.39		95.7	27248	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.848	4.867	-0.019	1.867	2497756	2.34		93.4	14072	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.848	4.871	-0.023	1.000	70424	0.0536		107	24.5	
813.00 > 169.00	4.848	4.871	-0.023	1.000	11988		5.87(2.86-8.58)	107	277	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.190	5.216	-0.026	1.000	47092	0.0476		95.2	11.0	
913.00 > 169.00	5.190	5.216	-0.026	1.000	6027		7.81(0.00-0.00)	95.2	70.3	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL2_00003 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:32 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d

Injection Date: 15-Feb-2018 14:08:10 Instrument ID: A8_N

Lims ID: IC L2 Full

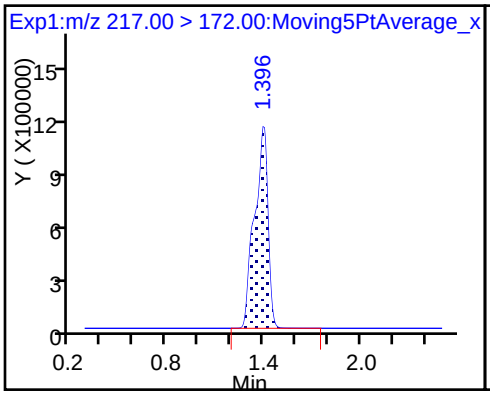
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3

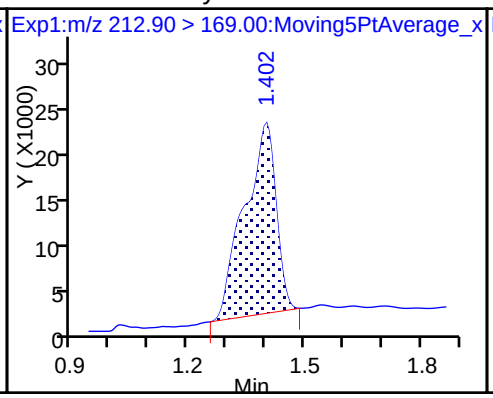
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

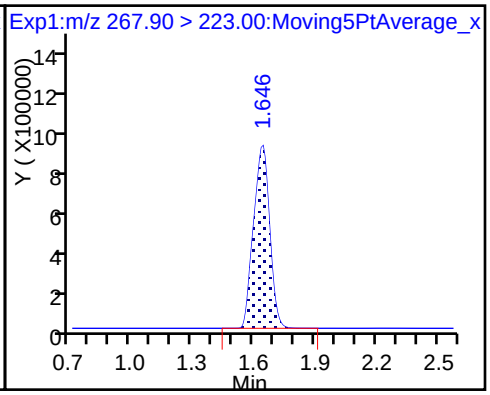
D 1 13C4 PFBA



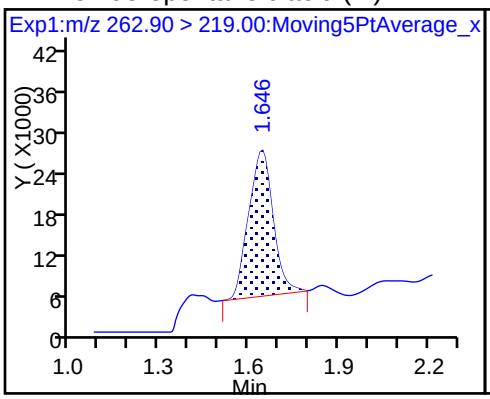
2 Perfluorobutyric acid



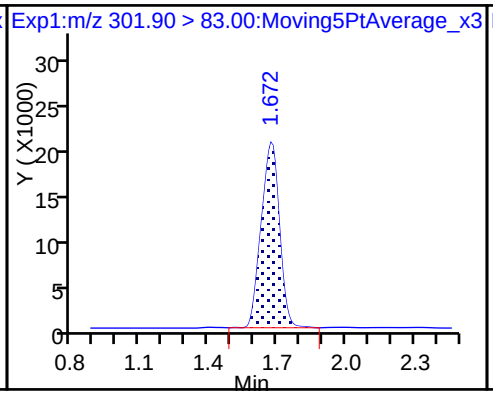
D 3 13C5-PFPeA



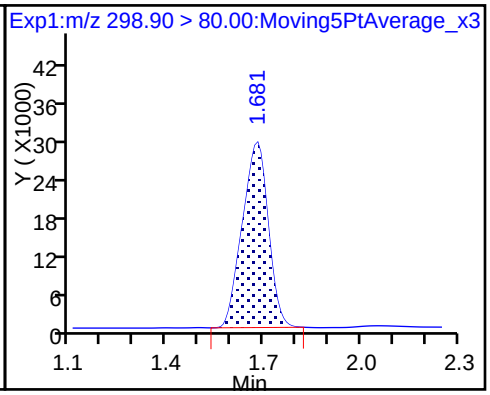
4 Perfluoropentanoic acid (M)



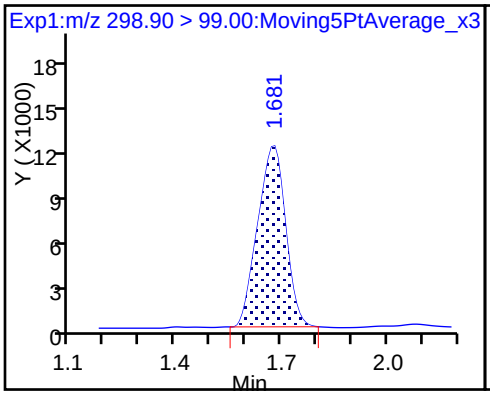
D 47 13C3-PFBS



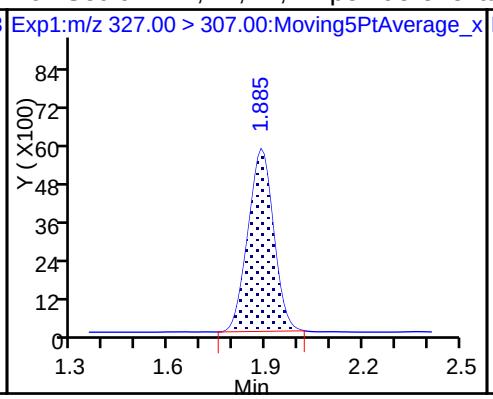
5 Perfluorobutanesulfonic acid



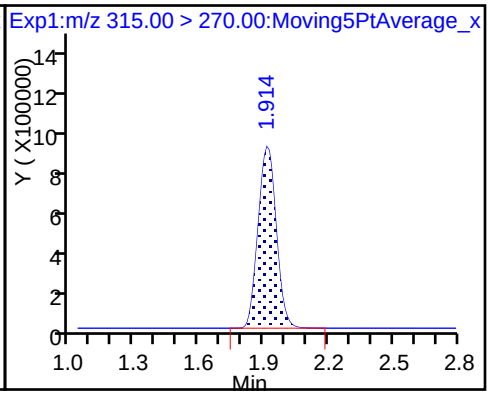
5 Perfluorobutanesulfonic acid



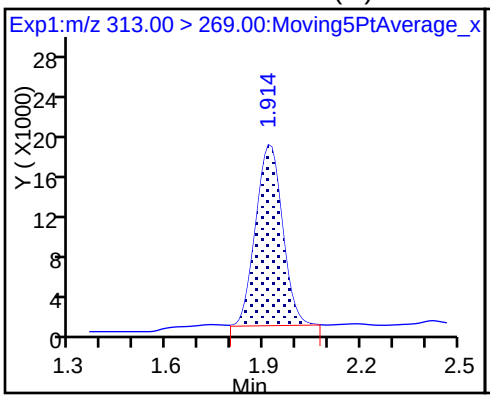
61 Sodium 1H,1H,2H,2H-perfluorohexa



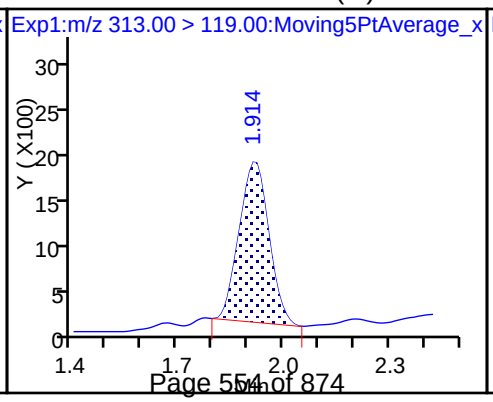
D 7 13C2 PFHxA



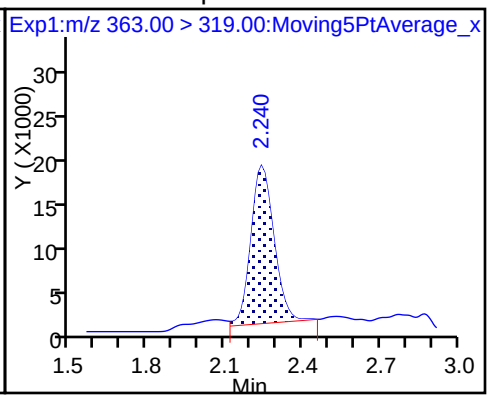
6 Perfluorohexanoic acid (M)



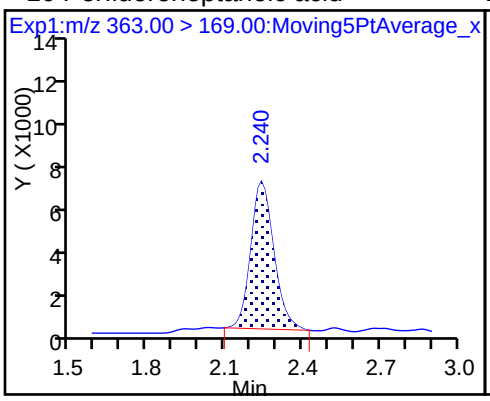
6 Perfluorohexanoic acid (M)



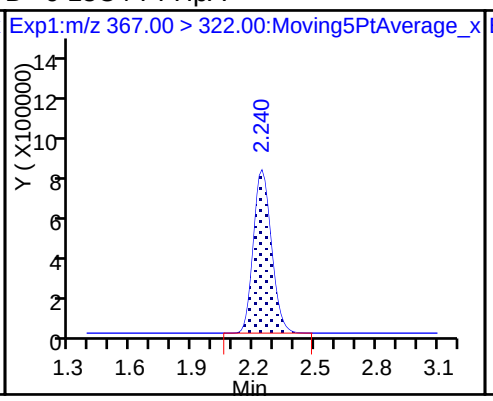
10 Perfluoroheptanoic acid



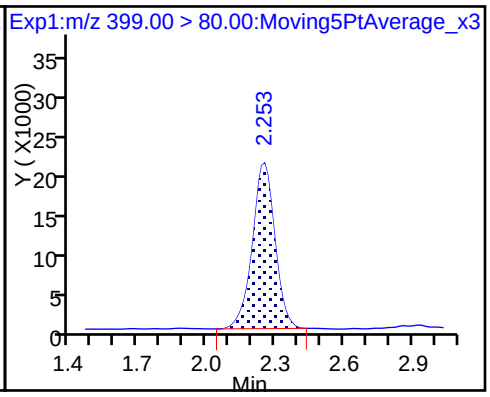
10 Perfluoroheptanoic acid



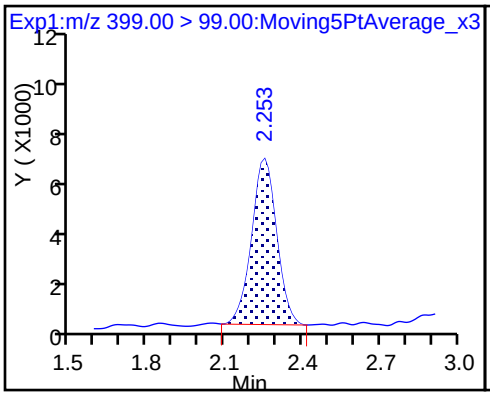
D 9 13C4-PFHpA



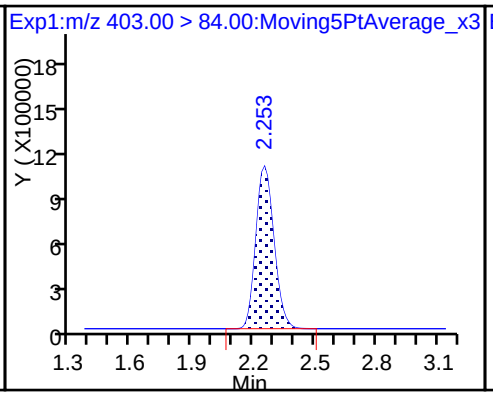
8 Perfluorohexanesulfonic acid



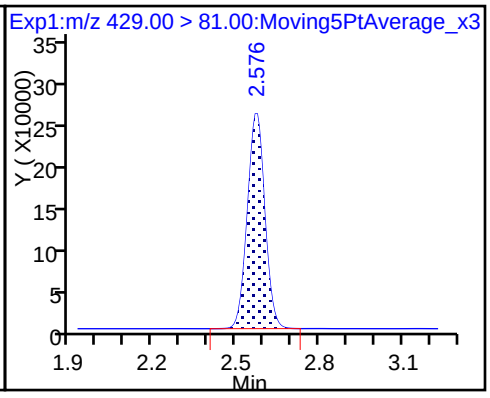
8 Perfluorohexanesulfonic acid



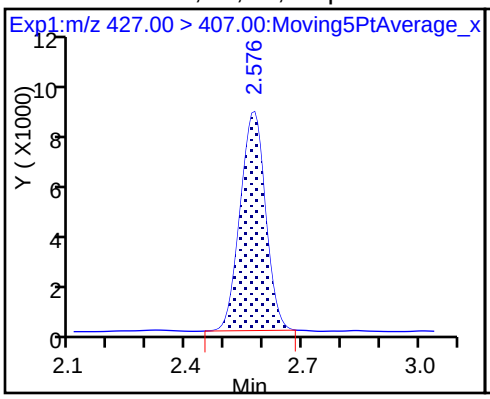
D 11 18O2 PFHxS



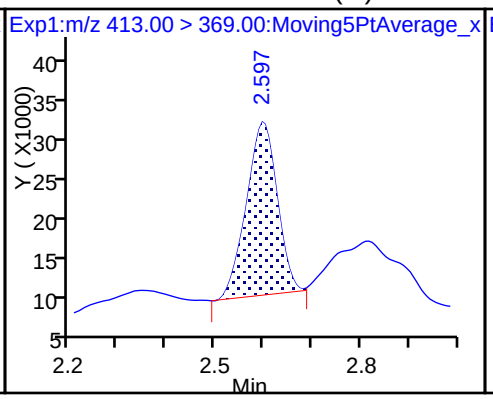
D 12 M2-6:2FTS



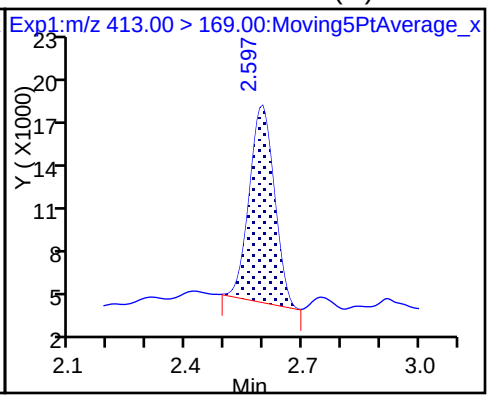
13 Sodium 1H,1H,2H,2H-perfluorooctane



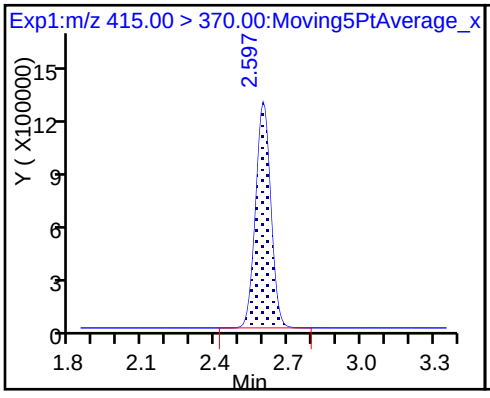
15 Perfluorooctanoic acid (M)



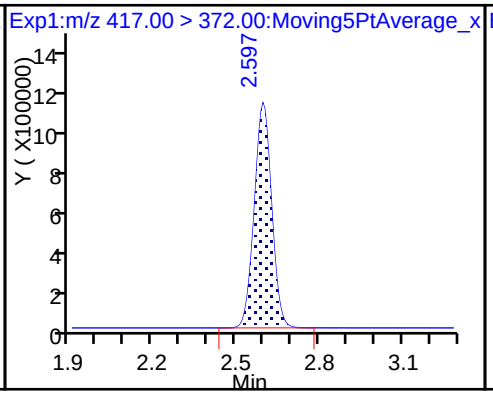
15 Perfluorooctanoic acid (M)



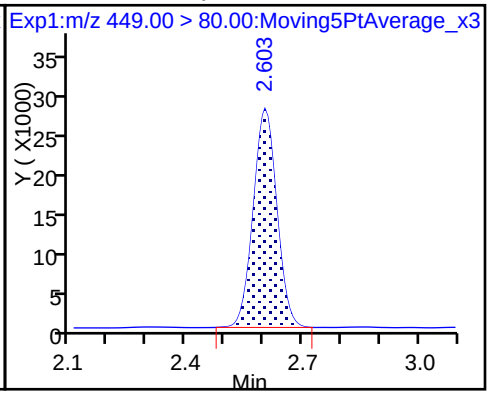
* 62 13C2-PFOA



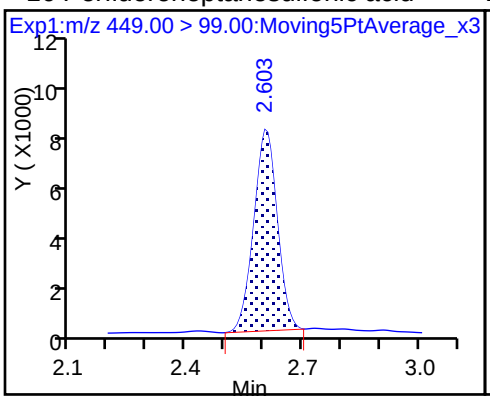
D 14 13C4 PFOA



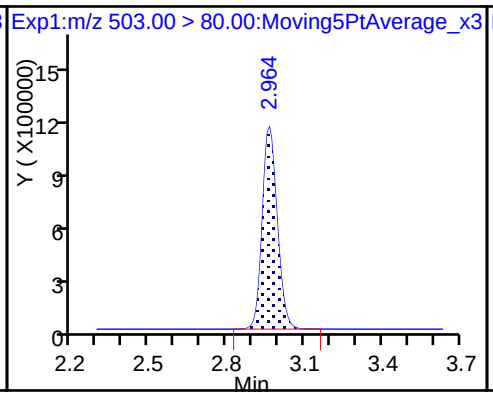
16 Perfluoroheptanesulfonic acid



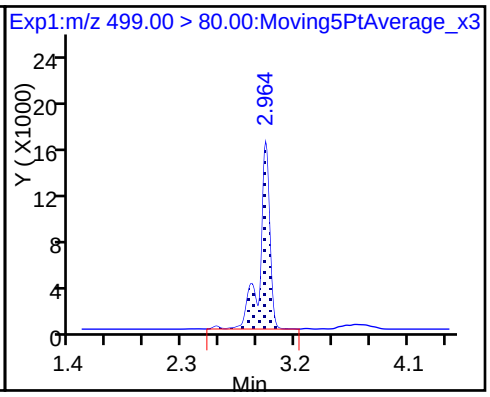
16 Perfluoroheptanesulfonic acid



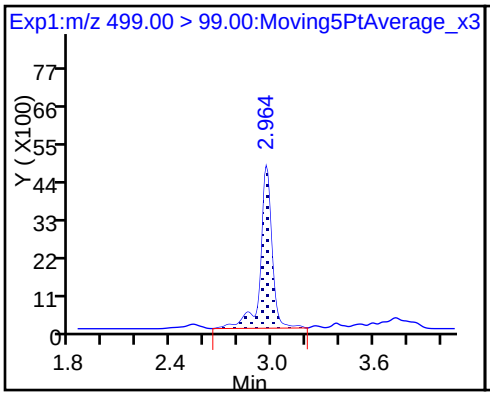
D 18 13C4 PFOS



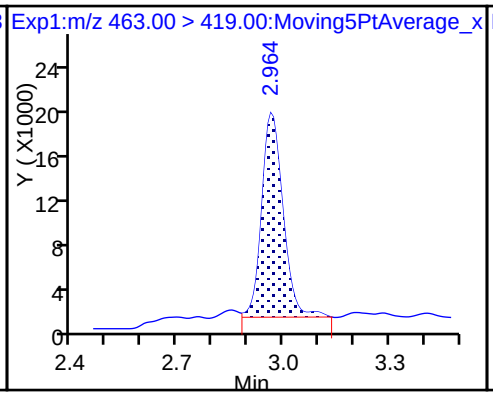
17 Perfluorooctane sulfonic acid



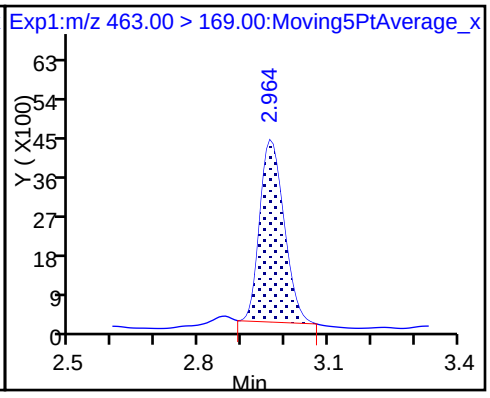
17 Perfluorooctane sulfonic acid



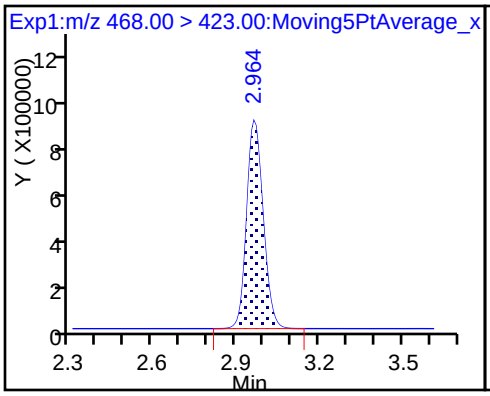
20 Perfluorononanoic acid



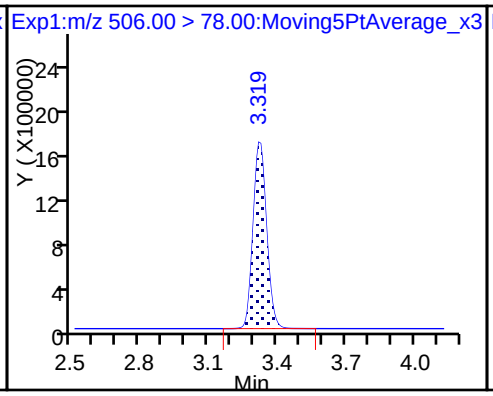
20 Perfluorononanoic acid



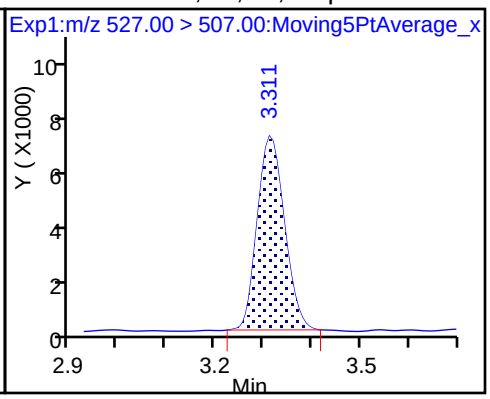
D 19 13C5 PFNA



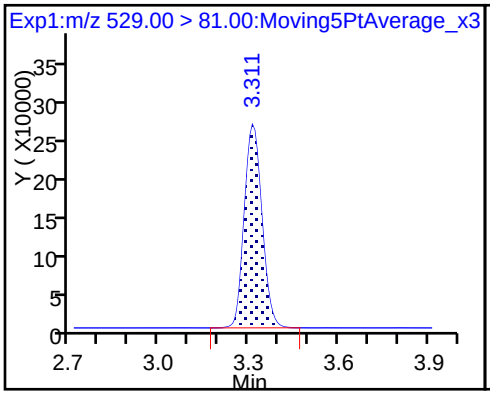
D 21 13C8 FOSA



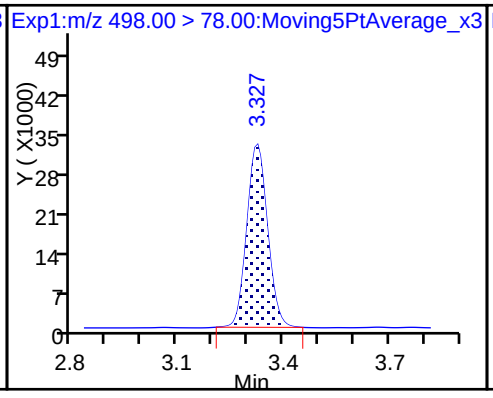
25 Sodium 1H,1H,2H,2H-perfluorodecane



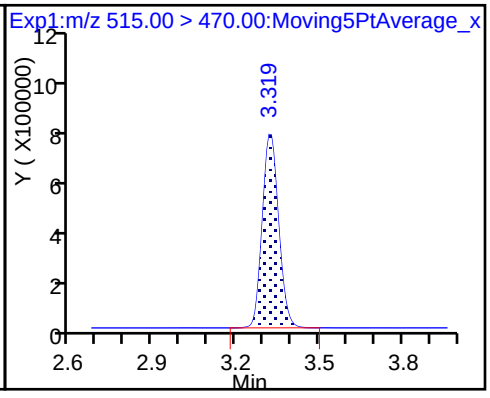
D 26 M2-8:2FTS



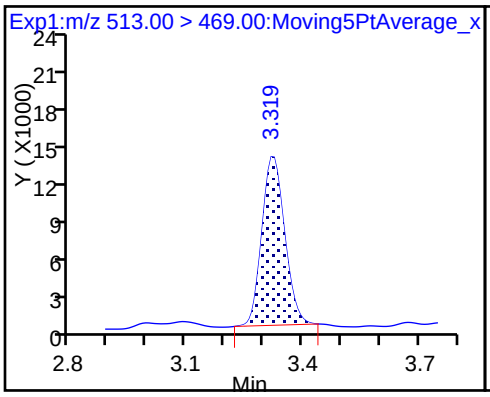
22 Perfluorooctane Sulfonamide



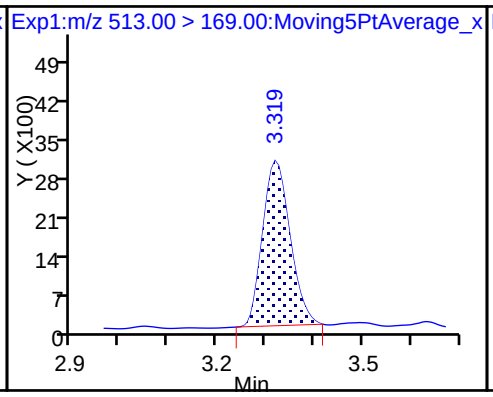
D 23 13C2 PFDA



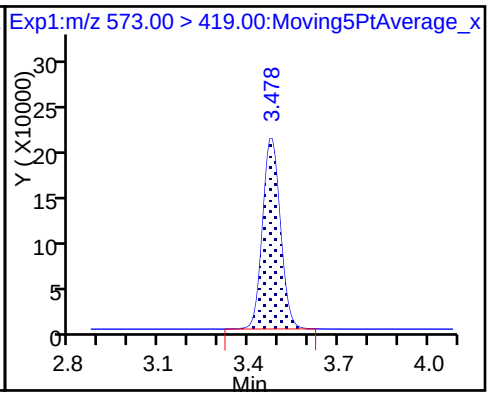
24 Perfluorodecanoic acid



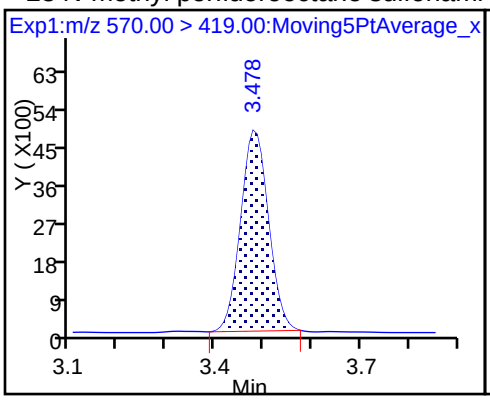
24 Perfluorodecanoic acid



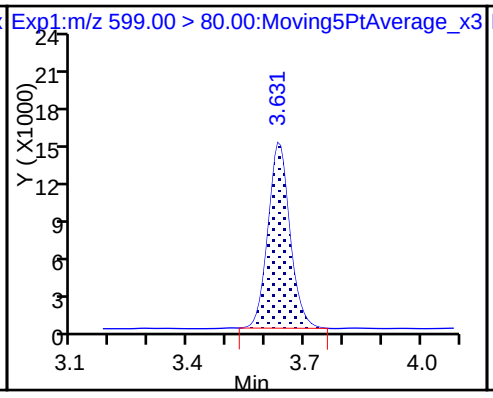
D 27 d3-NMeFOSAA



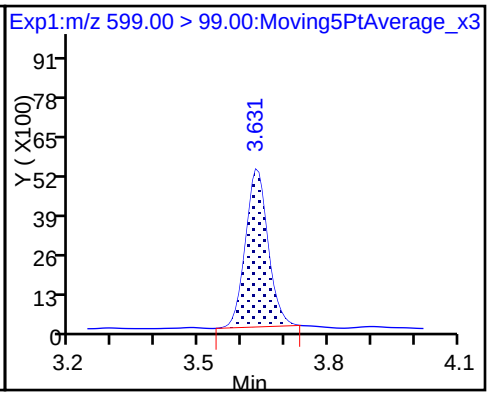
28 N-methyl perfluorooctane sulfonami



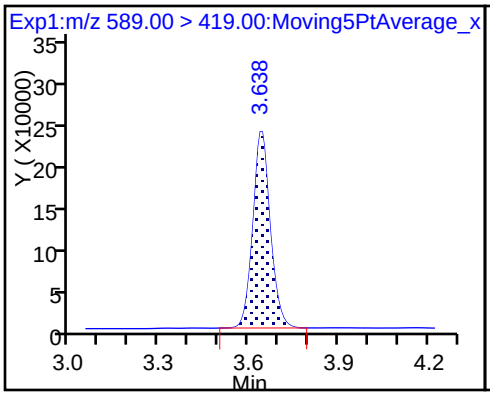
29 Perfluorodecane Sulfonic acid



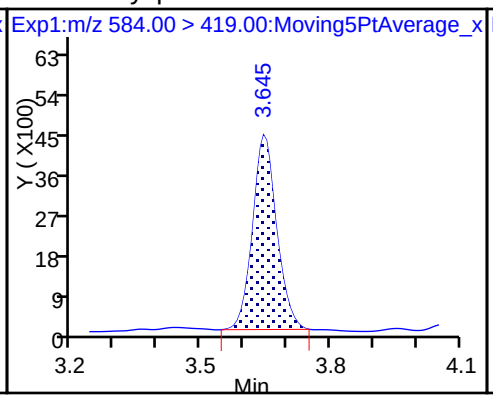
29 Perfluorodecane Sulfonic acid



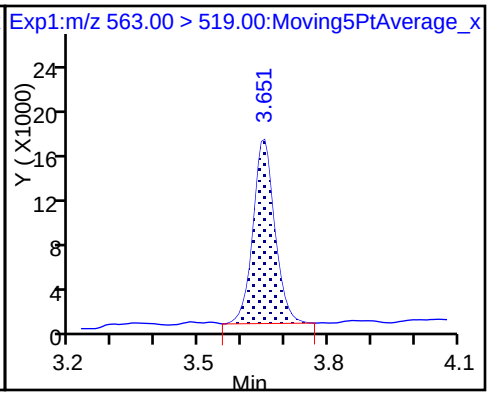
D 32 d5-NEtFOSAA



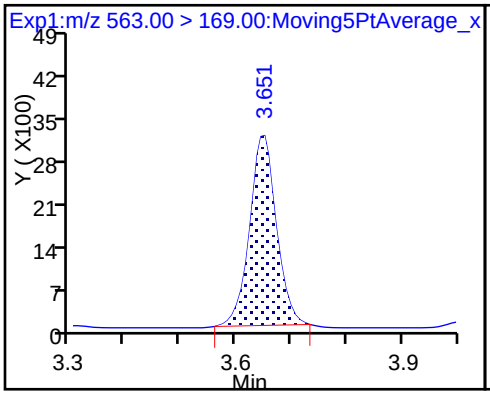
33 N-ethyl perfluorooctane sulfonamid



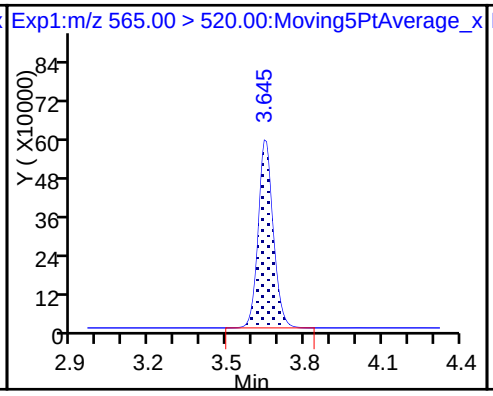
31 Perfluoroundecanoic acid



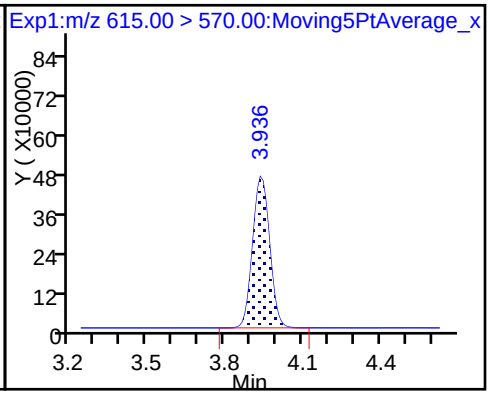
31 Perfluoroundecanoic acid



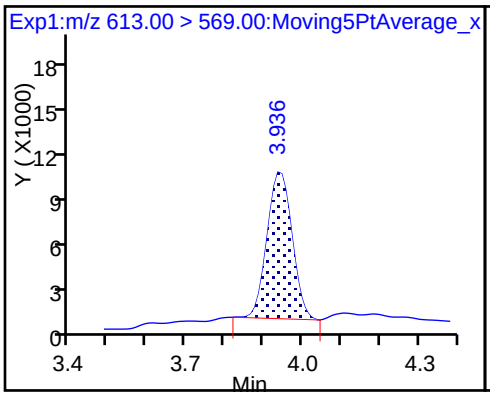
D 30 13C2 PFUnA



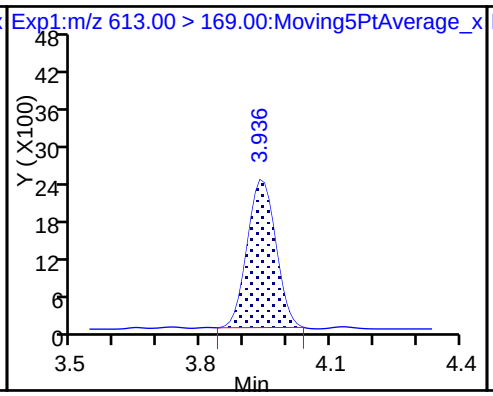
D 36 13C2 PFDoA



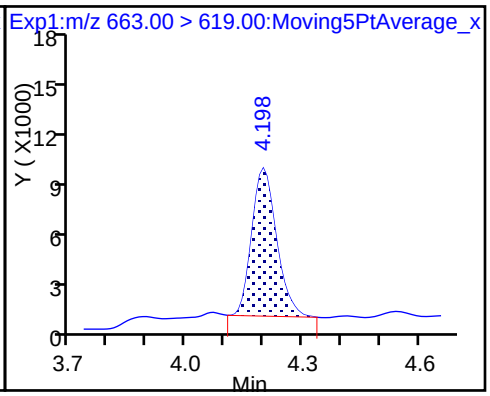
37 Perfluorododecanoic acid



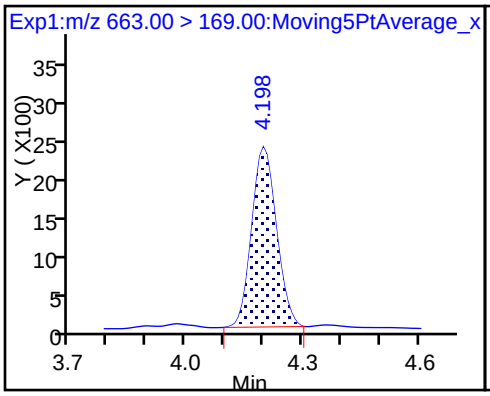
37 Perfluorododecanoic acid



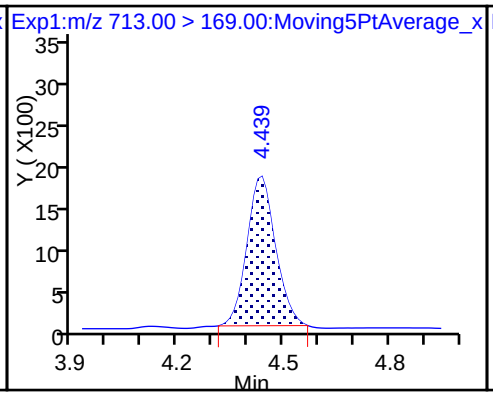
41 Perfluorotridecanoic acid



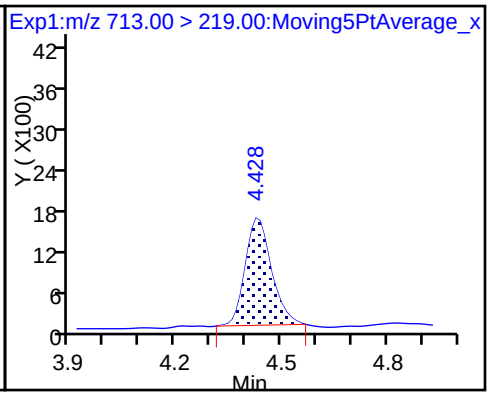
41 Perfluorotridecanoic acid



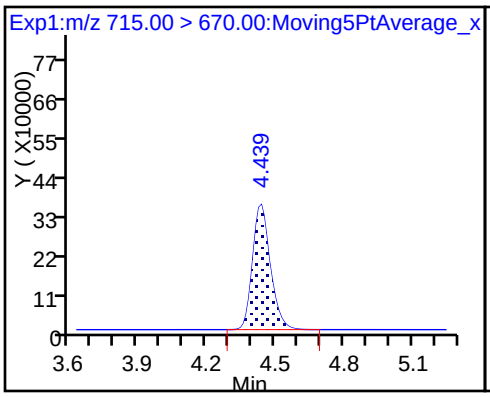
42 Perfluorotetradecanoic acid



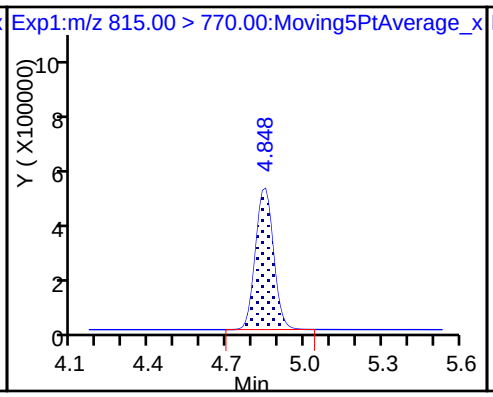
42 Perfluorotetradecanoic acid



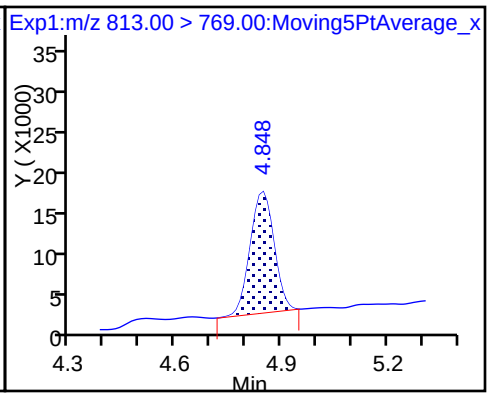
D 43 13C2-PFTeDA



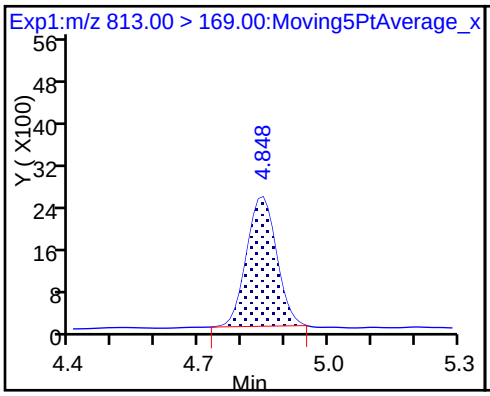
D 44 13C2-PFHxDA



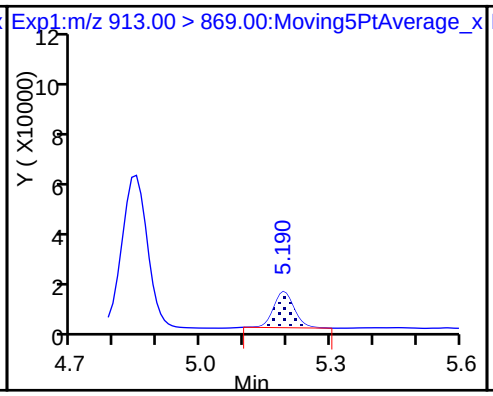
45 Perfluorohexadecanoic acid



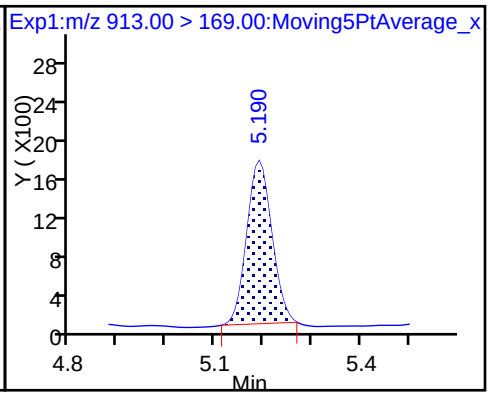
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

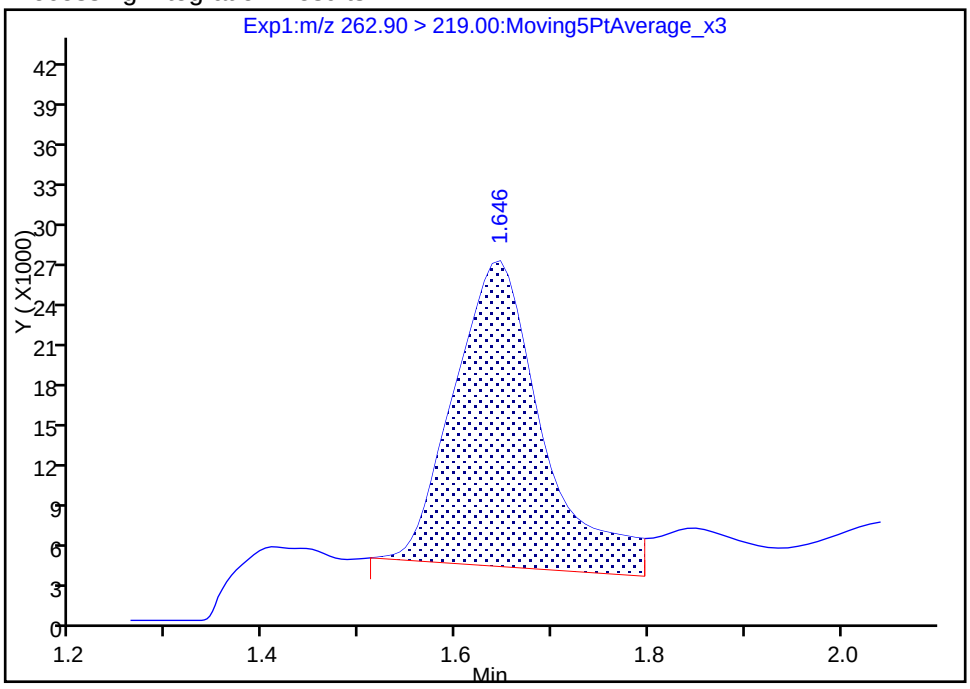
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d
Injection Date: 15-Feb-2018 14:08:10 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

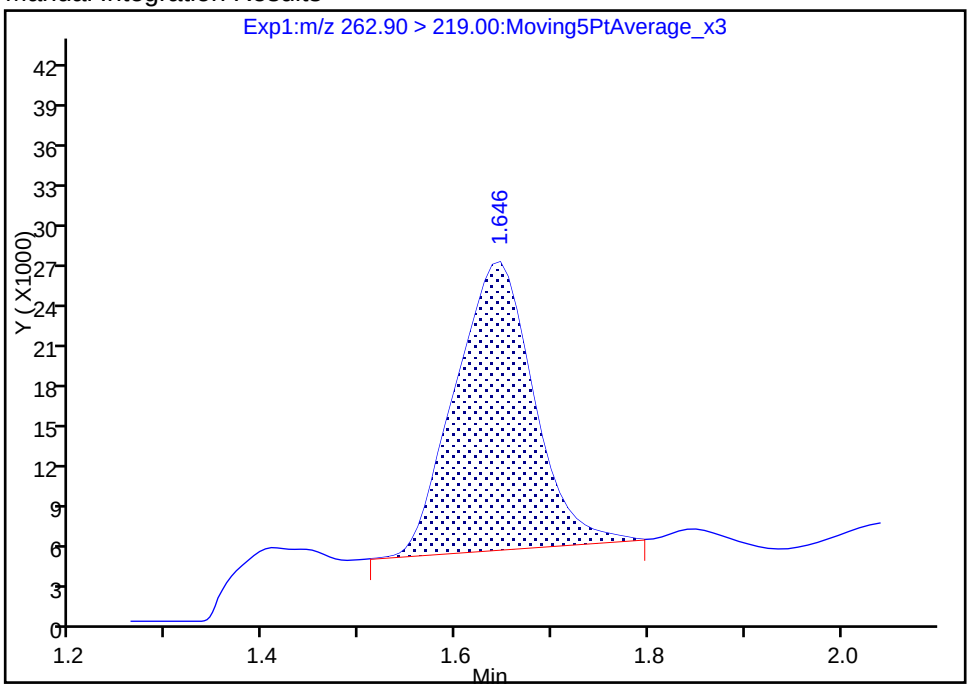
Processing Integration Results

RT: 1.65
Area: 145934
Amount: 0.059441
Amount Units: ng/ml



Manual Integration Results

RT: 1.65
Area: 122583
Amount: 0.054730
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:24:42
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

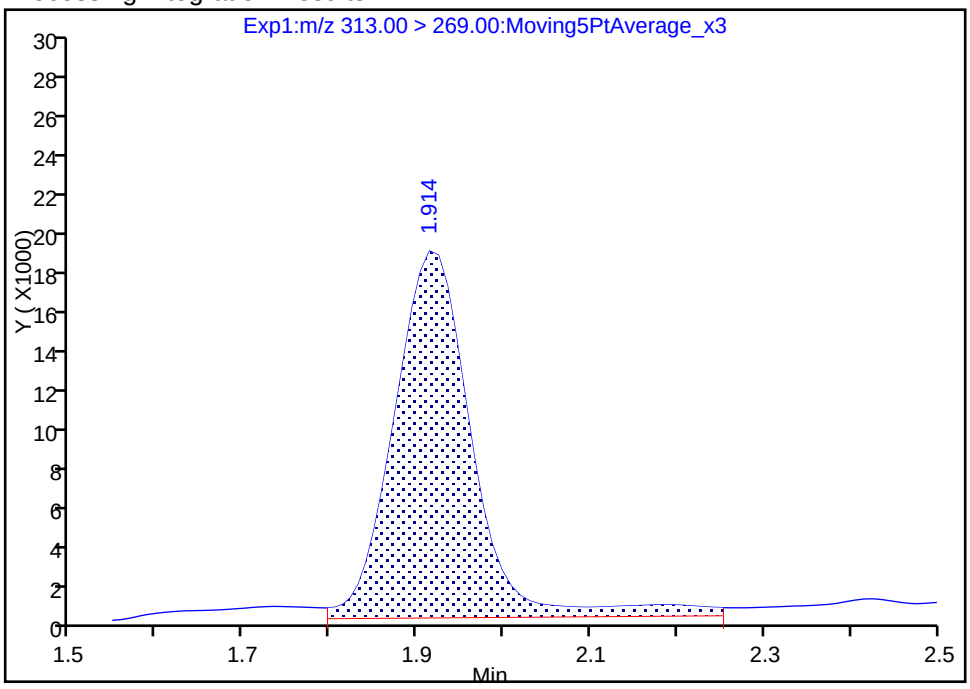
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d
Injection Date: 15-Feb-2018 14:08:10 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

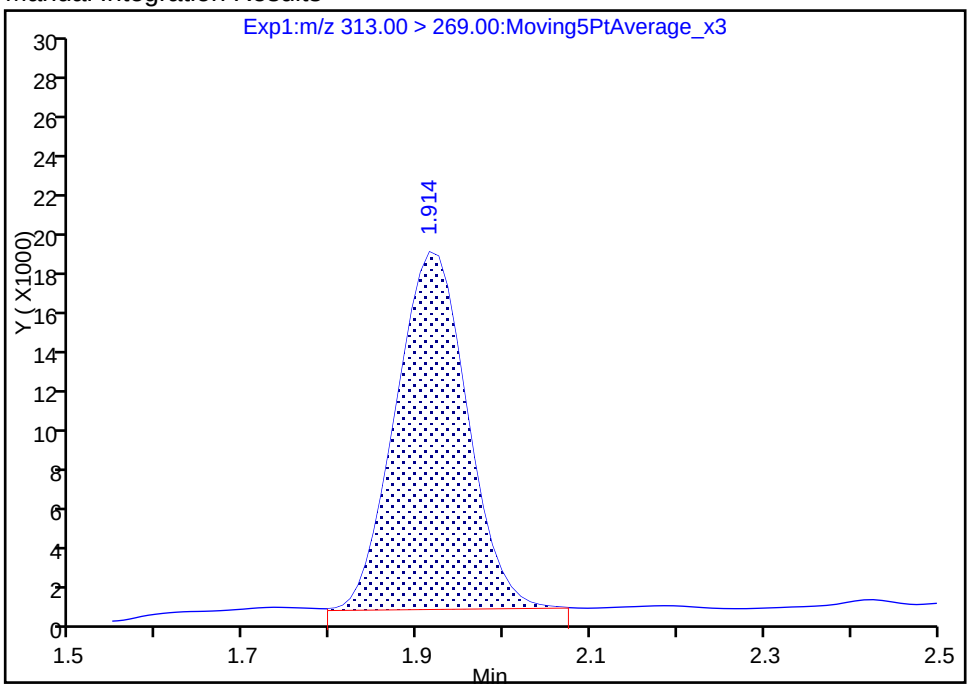
Processing Integration Results

RT: 1.91
Area: 118634
Amount: 0.054596
Amount Units: ng/ml



Manual Integration Results

RT: 1.91
Area: 105027
Amount: 0.050629
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:25:29
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

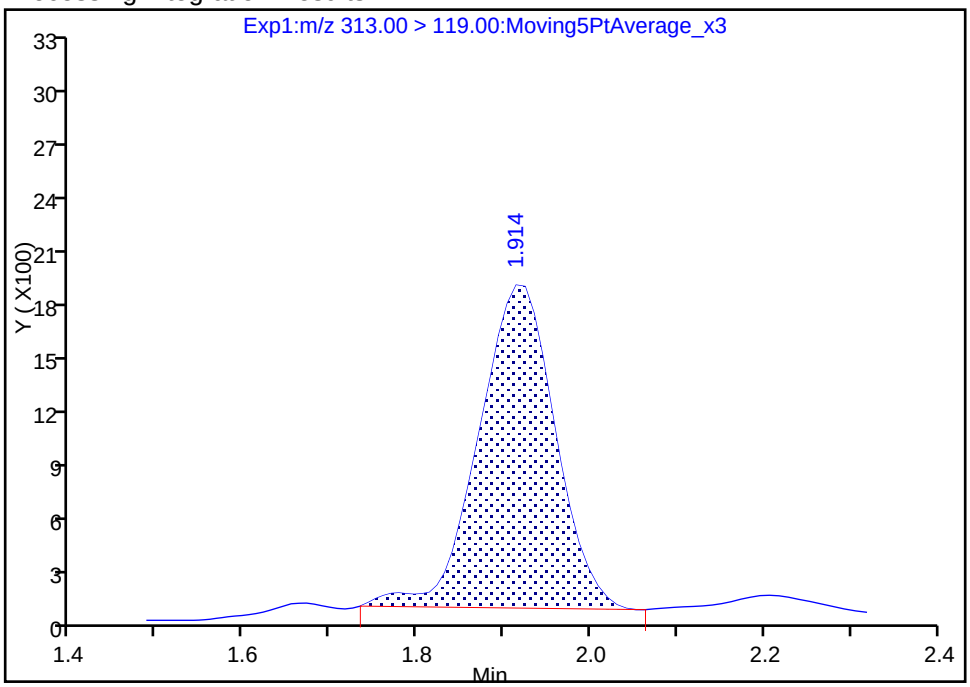
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d
Injection Date: 15-Feb-2018 14:08:10 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 2

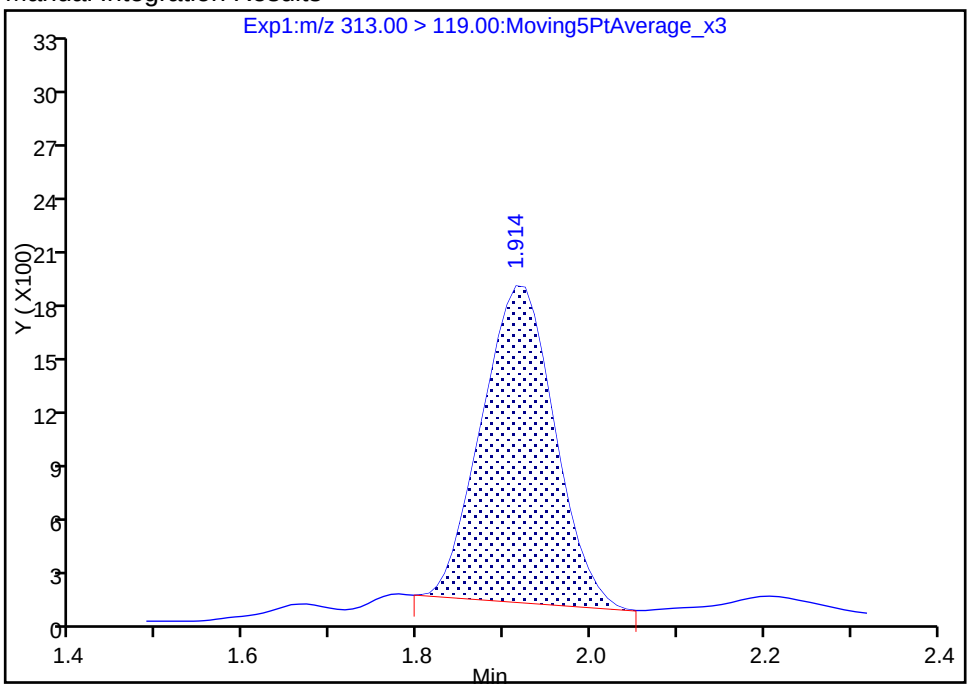
Processing Integration Results

RT: 1.91
Area: 11167
Amount: 0.054596
Amount Units: ng/ml



Manual Integration Results

RT: 1.91
Area: 10449
Amount: 0.050629
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:25:40
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

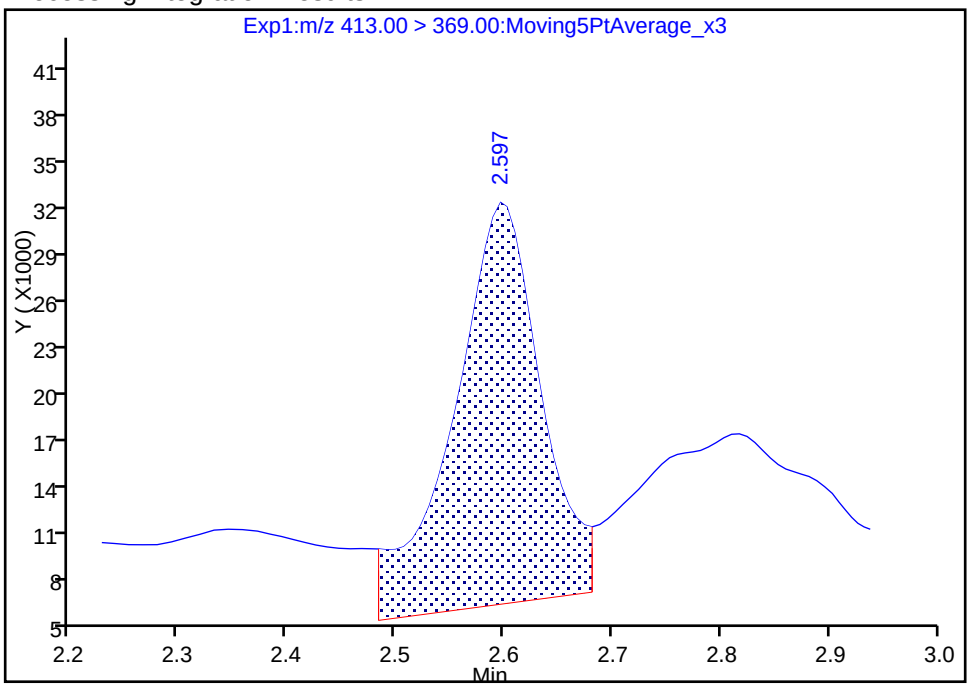
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d
Injection Date: 15-Feb-2018 14:08:10 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

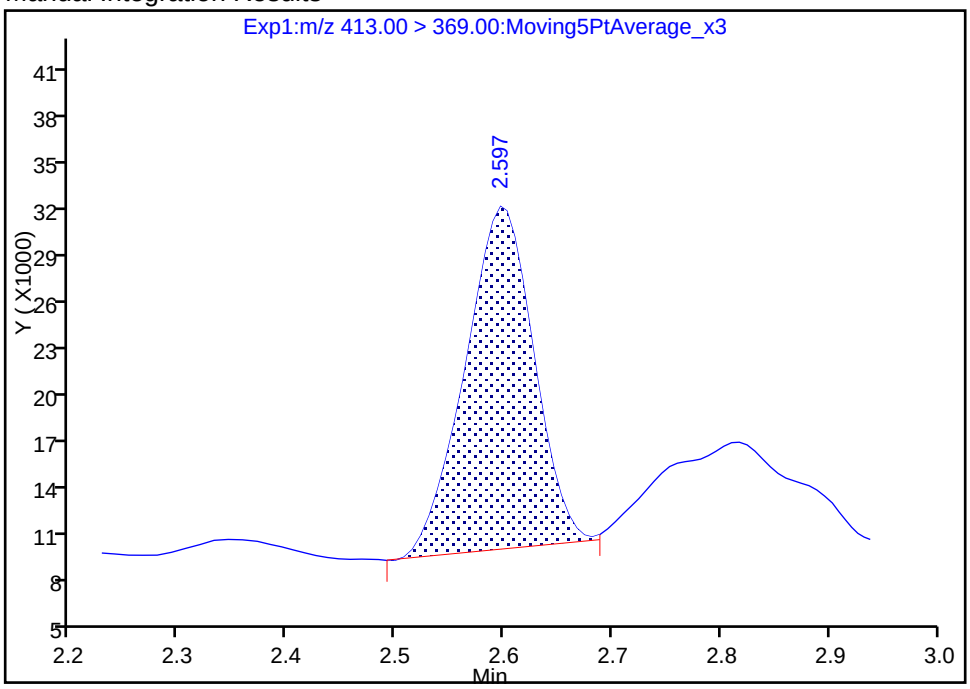
Processing Integration Results

RT: 2.60
Area: 145688
Amount: 0.062916
Amount Units: ng/ml



Manual Integration Results

RT: 2.60
Area: 95420
Amount: 0.045752
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:24:22
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

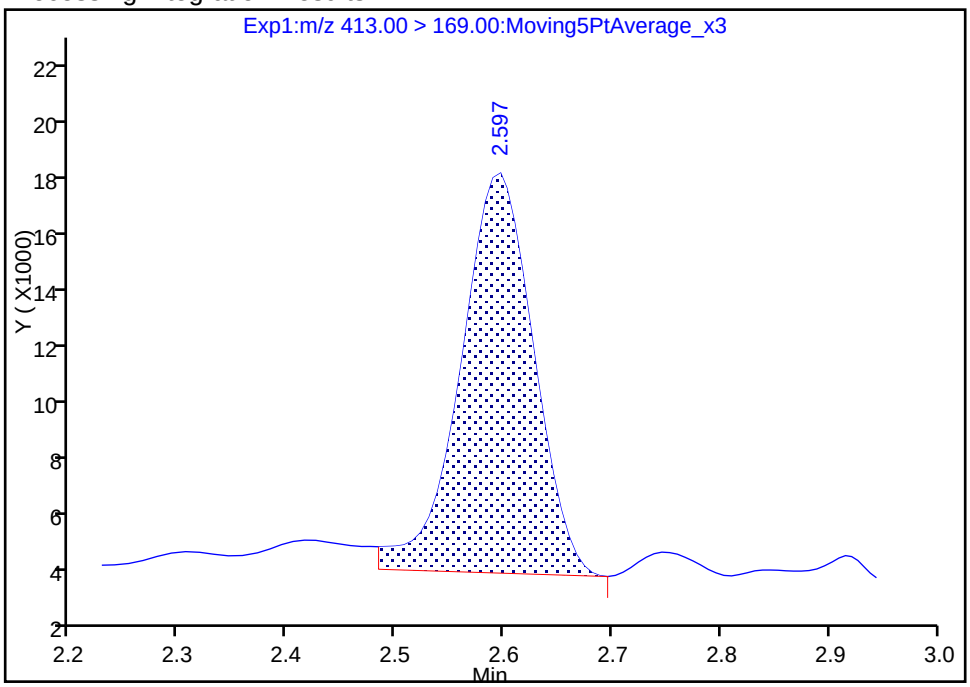
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_003.d				
Injection Date:	15-Feb-2018 14:08:10	Instrument ID:	A8_N		
Lims ID:	IC L2 Full				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	3
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

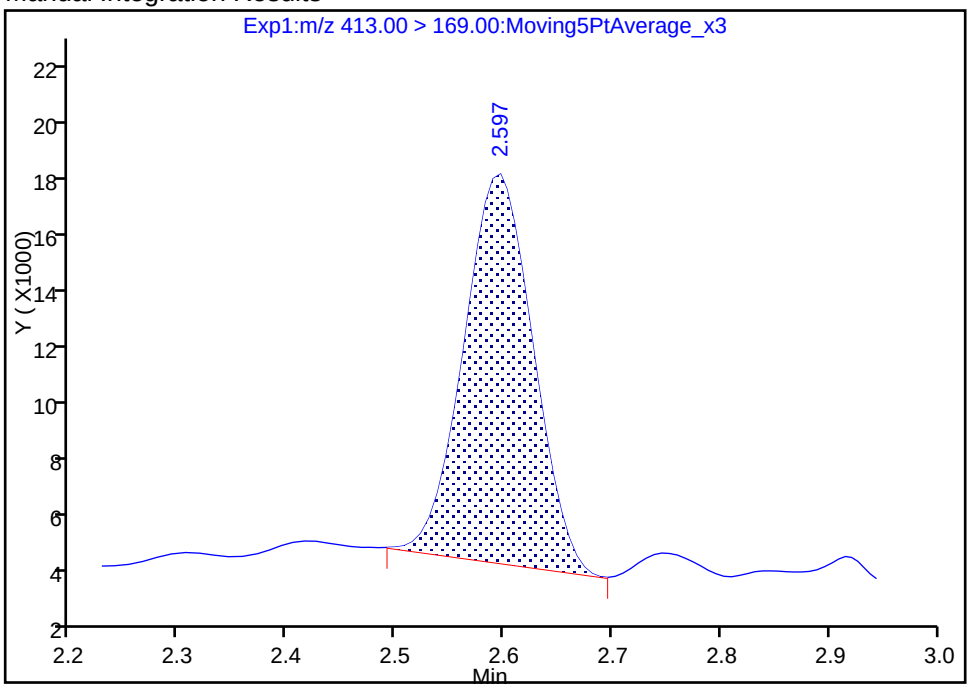
Processing Integration Results

RT: 2.60
Area: 63190
Amount: 0.062916
Amount Units: ng/ml



Manual Integration Results

RT: 2.60
Area: 58479
Amount: 0.045752
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:24:29

Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_004.d
Lims ID: IC L3 Full
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 15-Feb-2018 14:16:03 ALS Bottle#: 12 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L3-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:34 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: roycea Date: 15-Feb-2018 15:28:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.399	1.401	-0.002	0.539	6357127	2.43		97.0	78293	
2 Perfluorobutyric acid										
212.90 > 169.00	1.399	1.404	-0.005	1.000	588652	0.2472		98.9	160	
D 3 13C5-PFPeA										
267.90 > 223.00	1.642	1.648	-0.006	0.632	4722133	2.53		101	81644	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.642	1.649	-0.007	1.000	539464	0.2399		95.9	156	M
D 47 13C3-PFBS										
301.90 > 83.00	1.676	1.680	-0.004	0.645	109546	2.19		94.3	2532	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.676	1.683	-0.007	1.000	806208	0.2301		104	9791	
298.90 > 99.00	1.676	1.683	-0.007	1.000	330258		2.44(1.25-3.74)	104	4331	
D 60 M2-4:2FTS										
329.00 > 81.00	1.880	1.891	-0.011	0.724	738603	NC			9253	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.880	1.891	-0.011	1.000	162437	0.2497		107	10075	
D 7 13C2 PFHxA										
315.00 > 270.00	1.918	1.925	-0.007	0.738	4997686	2.49		99.4	89702	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.918	1.926	-0.008	1.000	496136	0.2408		96.3	1178	
313.00 > 119.00	1.918	1.926	-0.008	1.000	48955		10.13(5.03-15.10)	96.3	711	
D 9 13C4-PFHpA										
367.00 > 322.00	2.234	2.251	-0.017	0.860	4814370	2.53		101	99157	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.234	2.251	-0.017	1.000	501773	0.2433		97.3	560	
363.00 > 169.00	2.234	2.251	-0.017	1.000	208486		2.41(1.13-3.40)	97.3	1801	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.247	2.262	-0.015	1.000	615839	0.2069		91.0	2415	
399.00 > 99.00	2.247	2.262	-0.015	1.000	196632		3.13(1.50-4.49)	91.0	647	
D 11 18O2 PFHxS										
403.00 > 84.00	2.247	2.264	-0.017	0.865	6382710	2.38		101	115645	
D 12 M2-6:2FTS										
429.00 > 81.00	2.572	2.588	-0.016	0.990	1134578	2.37		99.9	26780	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.572	2.589	-0.017	1.000	176678	0.2183		92.1	8291	
D 14 13C4 PFOA										
417.00 > 372.00	2.598	2.614	-0.016	1.000	4642472	2.54		102	85966	
* 62 13C2-PFOA										
415.00 > 370.00	2.598	2.614	-0.016		5037440	2.50			121272	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.598	2.614	-0.016	1.000	504254	0.2463		98.5	57.7	
413.00 > 169.00	2.598	2.614	-0.016	1.000	289365		1.74(0.84-2.52)	98.5	75.7	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.604	2.620	-0.016	1.000	566348	0.2298		96.6	10545	
449.00 > 99.00	2.604	2.620	-0.016	1.000	151016		3.75(1.94-5.82)	96.6	3297	
D 18 13C4 PFOS										
503.00 > 80.00	2.966	2.981	-0.015	1.141	4458927	2.41		101	85899	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.966	2.982	-0.016	1.000	434989	0.2172		93.6	3226	
499.00 > 99.00	2.966	2.982	-0.016	1.000	95640		4.55(2.31-6.93)	93.6	878	
D 19 13C5 PFNA										
468.00 > 423.00	2.966	2.983	-0.017	1.141	3519598	2.50		99.9	95990	
20 Perfluorononanoic acid										
463.00 > 419.00	2.966	2.983	-0.017	1.000	361885	0.2498		99.9	452	
463.00 > 169.00	2.966	2.983	-0.017	1.000	90000		4.02(1.90-5.69)	99.9	3744	
D 21 13C8 FOSA										
506.00 > 78.00	3.320	3.330	-0.010	1.278	6494526	2.45		97.9	47289	
D 26 M2-8:2FTS										
529.00 > 81.00	3.313	3.330	-0.017	1.275	1087739	2.47		103	22681	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.313	3.330	-0.017	1.000	132305	0.2290		95.6	6629	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.320	3.333	-0.013	1.000	654670	0.2585		103	12532	
D 23 13C2 PFDA										
515.00 > 470.00	3.320	3.340	-0.020	1.278	2883687	2.48		99.3	26808	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.328	3.341	-0.013	1.002	277038	0.2457		98.3	1089	
513.00 > 169.00	3.320	3.341	-0.021	1.000	55212		5.02(2.36-7.09)	98.3	998	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.471	3.493	-0.022	1.336	819198	2.41		96.4	28459	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.479	3.497	-0.018	1.002	82575	0.2260		90.4	1049	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.631	3.648	-0.017	1.000	280663	0.2291		95.1	9002	
599.00 > 99.00	3.631	3.648	-0.017	1.000	93522		3.00(1.39-4.16)	95.1	1366	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.638	3.660	-0.022	1.400	874980	2.44		97.6	1882	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.652	3.666	-0.014	1.004	89887	0.2653		106	1889	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.652	3.668	-0.016	1.000	241024	0.2411		96.4	575	
563.00 > 169.00	3.652	3.668	-0.016	1.000	45182		5.33(0.00-0.00)	96.4	2605	
D 30 13C2 PFUnA										
565.00 > 520.00	3.652	3.669	-0.017	1.405	2337703	2.63		105	59903	
D 36 13C2 PFDoA										
615.00 > 570.00	3.937	3.960	-0.023	1.515	2097244	2.48		99.2	22177	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.937	3.961	-0.024	1.000	201096	0.2376		95.1	339	
613.00 > 169.00	3.937	3.961	-0.024	1.000	56145		3.58(2.13-6.40)	95.1	4132	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.199	4.221	-0.022	1.000	198888	0.2518		101	444	
663.00 > 169.00	4.199	4.221	-0.022	1.000	62853		3.16(1.25-3.76)	101	2386	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.439	4.459	-0.020	1.708	1831428	2.45		98.1	26585	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.439	4.459	-0.020	1.000	45077	0.2325		93.0	2169	
713.00 > 219.00	4.428	4.459	-0.031	0.997	33283		1.35(0.71-2.13)	93.0	773	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.848	4.867	-0.019	1.866	2375962	2.36		94.3	13169	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.848	4.871	-0.023	1.000	241108	0.2458		98.3	83.4	
813.00 > 169.00	4.848	4.871	-0.023	1.000	43391		5.56(2.86-8.58)	98.3	1017	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.190	5.216	-0.026	1.000	240450	0.2556		102	53.4	
913.00 > 169.00	5.190	5.216	-0.026	1.000	32004		7.51(0.00-0.00)	102	332	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL3_00003 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:36 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_004.d

Injection Date: 15-Feb-2018 14:16:03 Instrument ID: A8_N

Lims ID: IC L3 Full

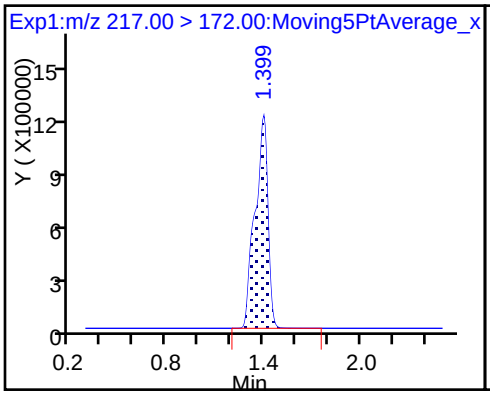
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 4

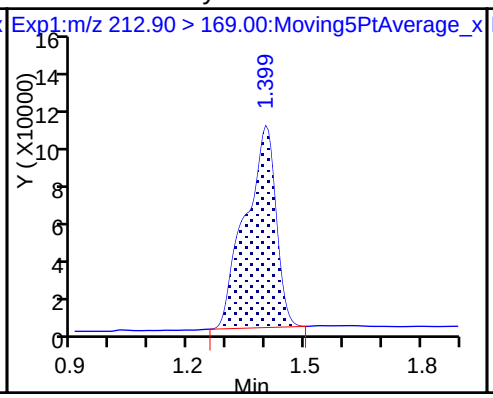
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

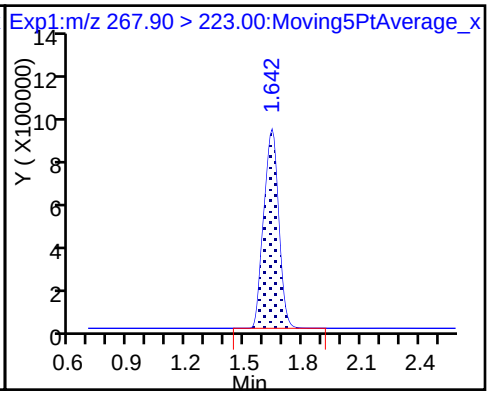
D 1 13C4 PFBA



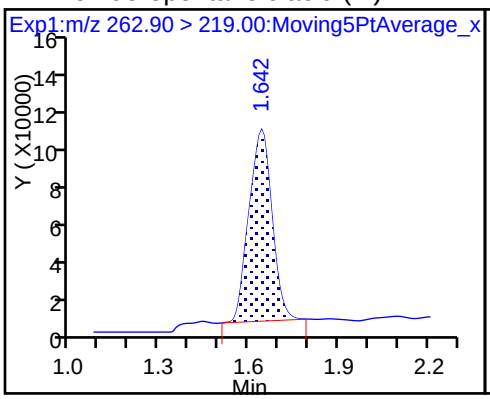
2 Perfluorobutyric acid



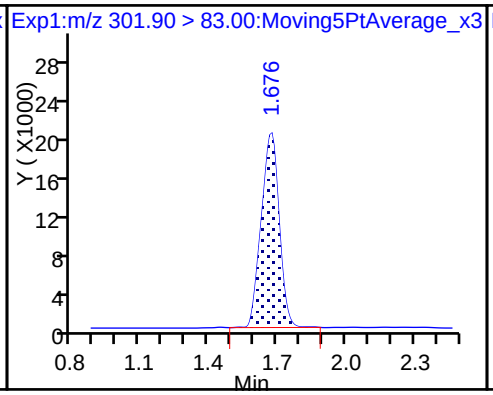
D 3 13C5-PFPeA



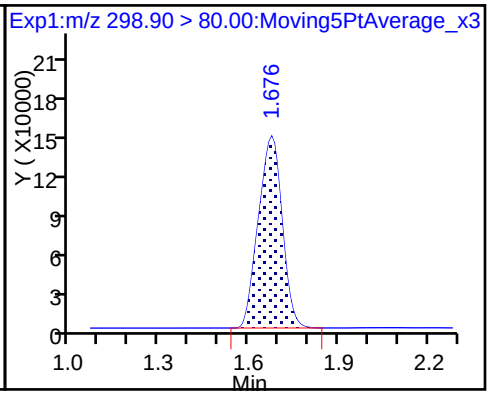
4 Perfluoropentanoic acid (M)



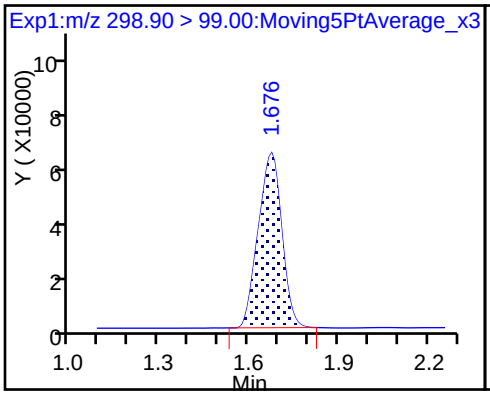
D 47 13C3-PFBS



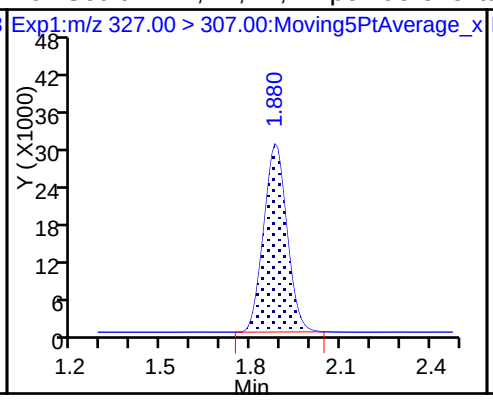
5 Perfluorobutanesulfonic acid



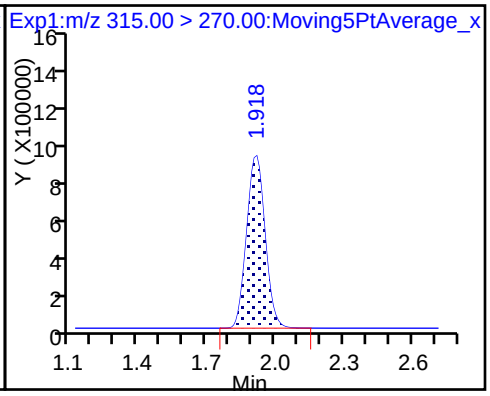
5 Perfluorobutanesulfonic acid



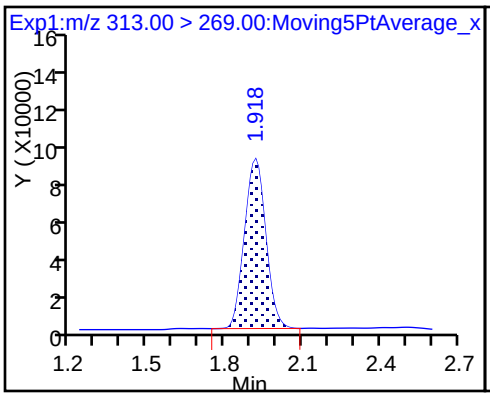
61 Sodium 1H,1H,2H,2H-perfluorohexa



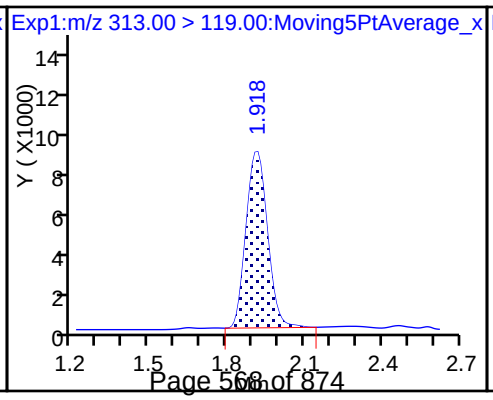
D 7 13C2 PFHxA



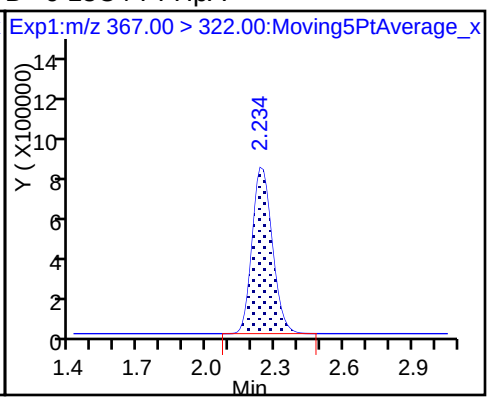
6 Perfluorohexanoic acid



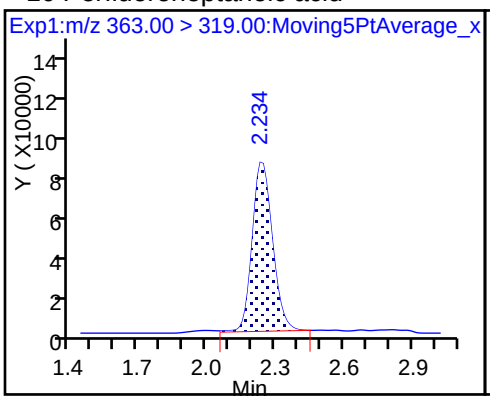
6 Perfluorohexanoic acid



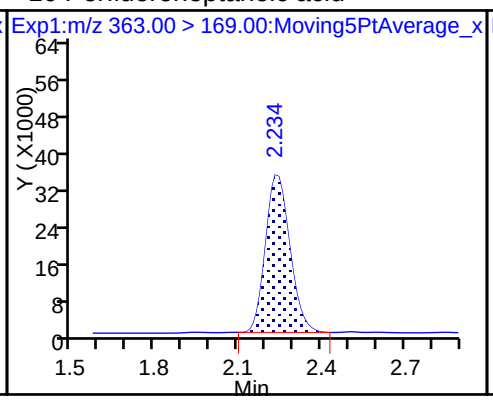
D 9 13C4-PFHpA



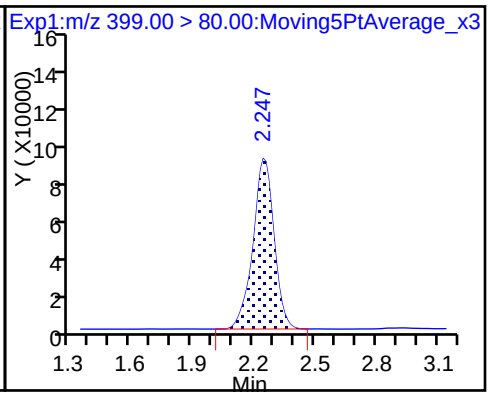
10 Perfluoroheptanoic acid



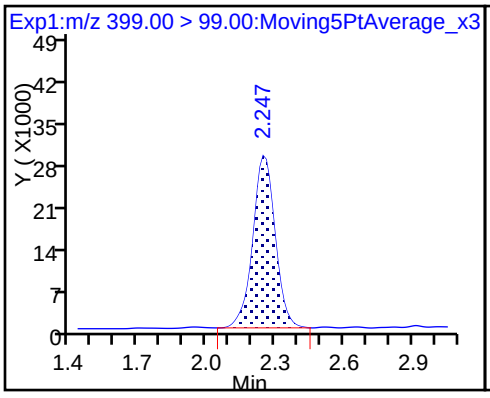
10 Perfluoroheptanoic acid



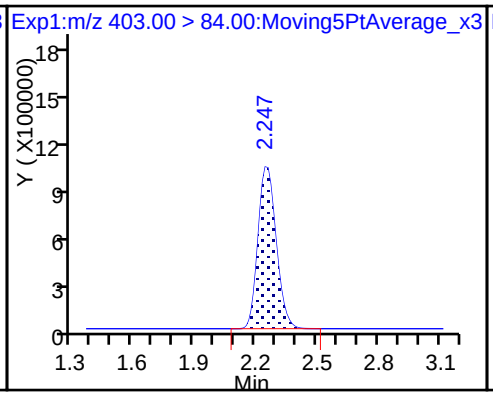
8 Perfluorohexanesulfonic acid



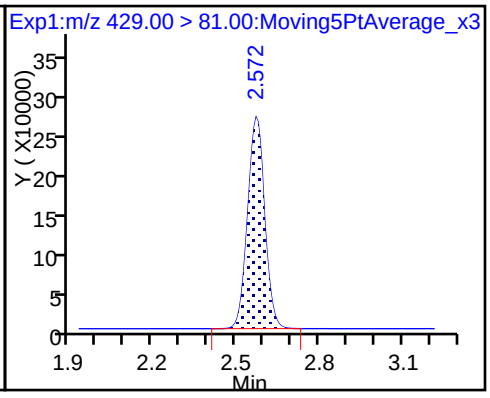
8 Perfluorohexanesulfonic acid



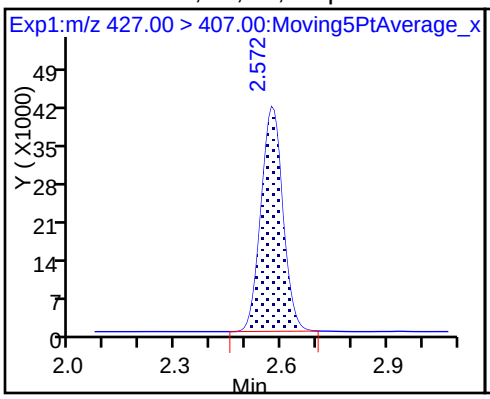
D 11 18O2 PFHxS



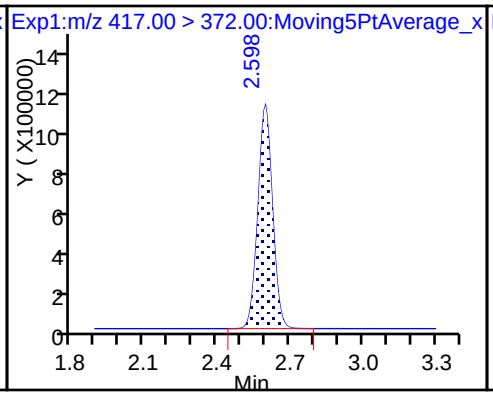
D 12 M2-6:2FTS



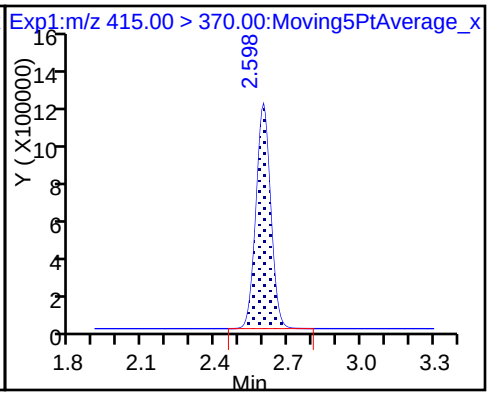
13 Sodium 1H,1H,2H,2H-perfluorooctane



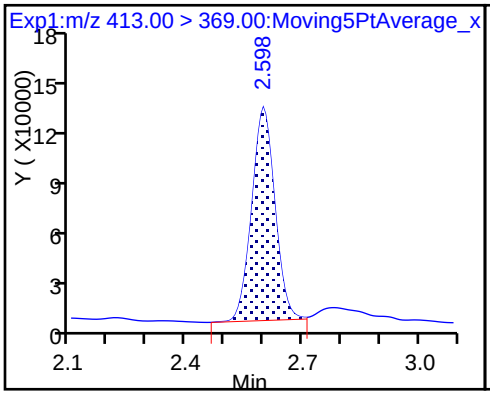
D 14 13C4 PFOA



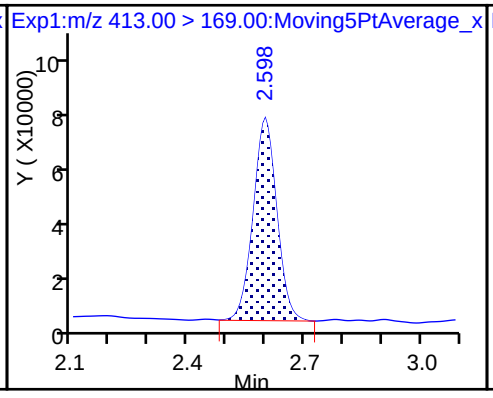
* 62 13C2-PFOA



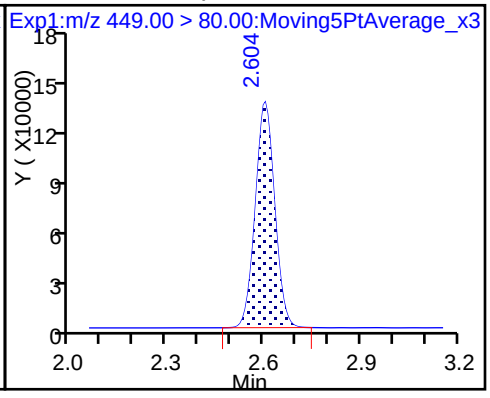
15 Perfluorooctanoic acid



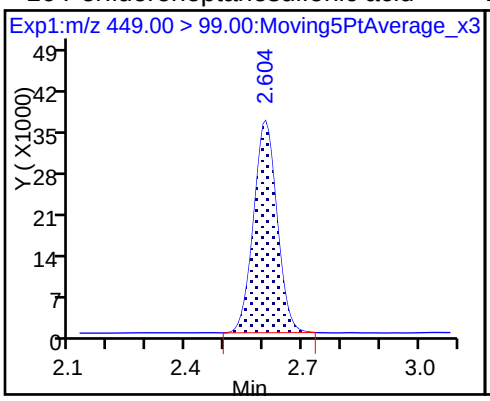
15 Perfluorooctanoic acid



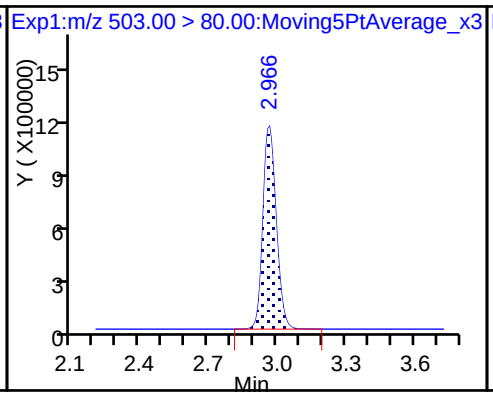
16 Perfluoroheptanesulfonic acid



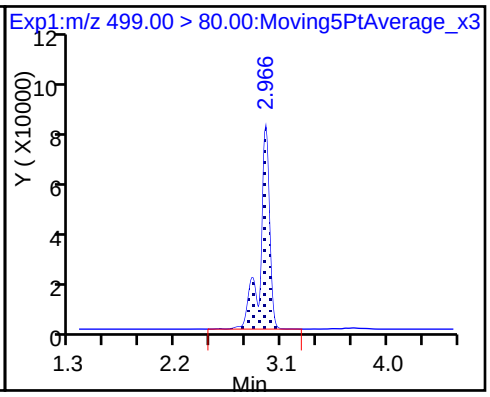
16 Perfluoroheptanesulfonic acid



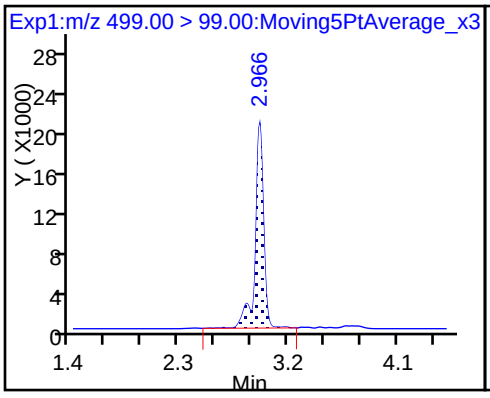
D 18 13C4 PFOS



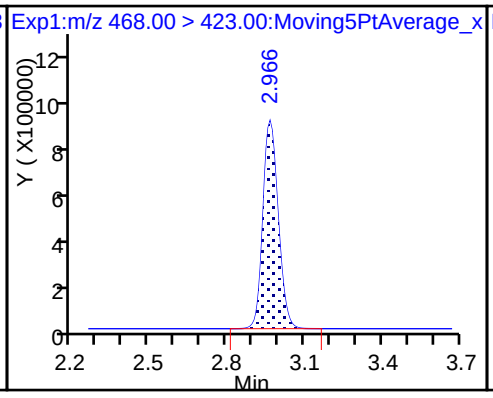
17 Perfluorooctane sulfonic acid



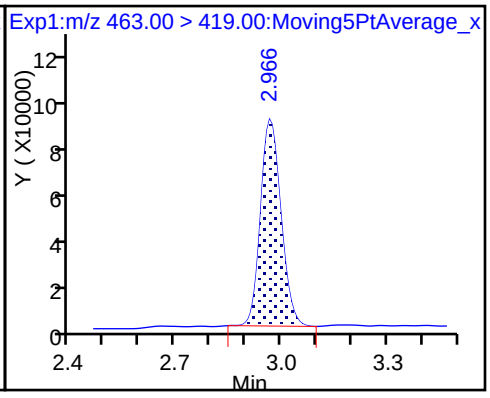
17 Perfluorooctane sulfonic acid



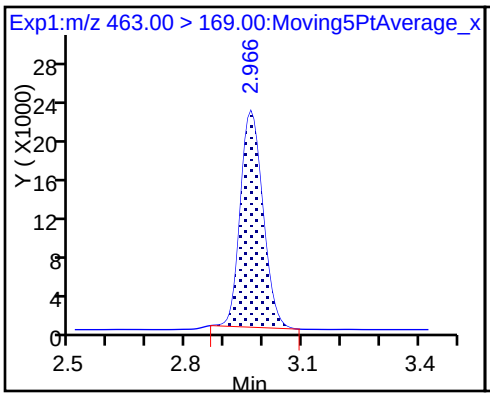
D 19 13C5 PFNA



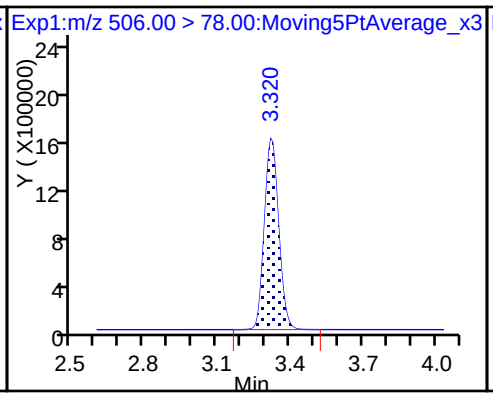
20 Perfluorononanoic acid



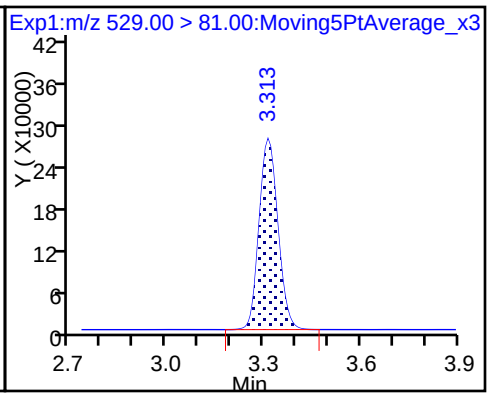
20 Perfluorononanoic acid



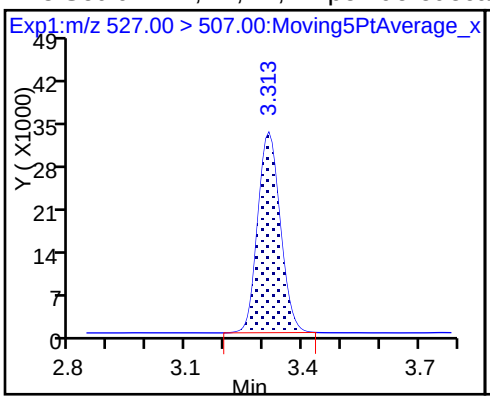
D 21 13C8 FOSA



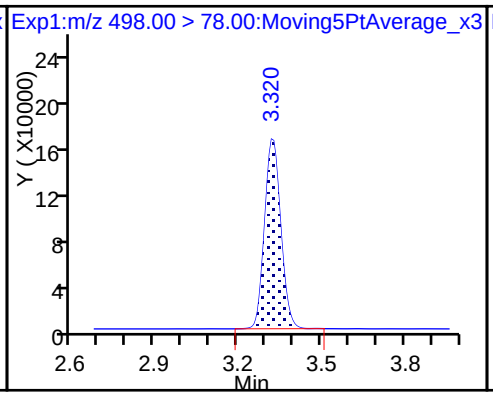
D 26 M2-8:2FTS



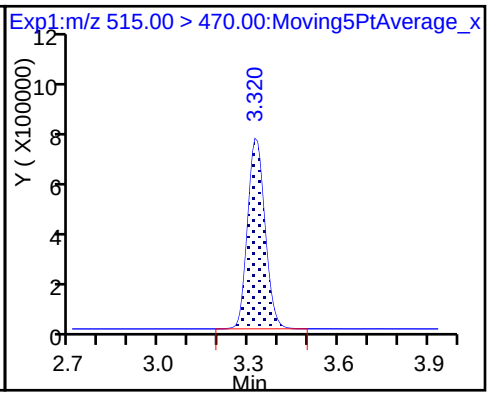
25 Sodium 1H,1H,2H,2H-perfluorodecane



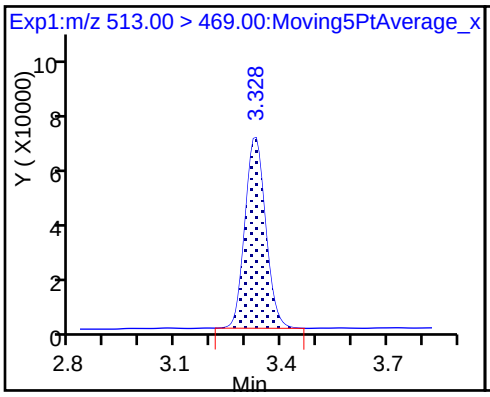
22 Perfluorooctane Sulfonamide



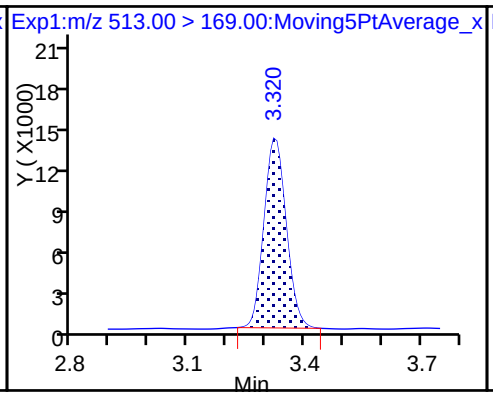
D 23 13C2 PFDA



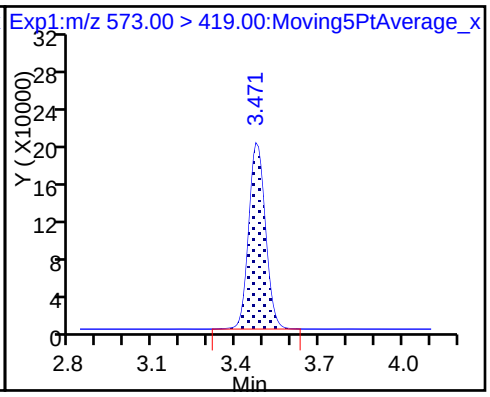
24 Perfluorodecanoic acid



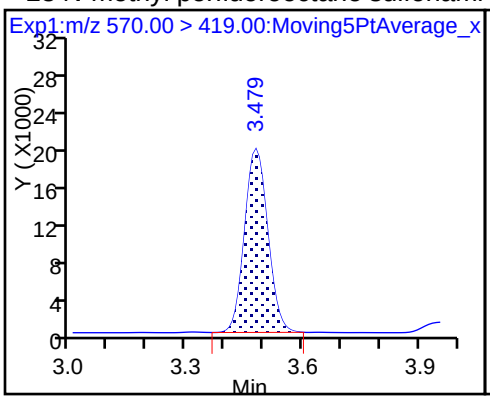
24 Perfluorodecanoic acid



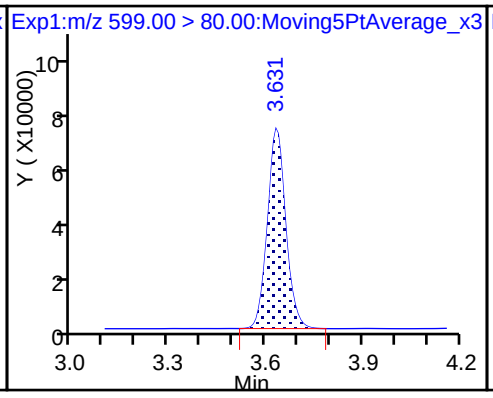
D 27 d3-NMeFOSAA



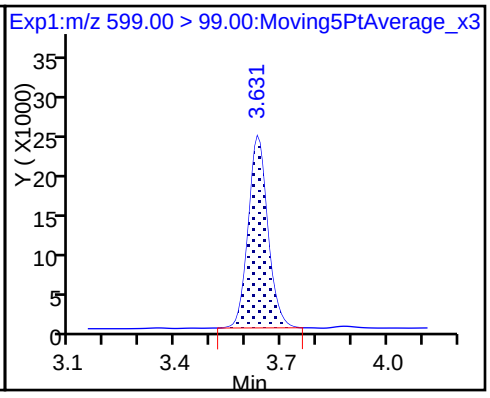
28 N-methyl perfluorooctane sulfonami



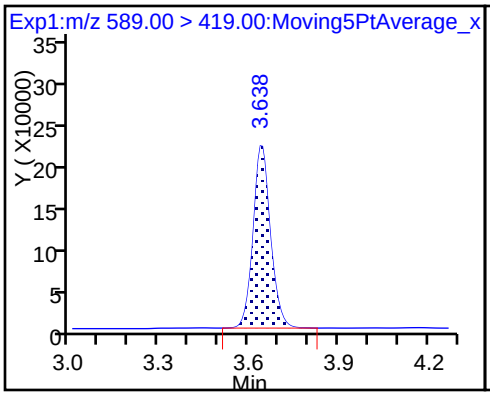
29 Perfluorodecane Sulfonic acid



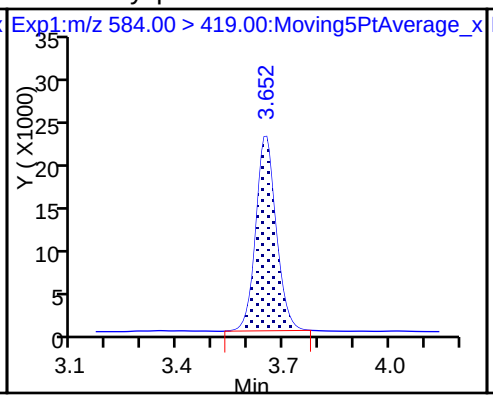
29 Perfluorodecane Sulfonic acid



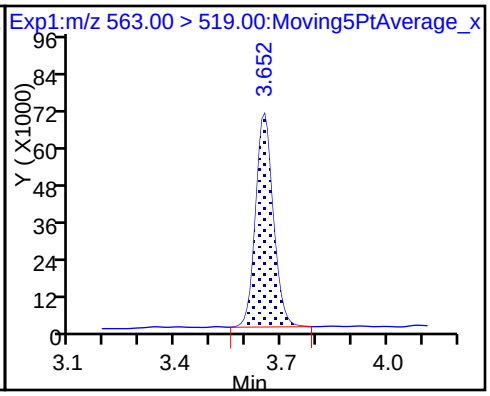
D 32 d5-NEtFOSAA



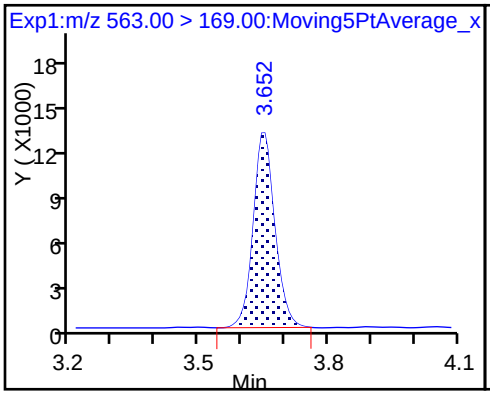
33 N-ethyl perfluorooctane sulfonamid



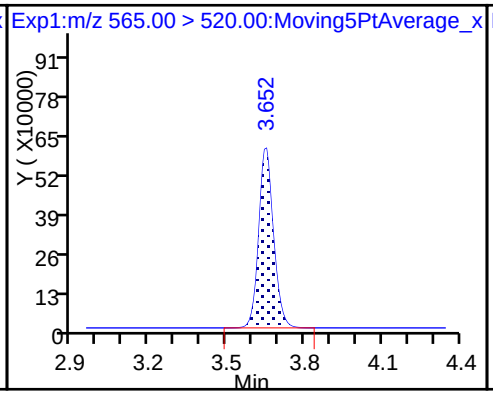
31 Perfluoroundecanoic acid



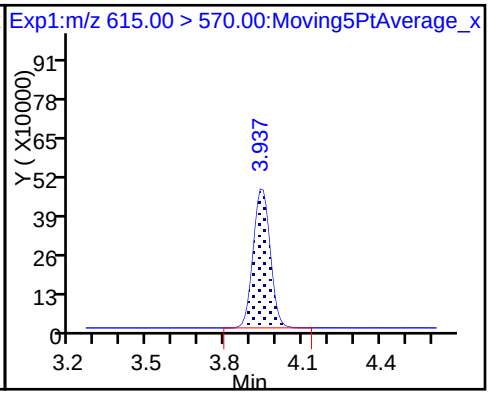
31 Perfluoroundecanoic acid



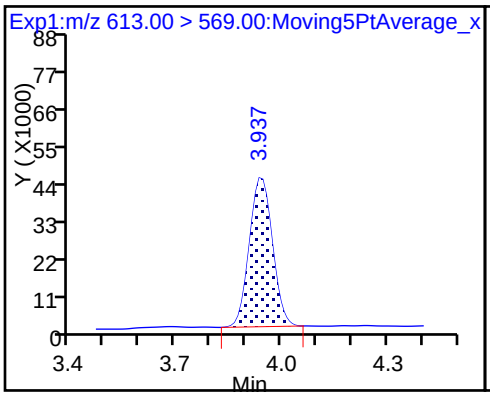
D 30 13C2 PFUnA



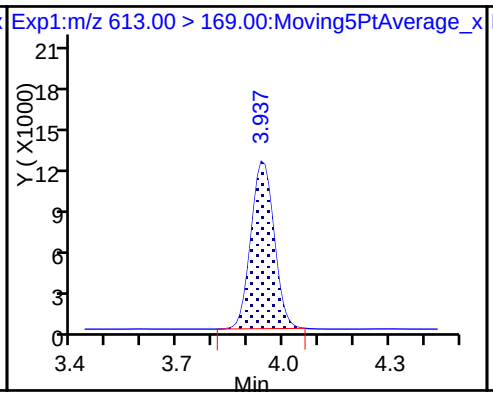
D 36 13C2 PFDoA



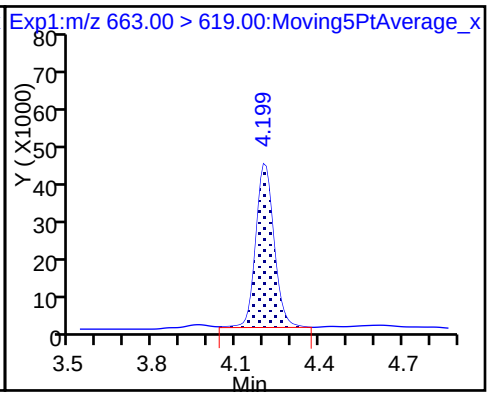
37 Perfluorododecanoic acid



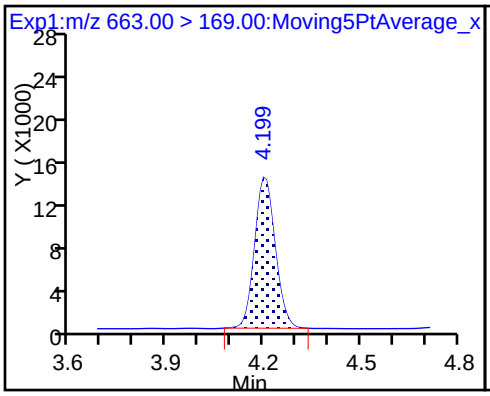
37 Perfluorododecanoic acid



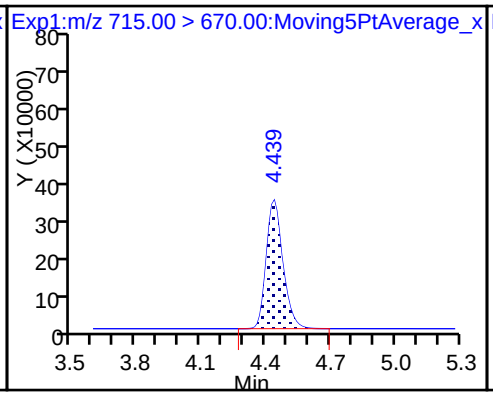
41 Perfluorotridecanoic acid



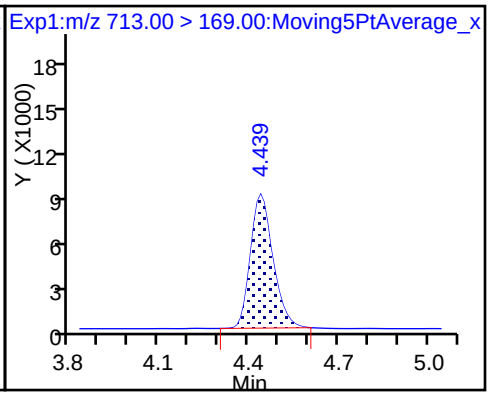
41 Perfluorotridecanoic acid



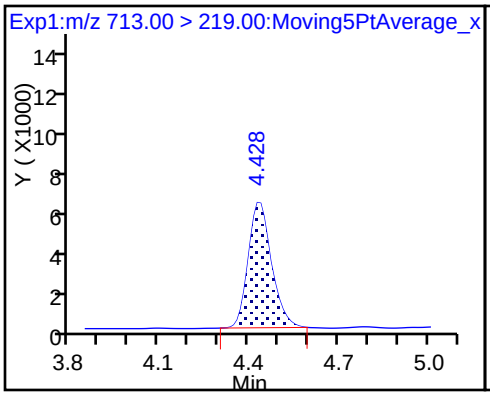
D 43 13C2-PFTeDA



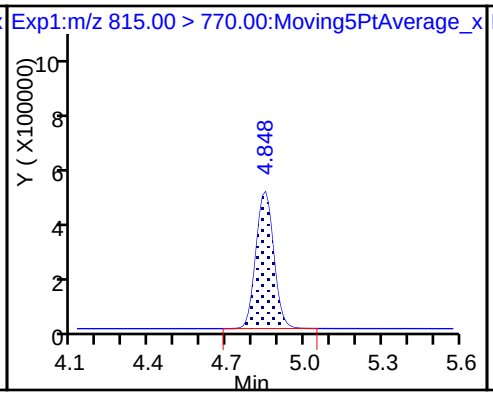
42 Perfluorotetradecanoic acid



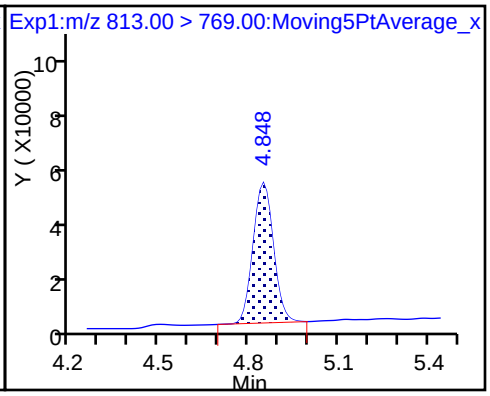
42 Perfluorotetradecanoic acid



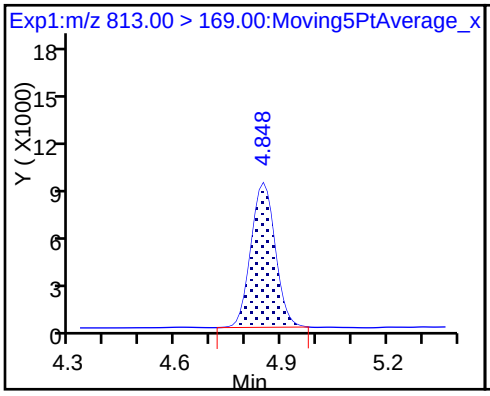
D 44 13C2-PFHxDA



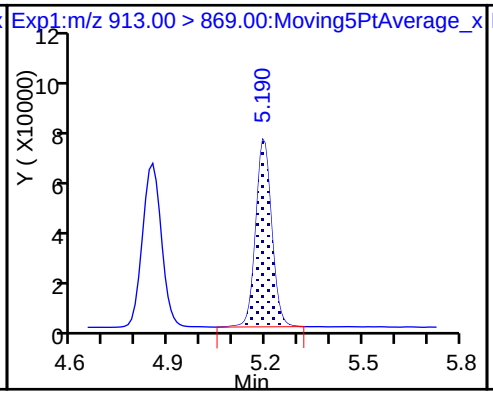
45 Perfluorohexadecanoic acid



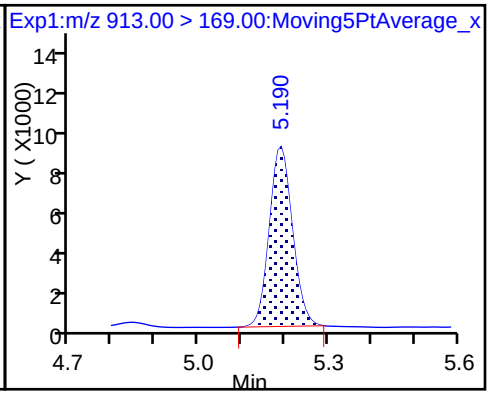
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

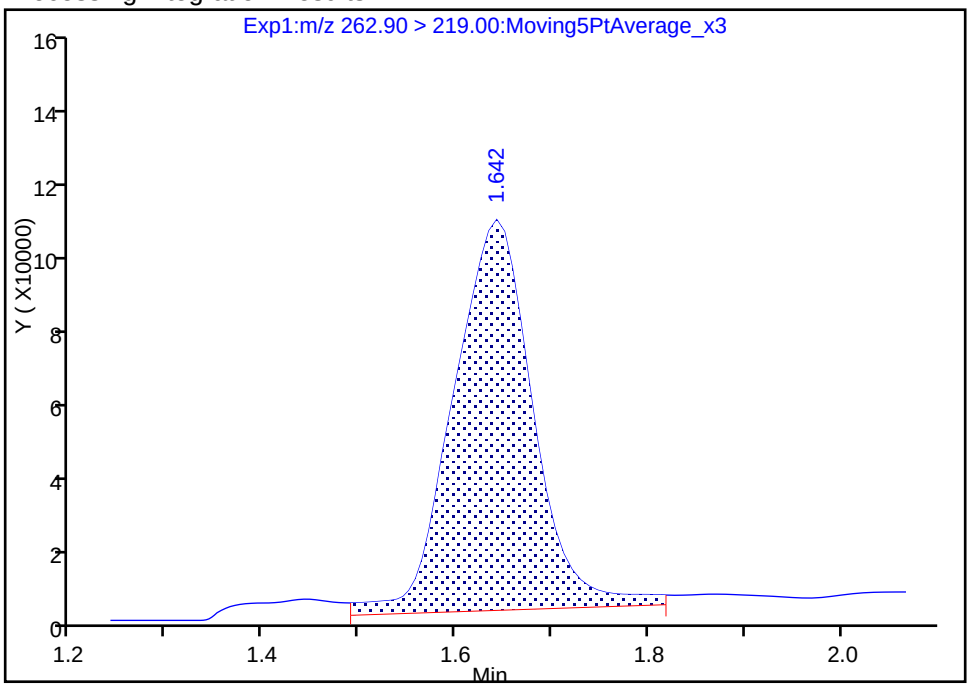
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICAL_004.d				
Injection Date:	15-Feb-2018 14:16:03	Instrument ID:	A8_N		
Lims ID:	IC L3 Full				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

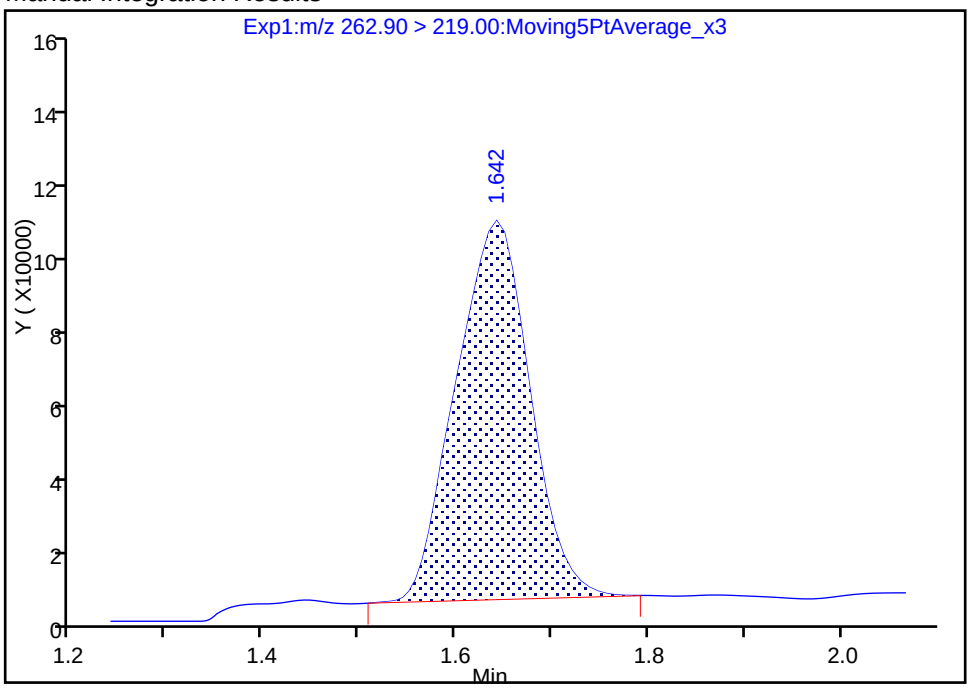
Processing Integration Results

RT: 1.64
Area: 599827
Amount: 0.255451
Amount Units: ng/ml



Manual Integration Results

RT: 1.64
Area: 539464
Amount: 0.239856
Amount Units: ng/ml



Reviewer: roycea, 15-Feb-2018 15:27:55
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_005.d
Lims ID: IC L4 Full
Client ID:
Sample Type: ICIS Calib Level: 4
Inject. Date: 15-Feb-2018 14:50:41 ALS Bottle#: 13 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L4-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:40 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: roycea Date: 15-Feb-2018 15:29:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.408	1.401	0.007	0.535	6461206	2.55		102	73780	
2 Perfluorobutyric acid										
212.90 > 169.00	1.408	1.404	0.004	1.000	2414954	1.00		99.8	619	
D 3 13C5-PFPeA										
267.90 > 223.00	1.654	1.648	0.006	0.629	4552628	2.52		101	85879	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.654	1.649	0.005	1.000	2146647	0.9900		99.0	693	
D 47 13C3-PFBS										
301.90 > 83.00	1.690	1.680	0.010	0.642	110160	2.28		98.1	2570	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.690	1.683	0.007	1.000	3238467	0.9190		104	35785	
298.90 > 99.00	1.690	1.683	0.007	1.000	1302176		2.49(1.25-3.74)	104	15131	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.904	1.891	0.013	1.000	647037	0.9892		106	29889	
D 60 M2-4:2FTS										
329.00 > 81.00	1.904	1.891	0.013	0.724	711484	NC			8119	
D 7 13C2 PFHxA										
315.00 > 270.00	1.935	1.925	0.010	0.735	4989617	2.57		103	110518	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.935	1.926	0.009	1.000	1900651	0.9242		92.4	4976	
313.00 > 119.00	1.935	1.926	0.009	1.000	191901		9.90(5.03-15.10)	92.4	2254	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.267	2.251	0.016	1.000	1940466	0.99		99.2	2479	
363.00 > 169.00	2.267	2.251	0.016	1.000	772371		2.51(1.13-3.40)	99.2	5748	
D 9 13C4-PFHpA										
367.00 > 322.00	2.267	2.251	0.016	0.861	4564071	2.48		99.1	93229	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.280	2.262	0.018	1.000	2327250	0.8493		93.3	9094	
399.00 > 99.00	2.280	2.262	0.018	1.000	810686		2.87(1.50-4.49)	93.3	2454	
D 11 18O2 PFHxS										
403.00 > 84.00	2.280	2.264	0.016	0.866	5876658	2.26		95.8	87385	
D 12 M2-6:2FTS										
429.00 > 81.00	2.603	2.588	0.015	0.989	1137721	2.46		104	30486	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.603	2.589	0.014	1.000	752727	0.9274		97.8	30274	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.631	2.614	0.017	1.000	2016237	1.03		103	219	
413.00 > 169.00	2.631	2.614	0.017	1.000	1048761		1.92(0.84-2.52)	103	326	
* 62 13C2-PFOA										
415.00 > 370.00	2.631	2.614	0.017		4869887	2.50			95850	
D 14 13C4 PFOA										
417.00 > 372.00	2.631	2.614	0.017	1.000	4429606	2.51		100	74809	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.639	2.620	0.019	1.000	2175007	0.9728		102	28954	
449.00 > 99.00	2.639	2.620	0.019	1.000	577824		3.76(1.94-5.82)	102	12566	
D 18 13C4 PFOS										
503.00 > 80.00	3.003	2.981	0.022	1.141	4045688	2.27		94.8	34750	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.003	2.982	0.021	1.000	1698515	0.9346		101	9698	
499.00 > 99.00	3.003	2.982	0.021	1.000	370624		4.58(2.31-6.93)	101	2974	
20 Perfluorononanoic acid										
463.00 > 419.00	3.003	2.983	0.020	1.000	1398732	0.9857		98.6	1892	
463.00 > 169.00	3.003	2.983	0.020	1.000	341049		4.10(1.90-5.69)	98.6	10226	
D 19 13C5 PFNA										
468.00 > 423.00	3.003	2.983	0.020	1.141	3446732	2.53		101	55000	
D 21 13C8 FOSA										
506.00 > 78.00	3.342	3.330	0.012	1.270	6376224	2.48		99.4	46702	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.350	3.330	0.020	1.000	510493	0.9764		102	15821	
D 26 M2-8:2FTS										
529.00 > 81.00	3.350	3.330	0.020	1.273	984526	2.31		96.6	18373	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.342	3.333	0.009	1.000	2498130	1.00		100	39086	
D 23 13C2 PFDA										
515.00 > 470.00	3.365	3.340	0.025	1.279	2820909	2.51		100	41333	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.365	3.341	0.024	1.000	1123042	1.02		102	4270	
513.00 > 169.00	3.365	3.341	0.024	1.000	201555		5.57(2.36-7.09)	102	1570	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.517	3.493	0.024	1.337	795943	2.42		96.9	19802	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.517	3.497	0.020	1.000	316174	0.8906		89.1	4169	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.666	3.648	0.018	1.000	1057504	0.9515		98.7	20448	
599.00 > 99.00	3.666	3.648	0.018	1.000	357976		2.95(1.39-4.16)	98.7	5577	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.682	3.660	0.022	1.399	839239	2.42		96.8	1832	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.682	3.666	0.016	1.000	312409	0.9613		96.1	7317	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.682	3.668	0.014	0.998	757359	0.8268		82.7	1864	
563.00 > 169.00	3.691	3.668	0.023	1.000	185270		4.09(0.00-0.00)	82.7	9991	
D 30 13C2 PFUnA										
565.00 > 520.00	3.691	3.669	0.022	1.403	2141615	2.49		99.8	51146	
D 36 13C2 PFDoA										
615.00 > 570.00	3.983	3.960	0.023	1.514	2055837	2.51		101	23205	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.983	3.961	0.022	1.000	765815	0.9232		92.3	1061	
613.00 > 169.00	3.983	3.961	0.022	1.000	212404		3.61(2.13-6.40)	92.3	9911	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.245	4.221	0.024	1.000	752164	0.9713		97.1	1662	
663.00 > 169.00	4.245	4.221	0.024	1.000	242847		3.10(1.25-3.76)	97.1	6895	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.459	0.014	1.000	177127	0.9328		93.3	6184	
713.00 > 219.00	4.473	4.459	0.014	1.000	126684		1.40(0.71-2.13)	93.3	2520	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.459	0.014	1.700	1793548	2.48		99.4	21148	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.896	4.867	0.029	1.861	2351088	2.41		96.5	13203	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.896	4.871	0.025	1.000	904535	0.9886		98.9	178	
813.00 > 169.00	4.896	4.871	0.025	1.000	165109		5.48(2.86-8.58)	98.9	2905	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.247	5.216	0.031	1.000	974785	1.05		105	204	
913.00 > 169.00	5.247	5.216	0.031	1.000	125002		7.80(0.00-0.00)	105	1057	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL4_00003 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:40 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_005.d

Injection Date: 15-Feb-2018 14:50:41 Instrument ID: A8_N

Lims ID: IC L4 Full

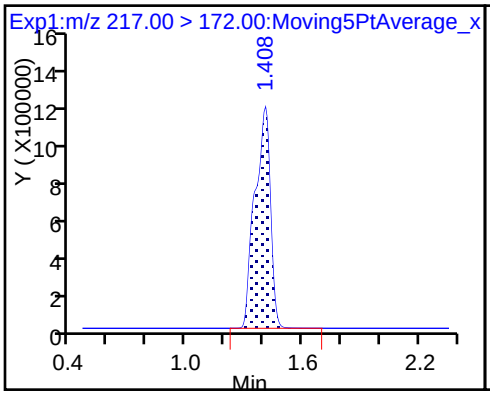
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 5

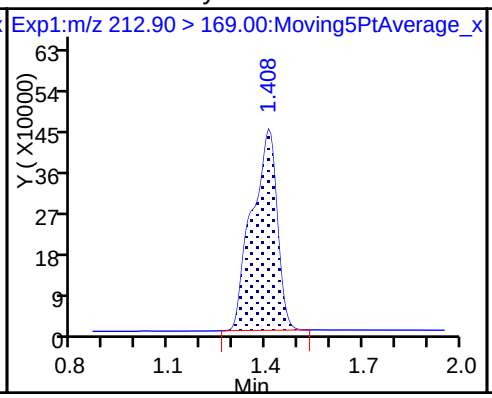
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

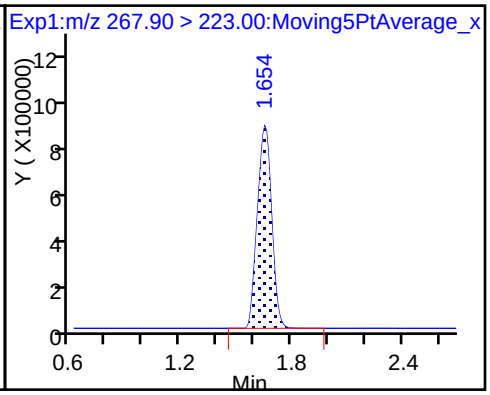
D 1 13C4 PFBA



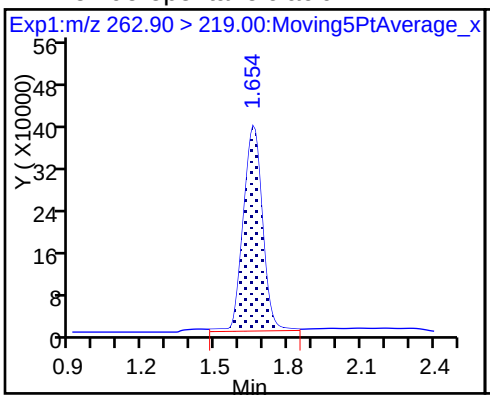
2 Perfluorobutyric acid



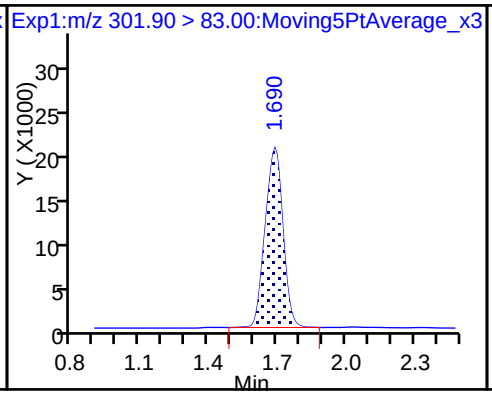
D 3 13C5-PFPeA



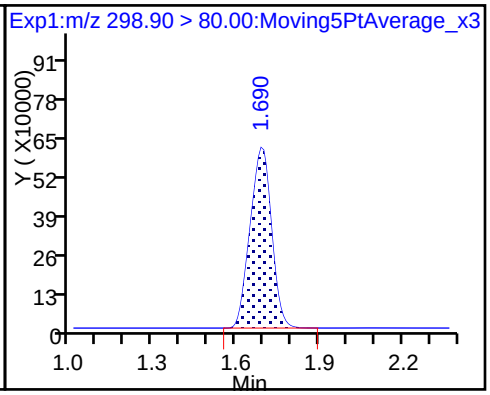
4 Perfluoropentanoic acid



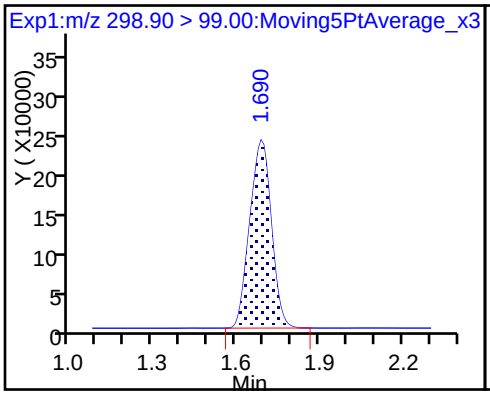
D 47 13C3-PFBS



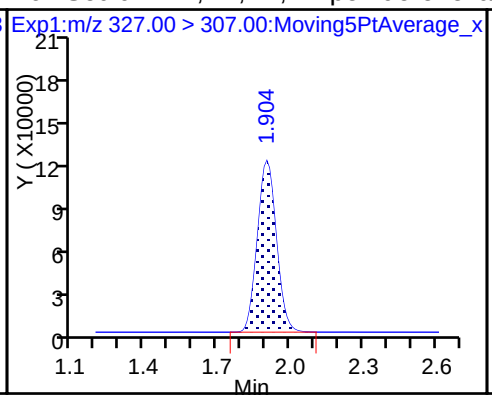
5 Perfluorobutanesulfonic acid



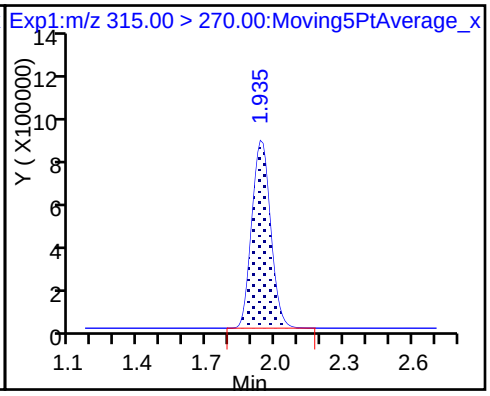
5 Perfluorobutanesulfonic acid



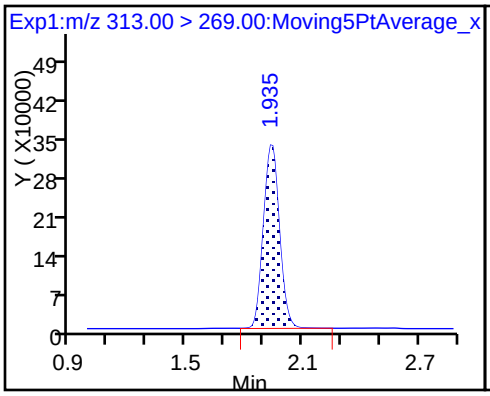
61 Sodium 1H,1H,2H,2H-perfluorohexa



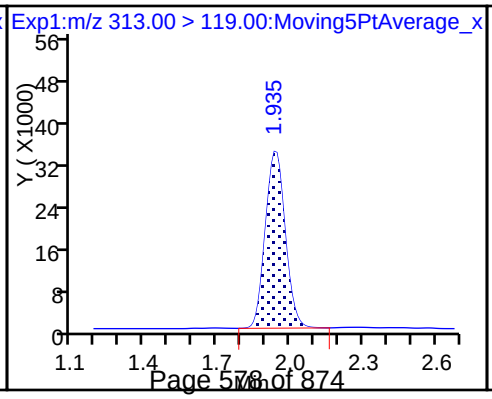
D 7 13C2 PFHxA



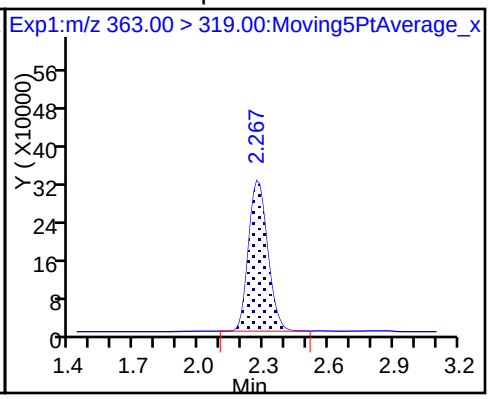
6 Perfluorohexanoic acid



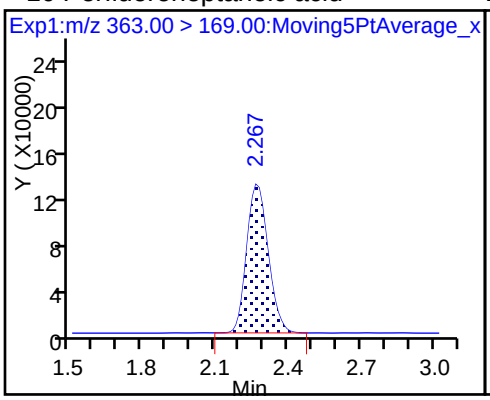
6 Perfluorohexanoic acid



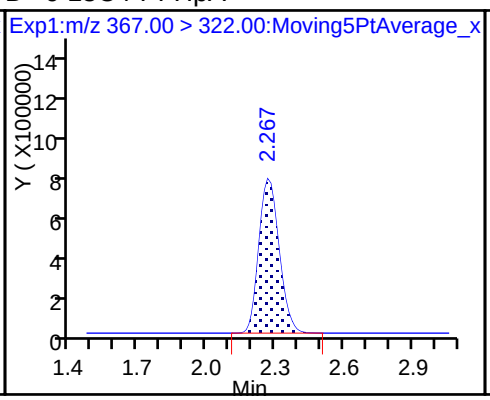
10 Perfluoroheptanoic acid



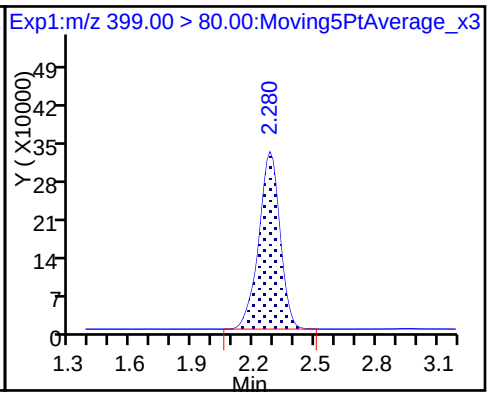
10 Perfluoroheptanoic acid



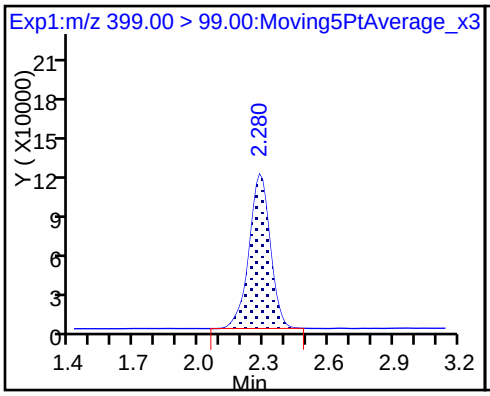
D 9 13C4-PFHpA



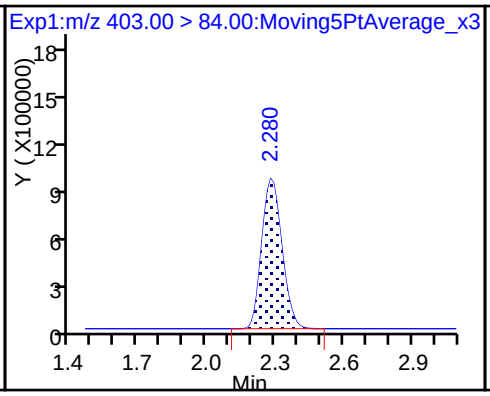
8 Perfluorohexanesulfonic acid



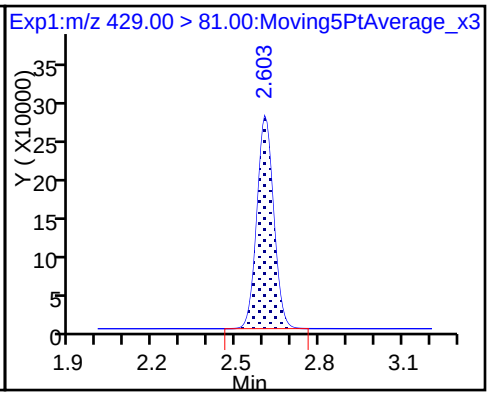
8 Perfluorohexanesulfonic acid



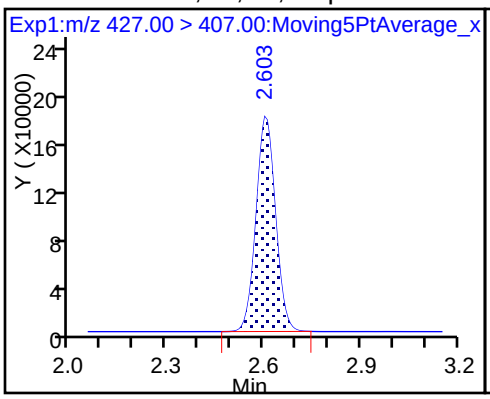
D 11 18O2 PFHxS



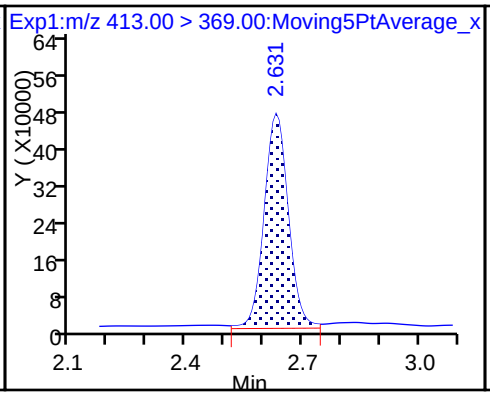
D 12 M2-6:2FTS



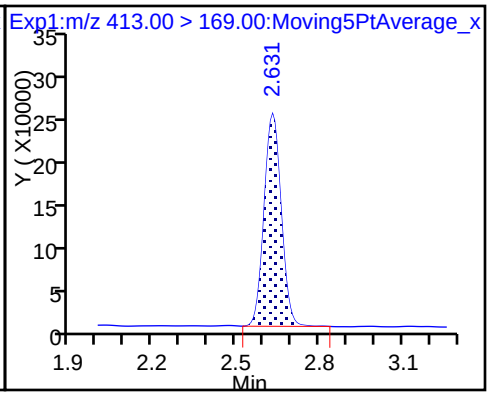
13 Sodium 1H,1H,2H,2H-perfluorooctane



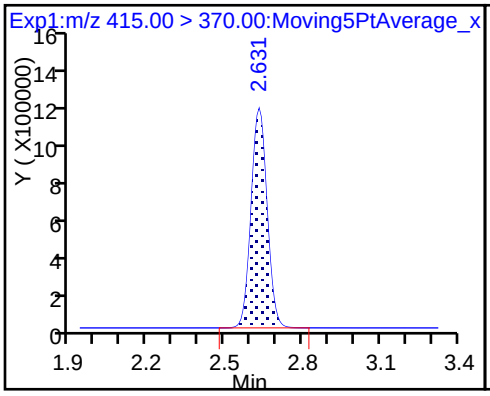
15 Perfluorooctanoic acid



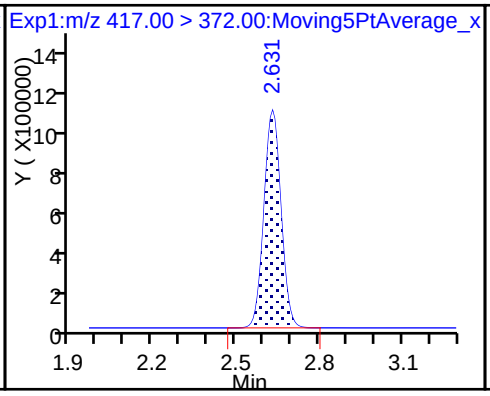
15 Perfluorooctanoic acid



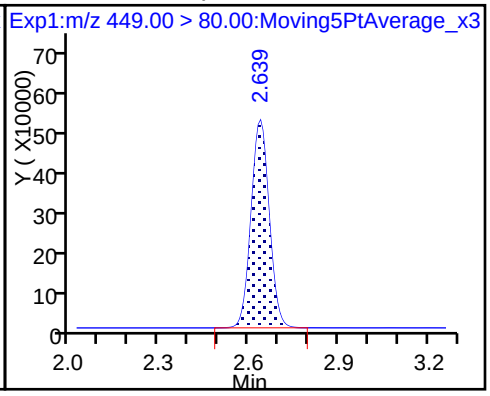
* 62 13C2-PFOA



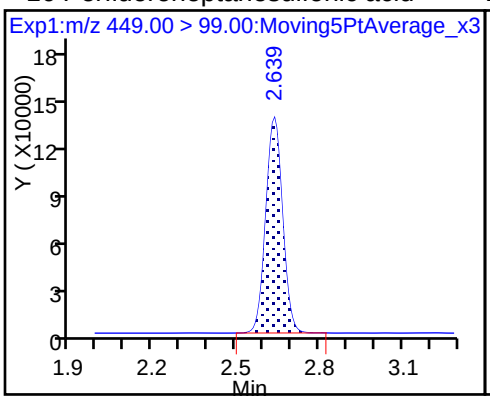
D 14 13C4 PFOA



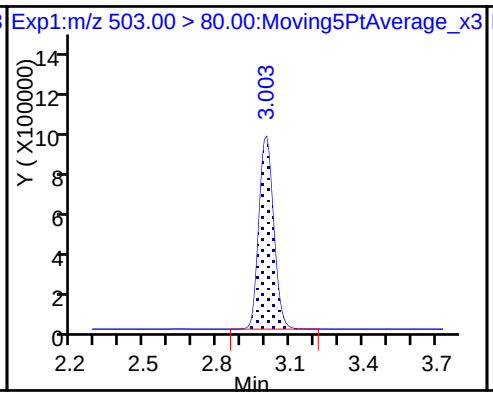
16 Perfluoroheptanesulfonic acid



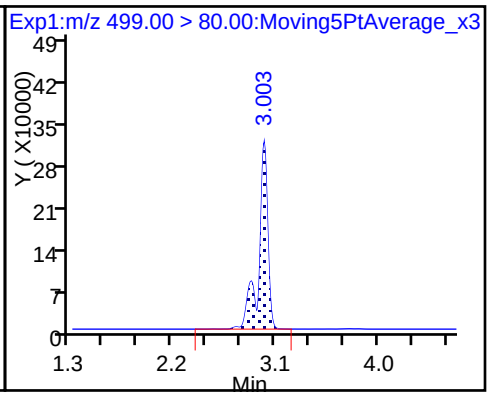
16 Perfluoroheptanesulfonic acid



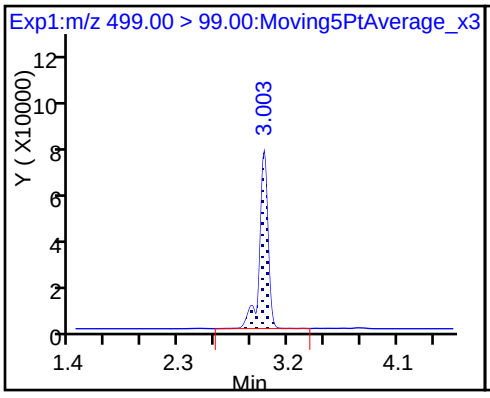
D 18 13C4 PFOS



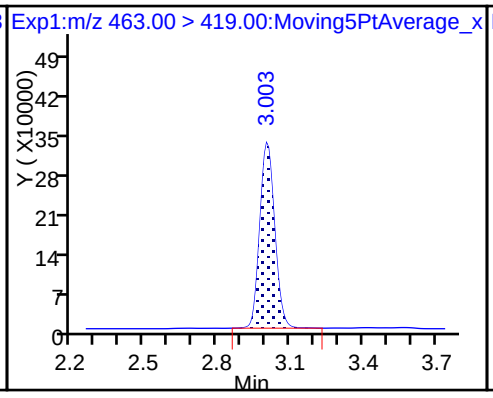
17 Perfluorooctane sulfonic acid



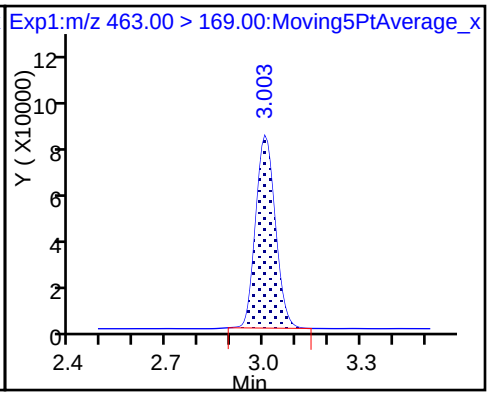
17 Perfluorooctane sulfonic acid



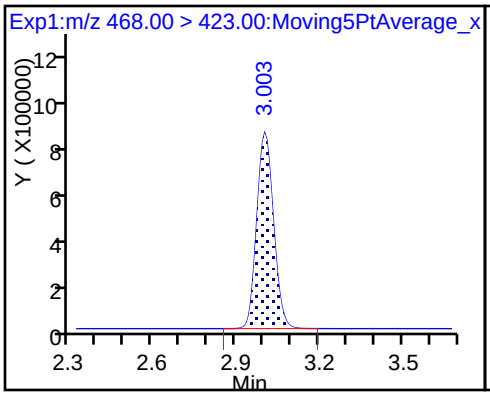
20 Perfluorononanoic acid



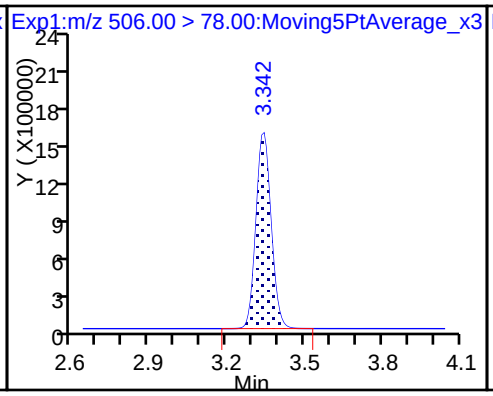
20 Perfluorononanoic acid



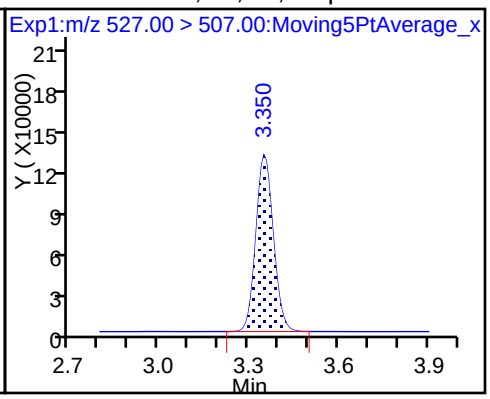
D 19 13C5 PFNA



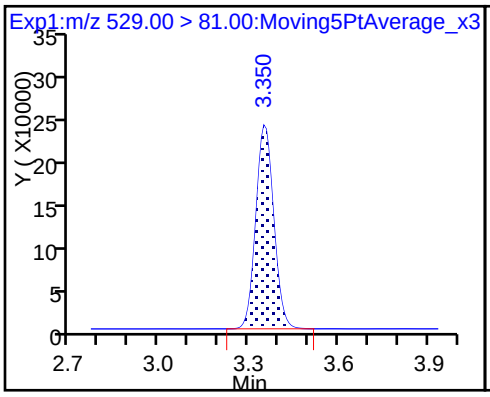
D 21 13C8 FOSA



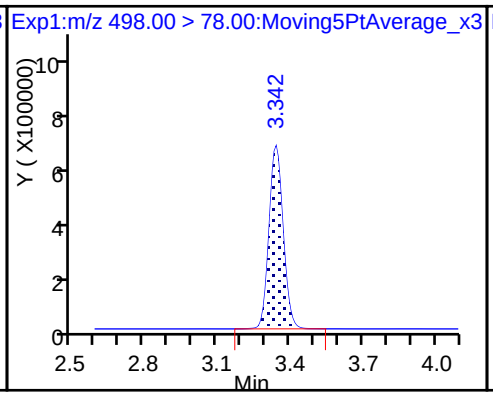
25 Sodium 1H,1H,2H,2H-perfluorodecane



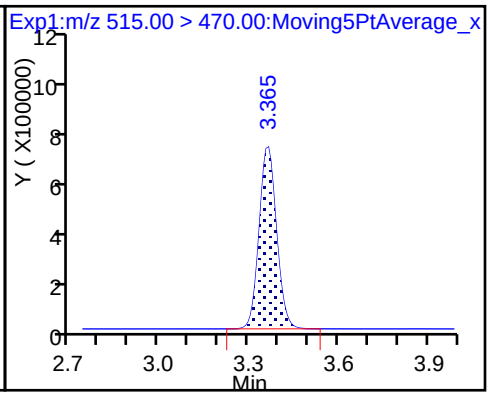
D 26 M2-8:2FTS



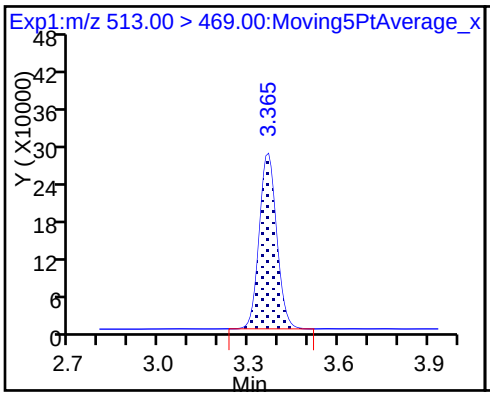
22 Perfluorooctane Sulfonamide



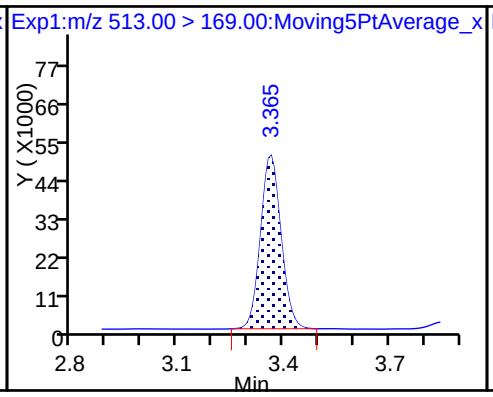
D 23 13C2 PFDA



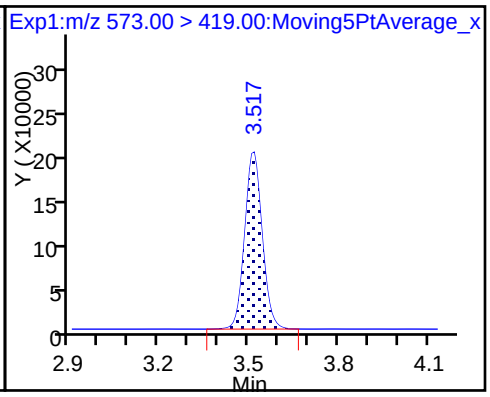
24 Perfluorodecanoic acid



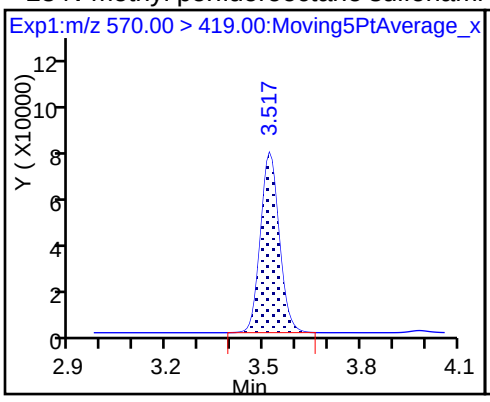
24 Perfluorodecanoic acid



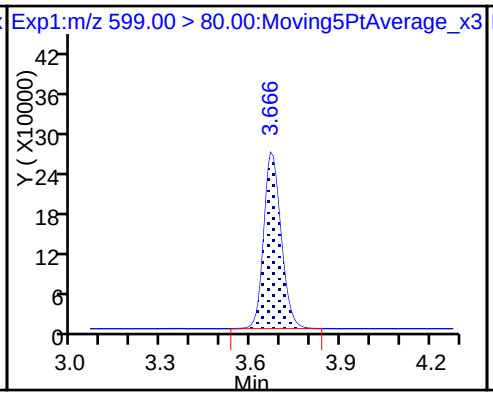
D 27 d3-NMeFOSAA



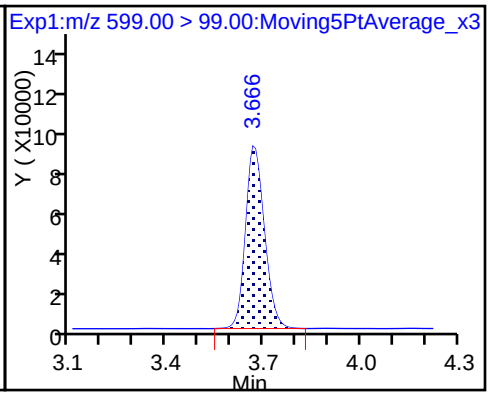
28 N-methyl perfluorooctane sulfonami



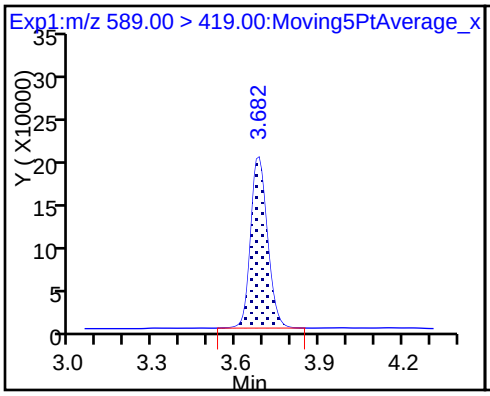
29 Perfluorodecane Sulfonic acid



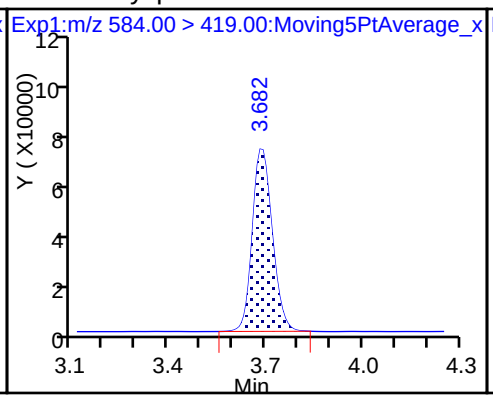
29 Perfluorodecane Sulfonic acid



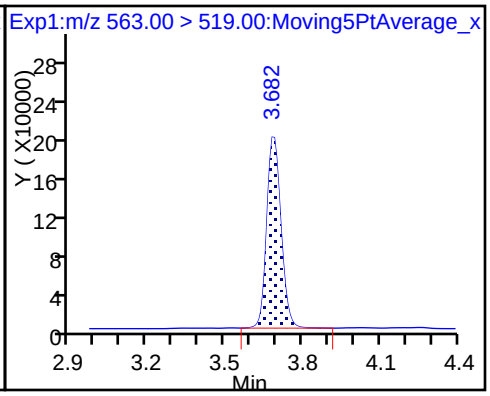
D 32 d5-NEtFOSAA



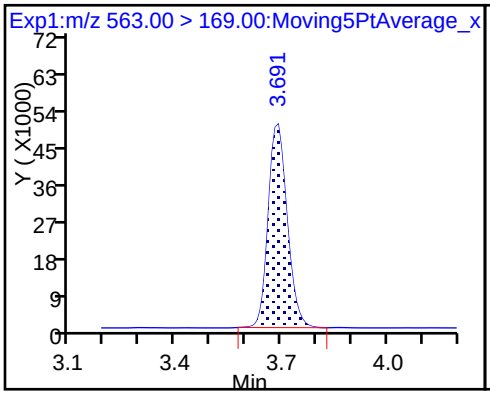
33 N-ethyl perfluorooctane sulfonamid



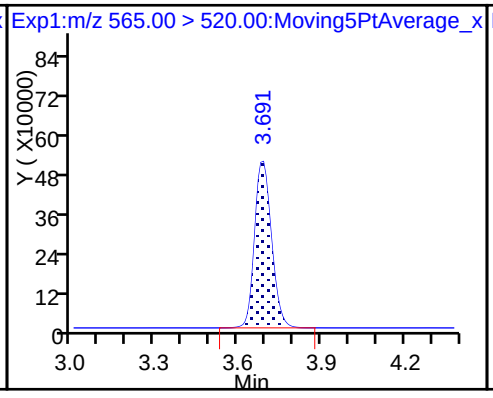
31 Perfluoroundecanoic acid



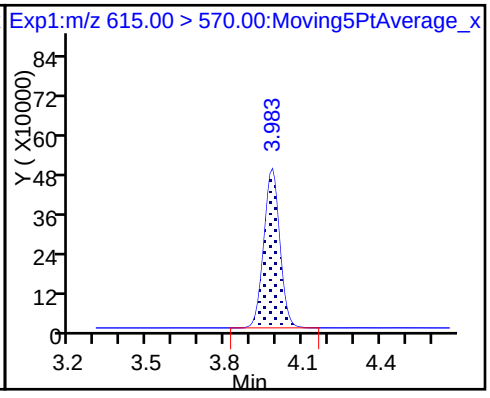
31 Perfluoroundecanoic acid



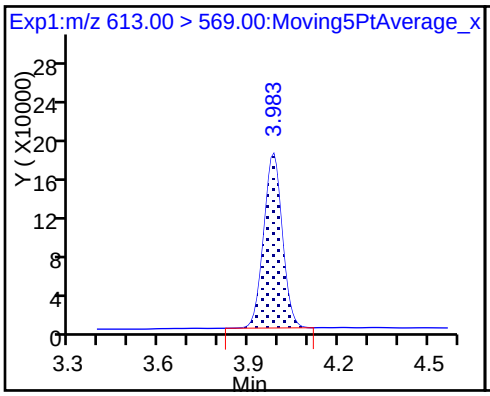
D 30 13C2 PFUnA



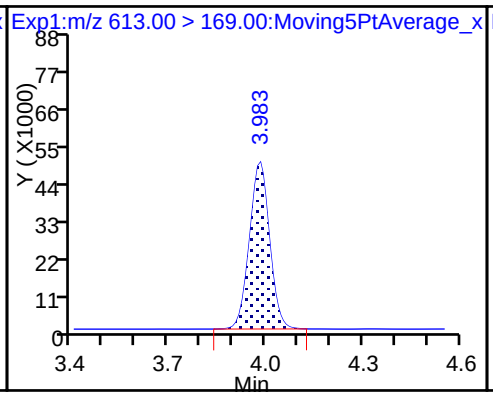
D 36 13C2 PFDoA



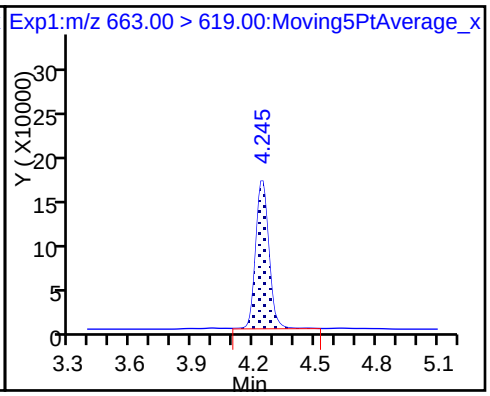
37 Perfluorododecanoic acid



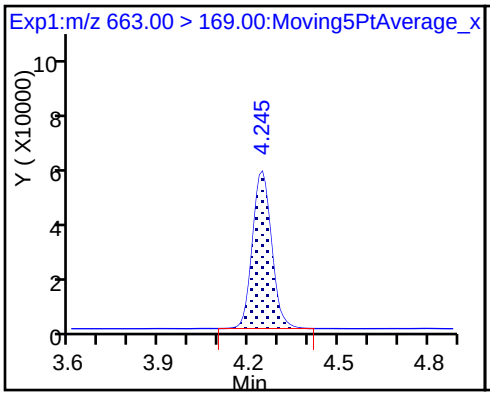
37 Perfluorododecanoic acid



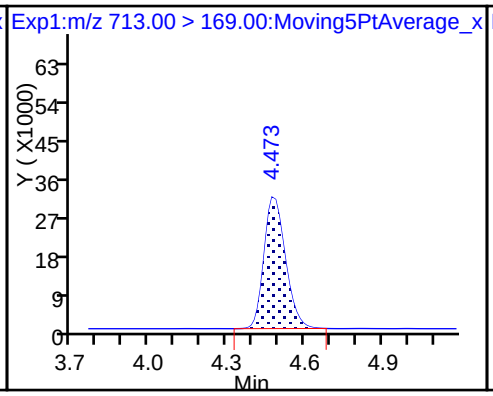
41 Perfluorotridecanoic acid



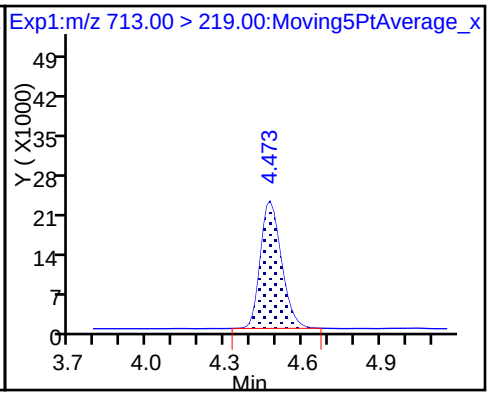
41 Perfluorotridecanoic acid



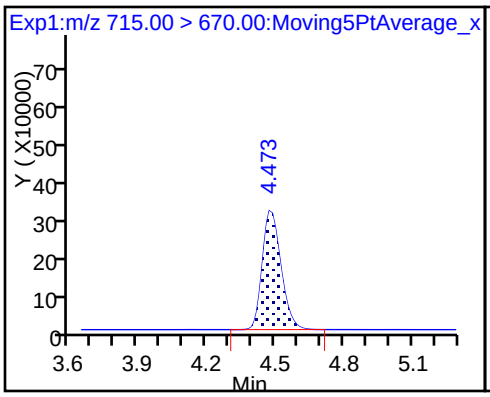
42 Perfluorotetradecanoic acid



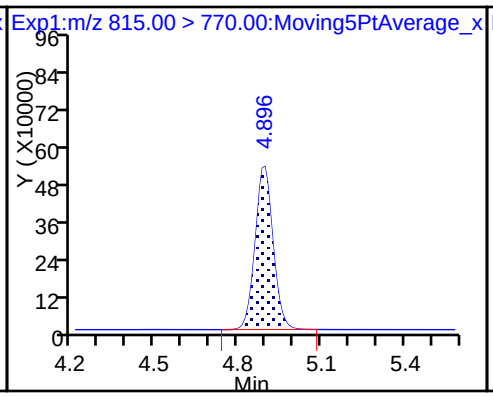
42 Perfluorotetradecanoic acid



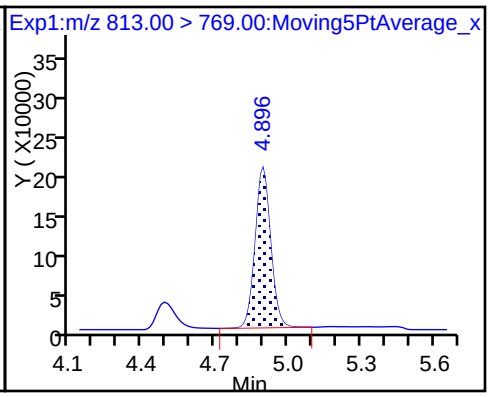
D 43 13C2-PFTeDA



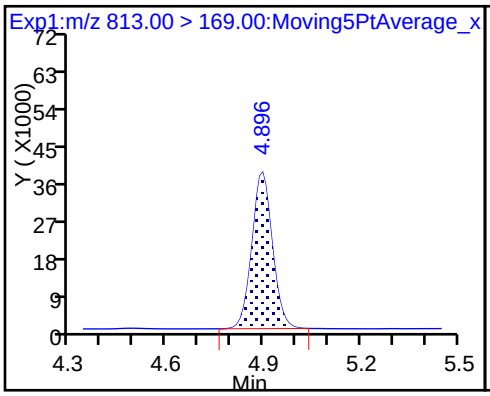
D 44 13C2-PFHxDA



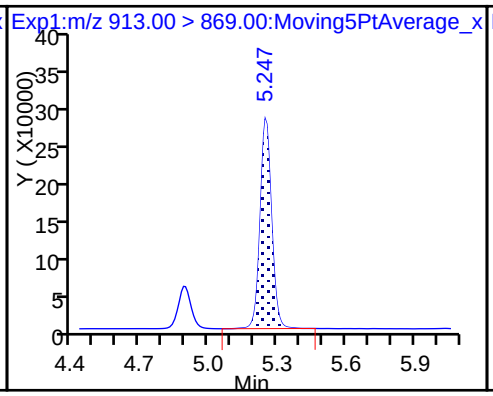
45 Perfluorohexadecanoic acid



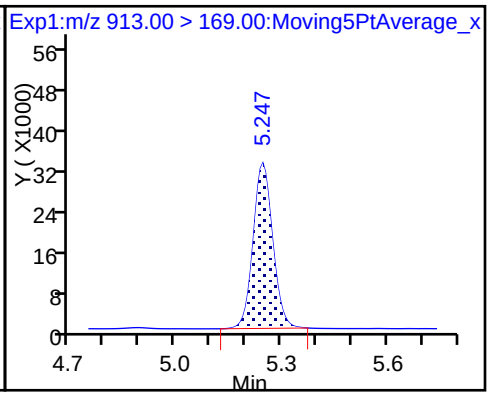
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_006.d
Lims ID: IC L5 Full
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 15-Feb-2018 14:58:32 ALS Bottle#: 14 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:44 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: hannigana Date: 15-Feb-2018 15:50:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.401	1.401	0.0	0.534	5986049	2.53		101	78459	
2 Perfluorobutyric acid										
212.90 > 169.00	1.407	1.404	0.003	1.004	5686979	2.54		101	1555	
D 3 13C5-PFPeA										
267.90 > 223.00	1.647	1.648	-0.001	0.628	4241224	2.51		100	65674	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.655	1.649	0.006	1.005	4975289	2.46		98.5	1553	
D 47 13C3-PFBS										
301.90 > 83.00	1.681	1.680	0.001	0.641	107540	2.38		102	2520	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.681	1.683	-0.002	1.000	7594032	2.21		99.9	77761	
298.90 > 99.00	1.690	1.683	0.007	1.005	3079843		2.47(1.25-3.74)	99.9	37919	
D 60 M2-4:2FTS										
329.00 > 81.00	1.894	1.891	0.003	0.722	663150	NC			10122	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.894	1.891	0.003	1.000	1409217	2.21		94.5	50961	
D 7 13C2 PFHxA										
315.00 > 270.00	1.925	1.925	0.0	0.734	4615171	2.54		102	89782	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.935	1.926	0.009	1.005	4783696	2.51		101	15020	
313.00 > 119.00	1.935	1.926	0.009	1.005	429336		11.14(5.03-15.10)	101	5779	
D 9 13C4-PFHpA										
367.00 > 322.00	2.254	2.251	0.003	0.859	4474809	2.60		104	81386	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.254	2.251	0.003	1.000	4639328	2.42		96.8	6158	
363.00 > 169.00	2.267	2.251	0.016	1.006	1933201		2.40(1.13-3.40)	96.8	14994	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.267	2.262	0.005	1.000	5958917	2.22		97.7	20315	
399.00 > 99.00	2.267	2.262	0.005	1.000	1944161		3.07(1.50-4.49)	97.7	6701	
D 11 18O2 PFHxS										
403.00 > 84.00	2.267	2.264	0.003	0.864	5746994	2.37		100	84538	
D 12 M2-6:2FTS										
429.00 > 81.00	2.597	2.588	0.009	0.990	1049312	2.43		102	24833	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.597	2.589	0.008	1.000	1735257	2.32		97.8	50891	
D 14 13C4 PFOA										
417.00 > 372.00	2.624	2.614	0.010	1.000	4146971	2.51		101	75646	
* 62 13C2-PFOA										
415.00 > 370.00	2.624	2.614	0.010		4551331	2.50			81759	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.624	2.614	0.010	1.000	4720913	2.58		103	555	
413.00 > 169.00	2.624	2.614	0.010	1.000	2536292		1.86(0.84-2.52)	103	775	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.631	2.620	0.011	1.000	5376906	2.41		101	85541	
449.00 > 99.00	2.631	2.620	0.011	1.000	1454153		3.70(1.94-5.82)	101	24617	
D 18 13C4 PFOS										
503.00 > 80.00	2.987	2.981	0.006	1.138	4037623	2.42		101	33884	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.987	2.982	0.005	1.000	4257556	2.35		101	20391	M
499.00 > 99.00	2.987	2.982	0.005	1.000	962972		4.42(2.31-6.93)	101	7198	
D 19 13C5 PFNA										
468.00 > 423.00	2.994	2.983	0.011	1.141	3228387	2.54		101	54832	
20 Perfluorononanoic acid										
463.00 > 419.00	2.994	2.983	0.011	1.000	3338403	2.51		100	3922	
463.00 > 169.00	2.994	2.983	0.011	1.000	848266		3.94(1.90-5.69)	100	25249	
D 21 13C8 FOSA										
506.00 > 78.00	3.334	3.330	0.004	1.271	6157928	2.57		103	51179	
D 26 M2-8:2FTS										
529.00 > 81.00	3.342	3.330	0.012	1.274	1014578	2.55		107	15642	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.342	3.330	0.012	1.000	1231624	2.29		95.4	37825	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.334	3.333	0.001	1.000	6399497	2.66		107	53236	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.340	0.010	1.277	2724566	2.60		104	29606	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.341	0.009	1.000	2686260	2.52		101	9601	
513.00 > 169.00	3.350	3.341	0.009	1.000	495633		5.42(2.36-7.09)	101	1602	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.502	3.493	0.009	1.335	801910	2.61		104	21860	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.509	3.497	0.012	1.002	868194	2.43		97.1	9491	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.659	3.648	0.011	1.000	2779789	2.51		104	54035	
599.00 > 99.00	3.659	3.648	0.011	1.000	895411		3.10(1.39-4.16)	104	14978	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.673	3.660	0.013	1.400	829886	2.56		102	1617	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.682	3.666	0.016	1.002	764993	2.38		95.2	15207	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.682	3.668	0.014	1.000	1962886	2.21		88.5	4882	
563.00 > 169.00	3.682	3.668	0.014	1.000	419373		4.68(0.00-0.00)	88.5	37980	
D 30 13C2 PFUnA										
565.00 > 520.00	3.682	3.669	0.013	1.403	2074291	2.59		103	41809	
D 36 13C2 PFDoA										
615.00 > 570.00	3.974	3.960	0.014	1.515	1994033	2.61		104	14571	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.974	3.961	0.013	1.000	2138246	2.66		106	3912	
613.00 > 169.00	3.974	3.961	0.013	1.000	506838		4.22(2.13-6.40)	106	23791	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.235	4.221	0.014	1.000	1895104	2.52		101	3983	
663.00 > 169.00	4.235	4.221	0.014	1.000	616733		3.07(1.25-3.76)	101	23633	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.459	0.014	1.705	1767461	2.62		105	22468	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.459	0.014	1.000	497977	2.66		106	14638	
713.00 > 219.00	4.462	4.459	0.003	0.997	309561		1.61(0.71-2.13)	106	5663	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.878	4.867	0.011	1.859	2337216	2.57		103	13837	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.887	4.871	0.016	1.002	2250877	2.51		100	545	
813.00 > 169.00	4.878	4.871	0.007	1.000	417196		5.40(2.86-8.58)	100	6520	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.233	5.216	0.017	1.000	2254402	2.44		97.4	455	
913.00 > 169.00	5.233	5.216	0.017	1.000	287929		7.83(0.00-0.00)	97.4	2235	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL5_00003 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:45 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_006.d

Injection Date: 15-Feb-2018 14:58:32 Instrument ID: A8_N

Lims ID: IC L5 Full

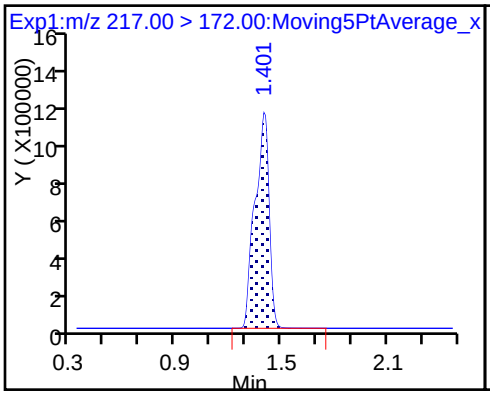
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 6

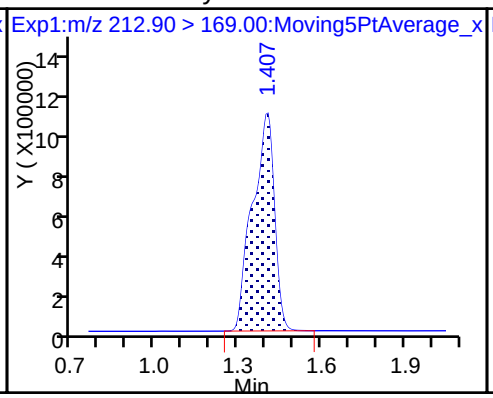
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

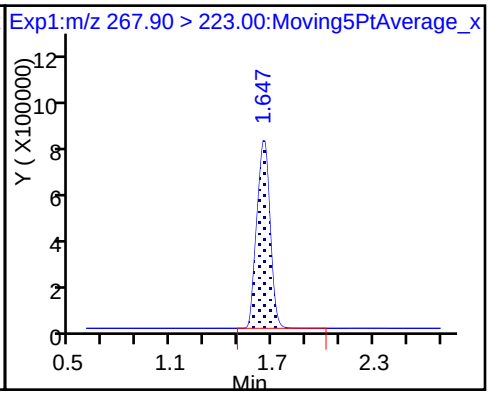
D 1 13C4 PFBA



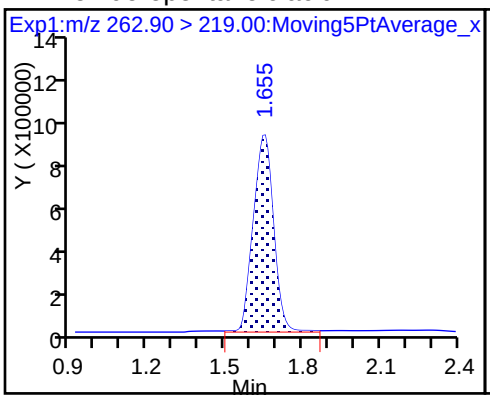
2 Perfluorobutyric acid



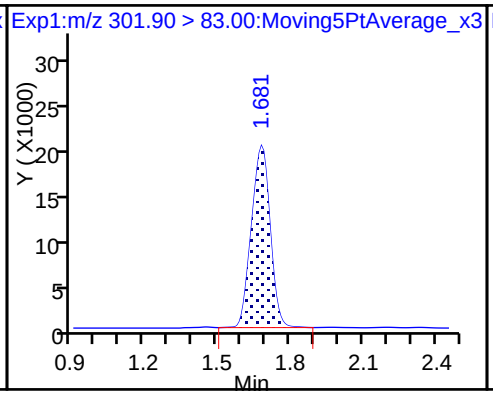
D 3 13C5-PFPeA



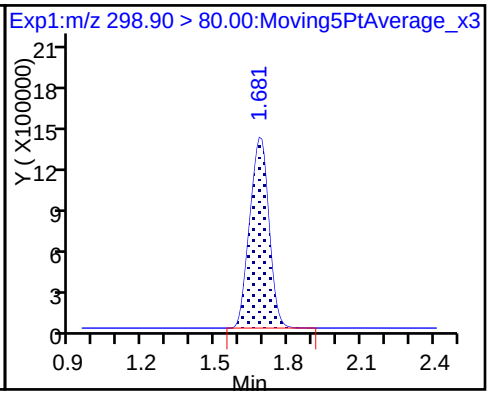
4 Perfluoropentanoic acid



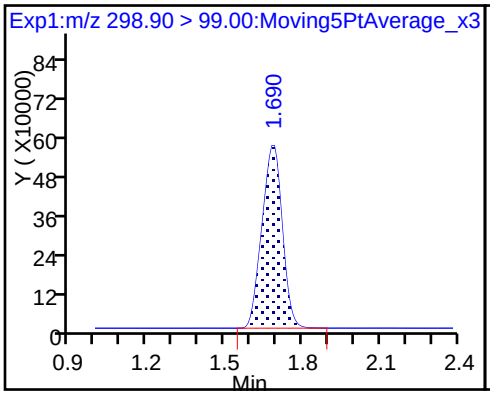
D 47 13C3-PFBS



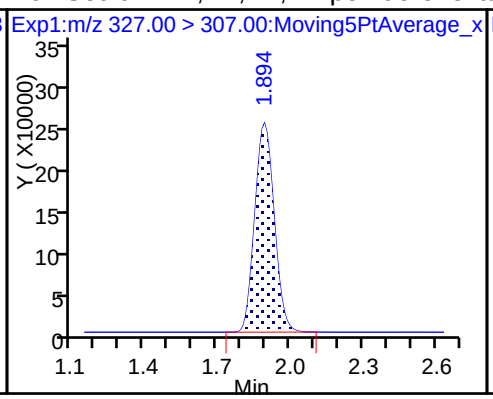
5 Perfluorobutanesulfonic acid



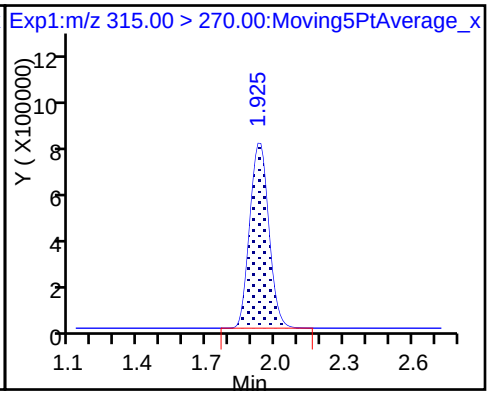
5 Perfluorobutanesulfonic acid



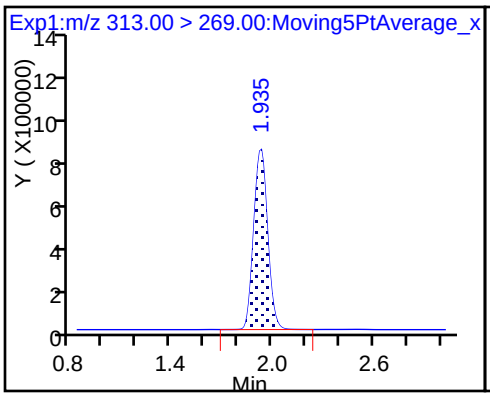
61 Sodium 1H,1H,2H,2H-perfluorohexa



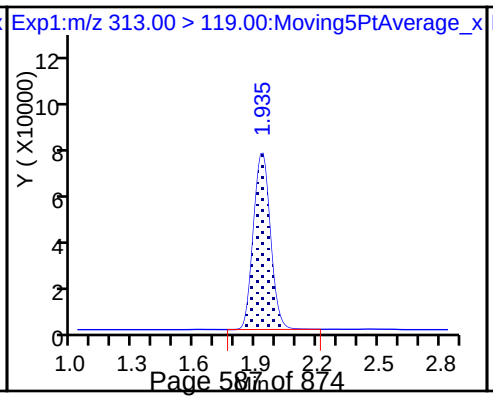
D 7 13C2 PFHxA



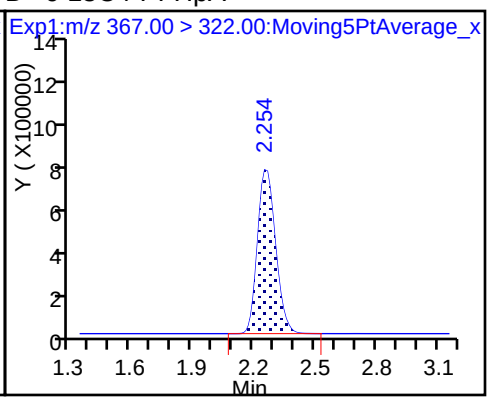
6 Perfluorohexanoic acid



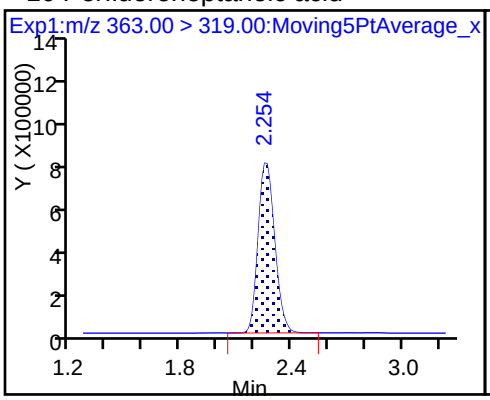
6 Perfluorohexanoic acid



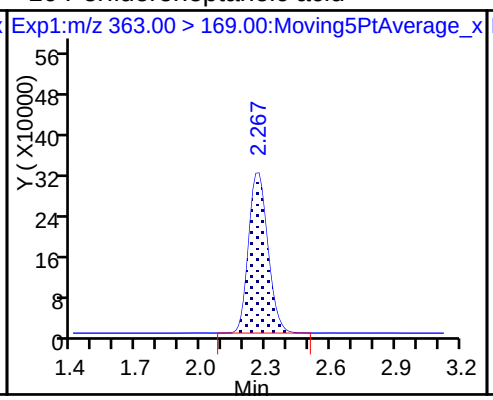
D 9 13C4-PFHpA



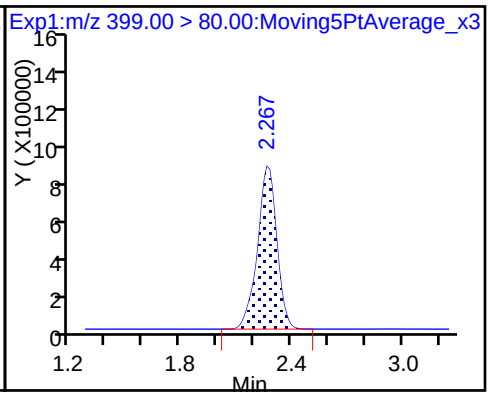
10 Perfluoroheptanoic acid



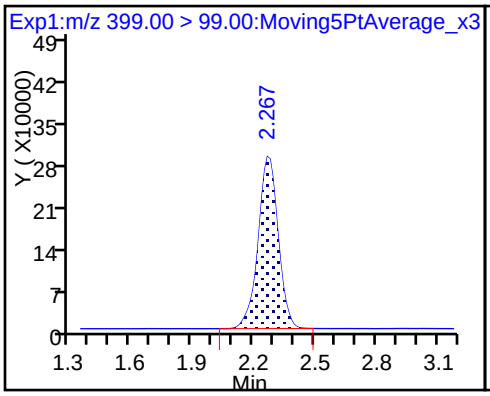
10 Perfluoroheptanoic acid



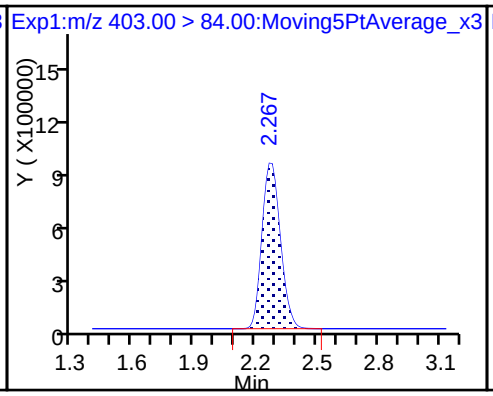
8 Perfluorohexanesulfonic acid



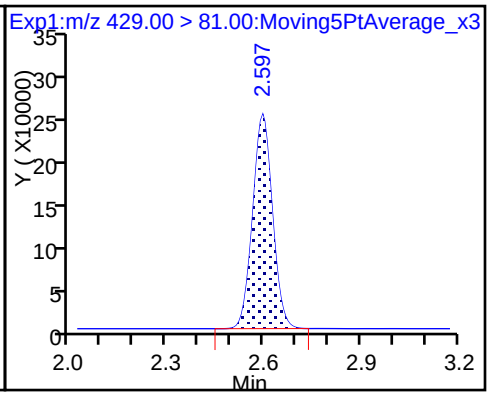
8 Perfluorohexanesulfonic acid



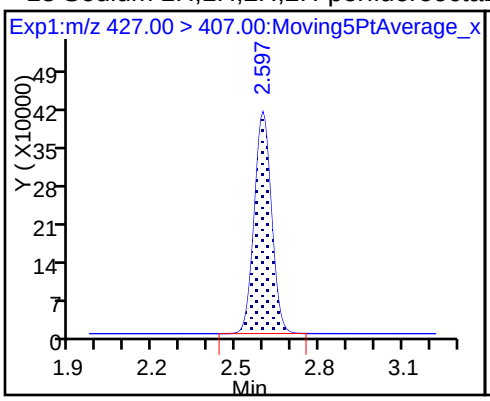
D 11 18O2 PFHxS



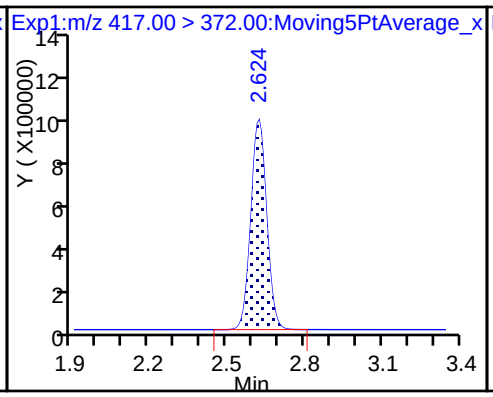
D 12 M2-6:2FTS



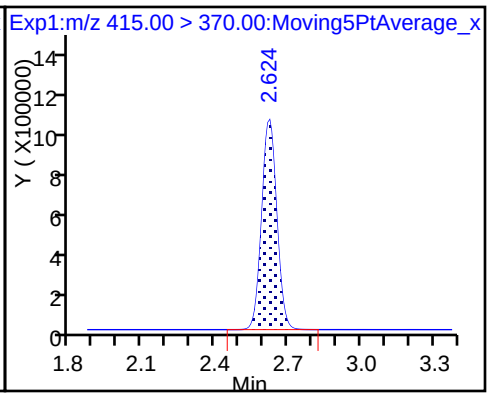
13 Sodium 1H,1H,2H,2H-perfluorooctane



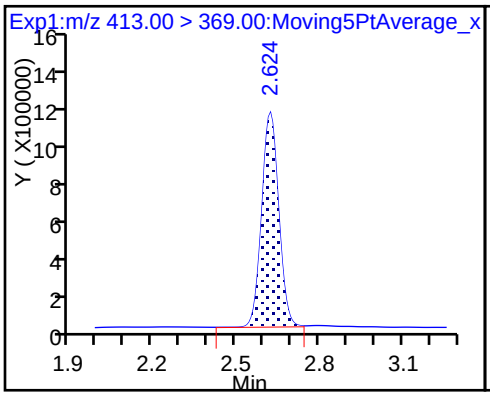
D 14 13C4 PFOA



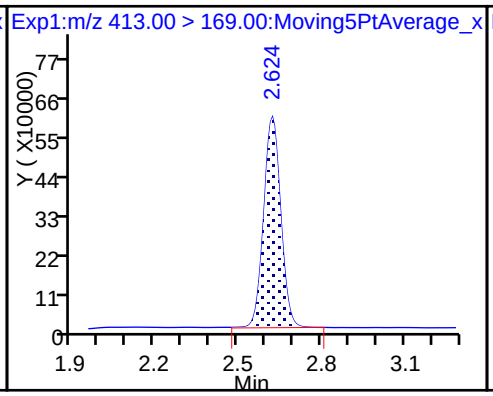
* 62 13C2-PFOA



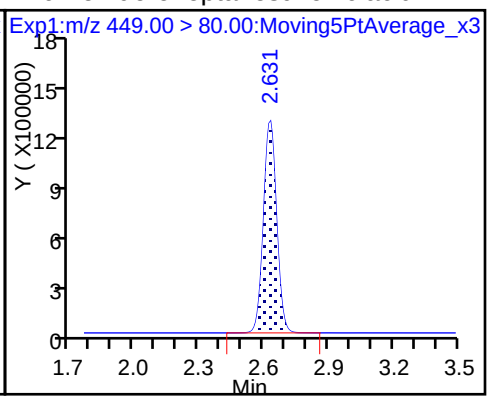
15 Perfluorooctanoic acid



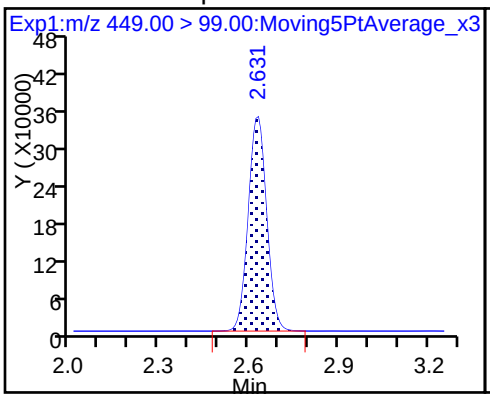
15 Perfluorooctanoic acid



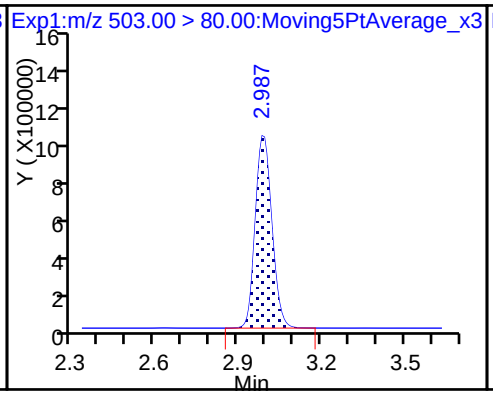
16 Perfluoroheptanesulfonic acid



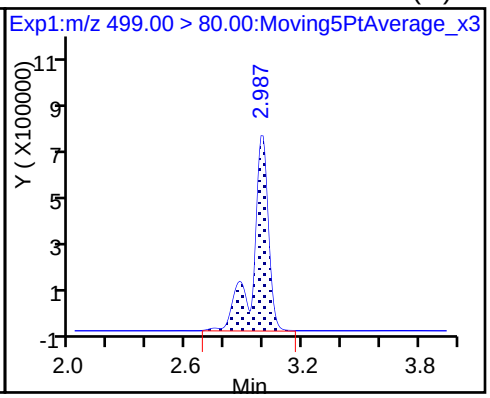
16 Perfluoroheptanesulfonic acid



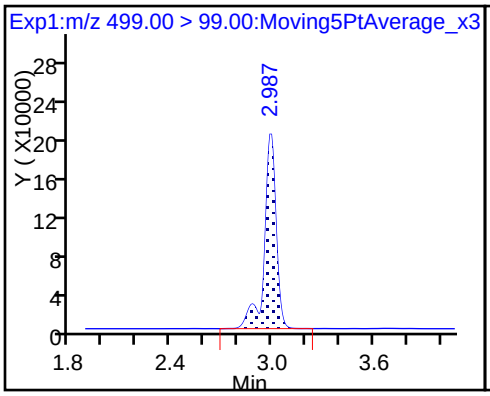
D 18 13C4 PFOS



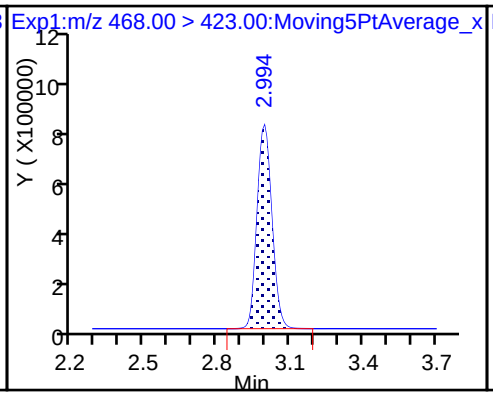
17 Perfluorooctane sulfonic acid (M)



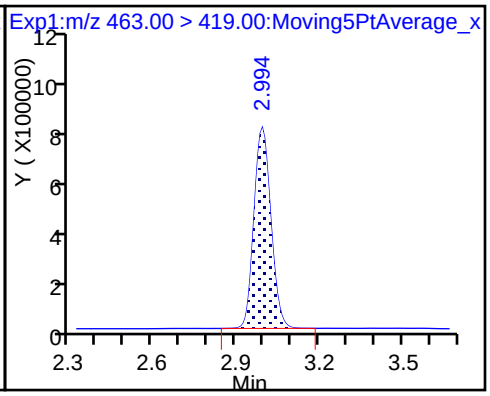
17 Perfluorooctane sulfonic acid



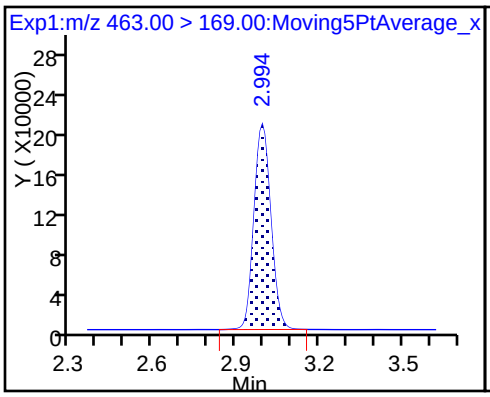
D 19 13C5 PFNA



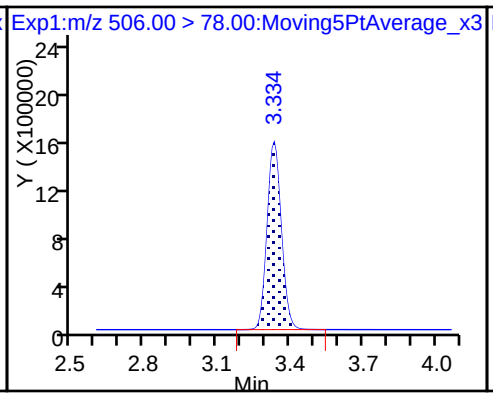
20 Perfluorononanoic acid



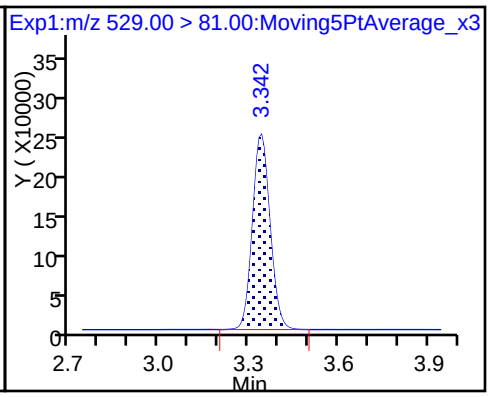
20 Perfluorononanoic acid



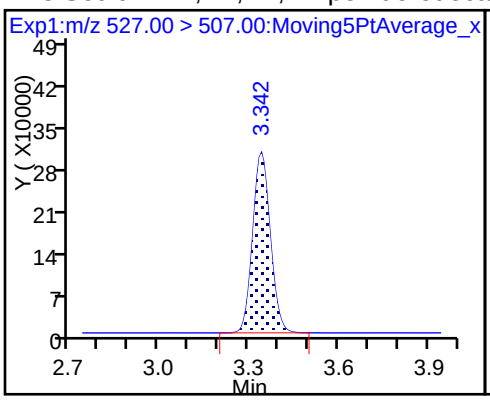
D 21 13C8 FOSA



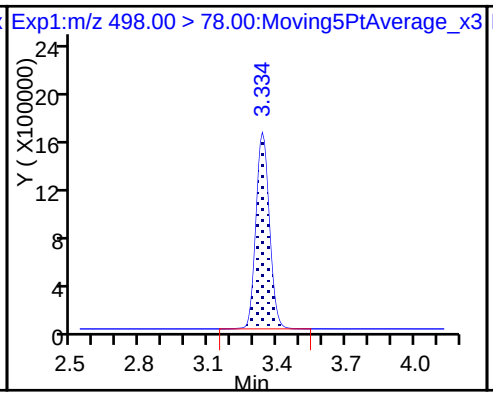
D 26 M2-8:2FTS



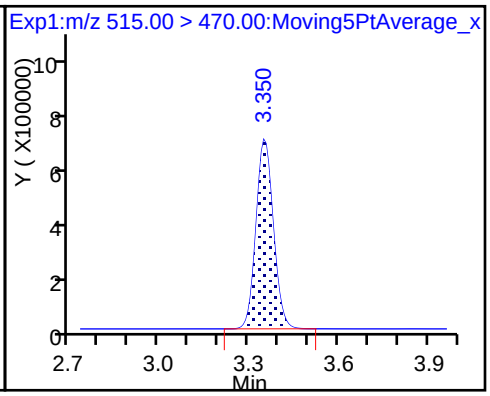
25 Sodium 1H,1H,2H,2H-perfluorodecane



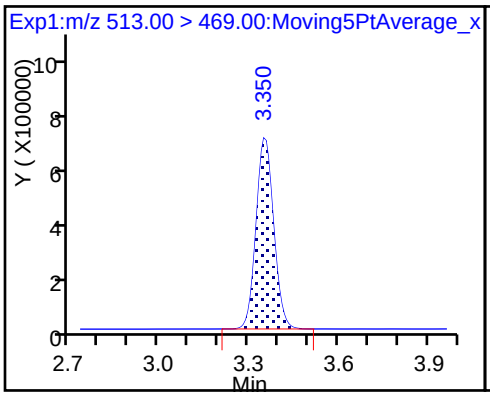
22 Perfluorooctane Sulfonamide



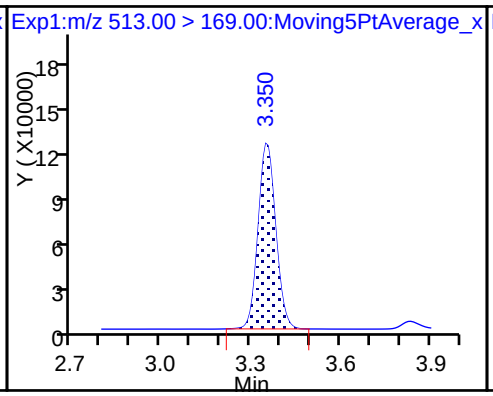
D 23 13C2 PFDA



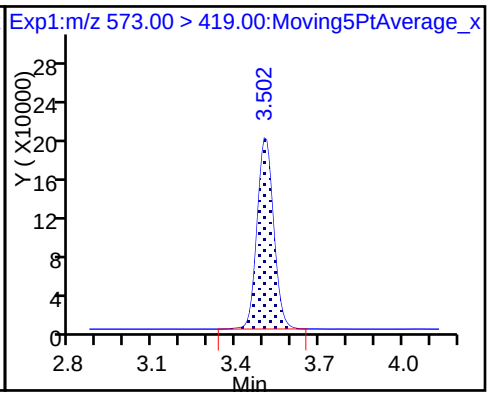
24 Perfluorodecanoic acid



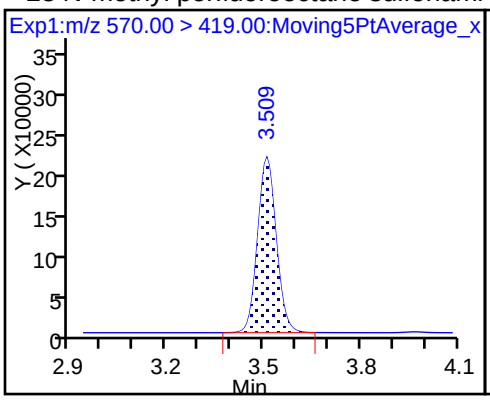
24 Perfluorodecanoic acid



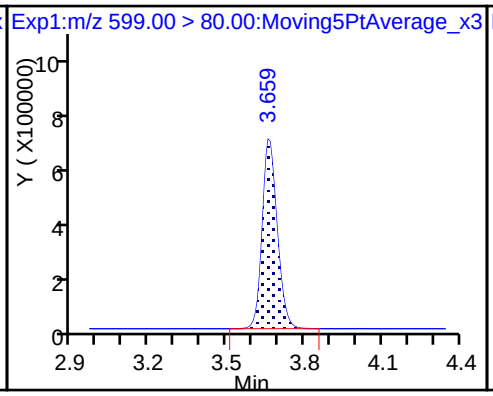
D 27 d3-NMeFOSAA



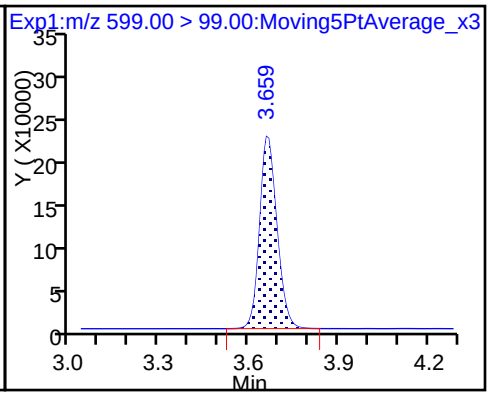
28 N-methyl perfluorooctane sulfonami



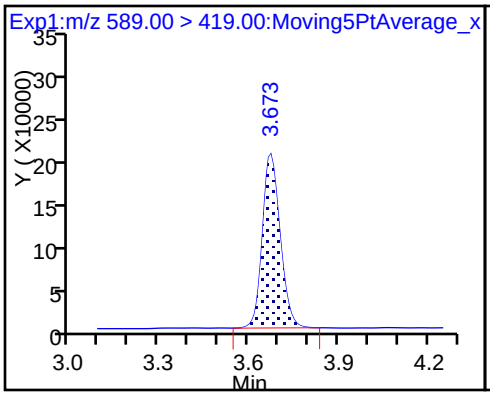
29 Perfluorodecane Sulfonic acid



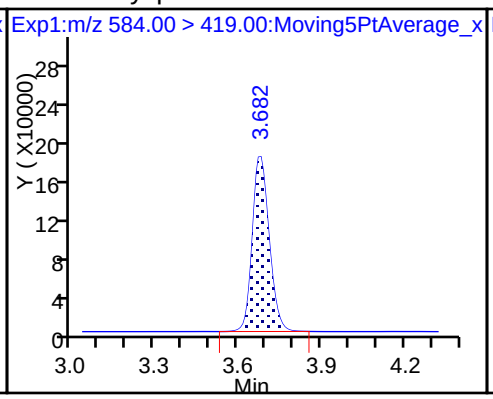
29 Perfluorodecane Sulfonic acid



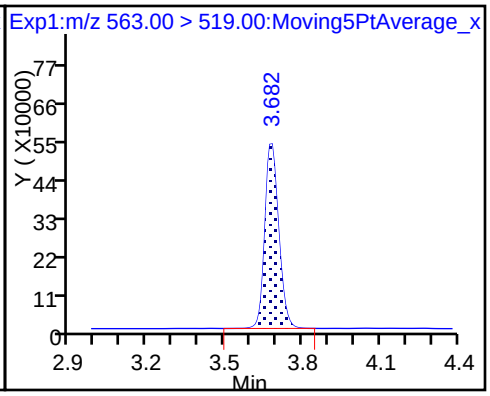
D 32 d5-NEtFOSAA



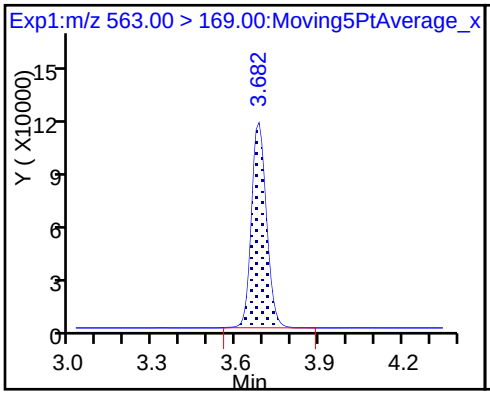
33 N-ethyl perfluorooctane sulfonamid



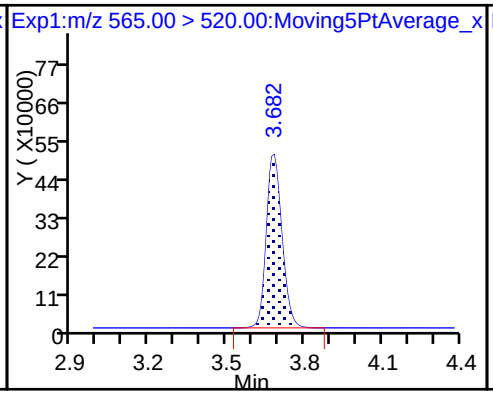
31 Perfluoroundecanoic acid



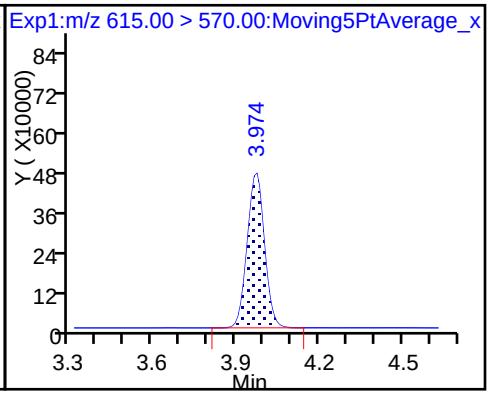
31 Perfluoroundecanoic acid



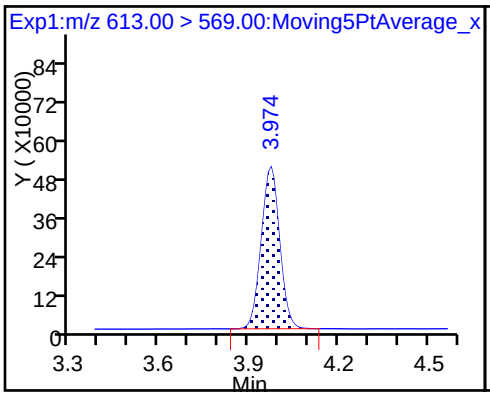
D 30 13C2 PFUnA



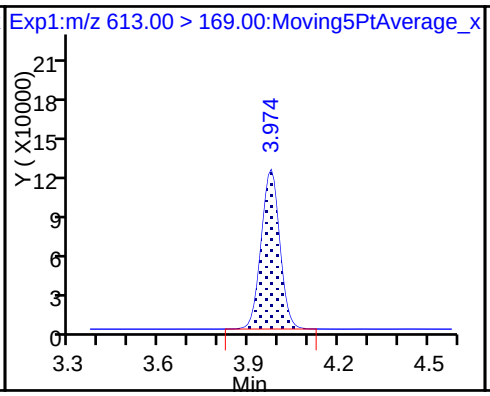
D 36 13C2 PFDoA



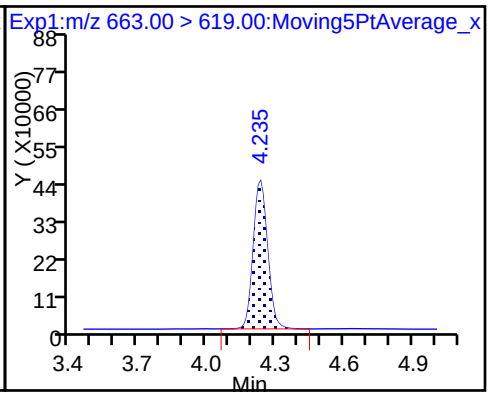
37 Perfluorododecanoic acid



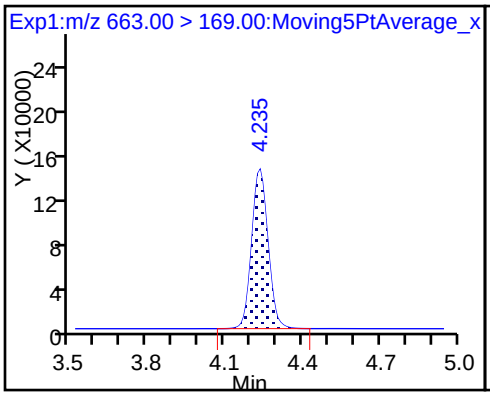
37 Perfluorododecanoic acid



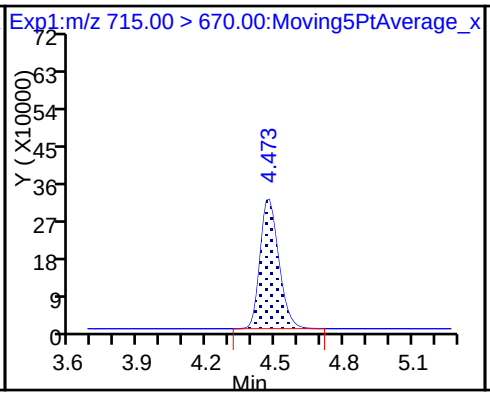
41 Perfluorotridecanoic acid



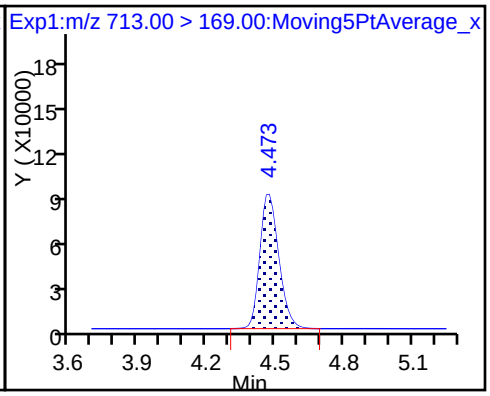
41 Perfluorotridecanoic acid



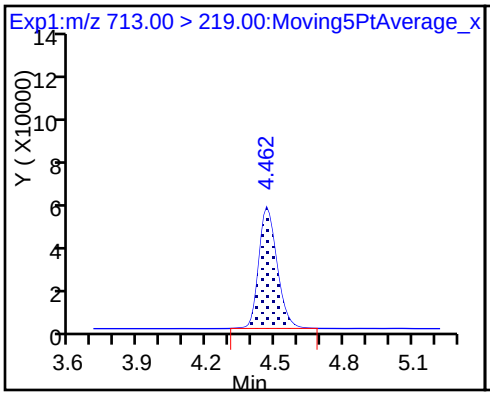
D 43 13C2-PFTeDA



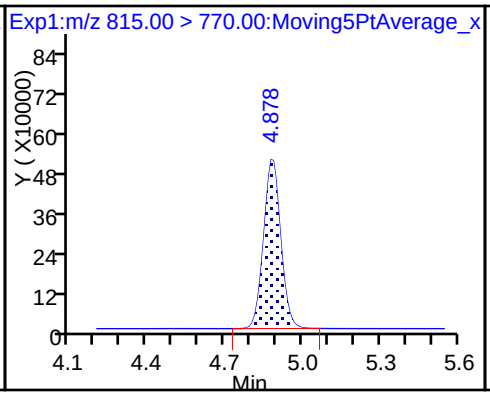
42 Perfluorotetradecanoic acid



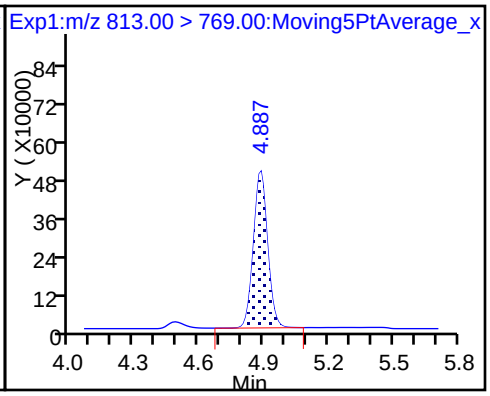
42 Perfluorotetradecanoic acid



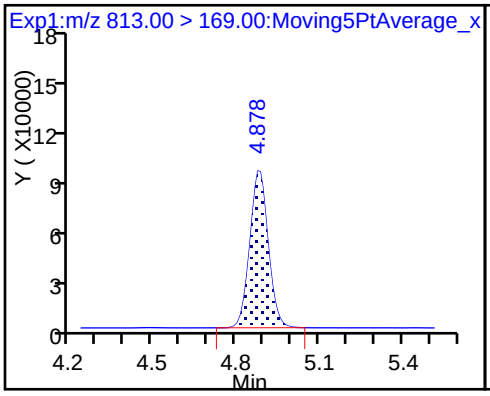
D 44 13C2-PFHxDA



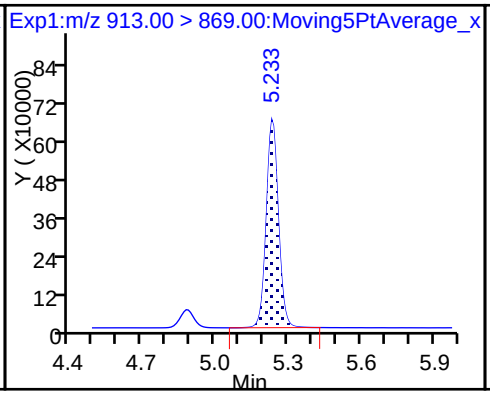
45 Perfluorohexadecanoic acid



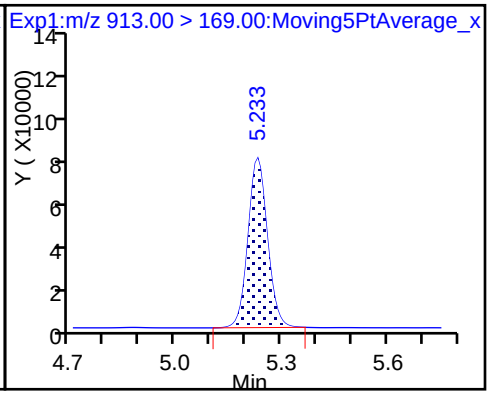
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

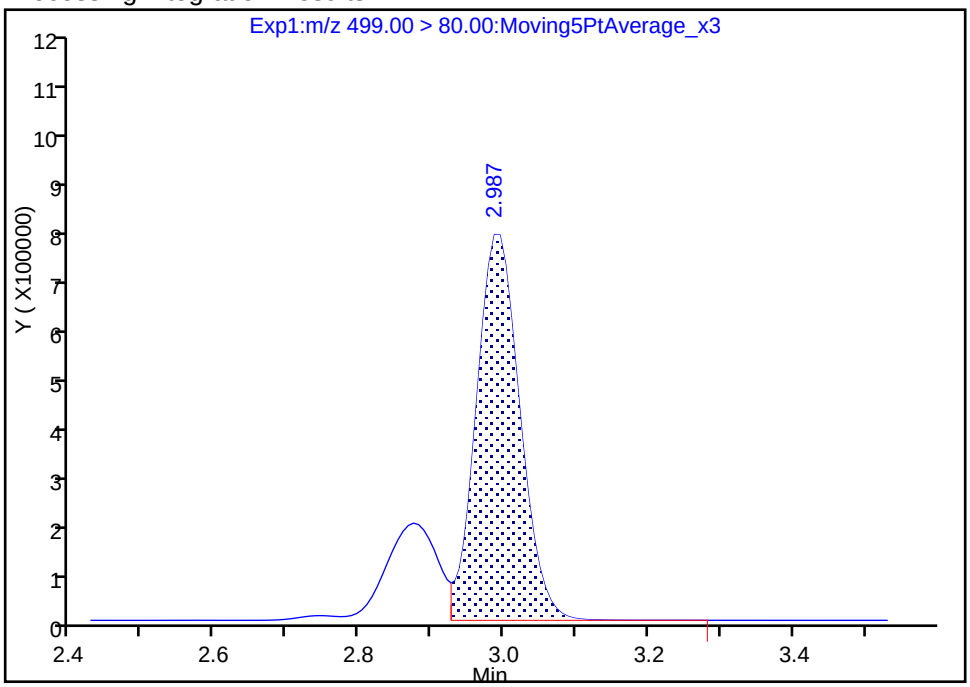
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_006.d
Injection Date: 15-Feb-2018 14:58:32 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

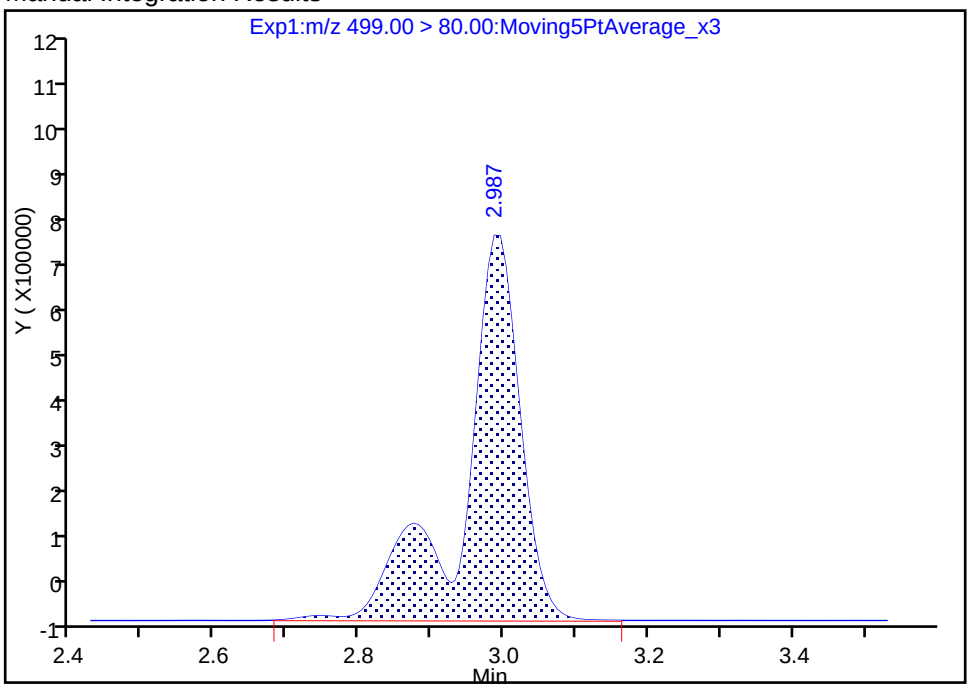
Processing Integration Results

RT: 2.99
Area: 3243132
Amount: 1.851780
Amount Units: ng/ml



Manual Integration Results

RT: 2.99
Area: 4257556
Amount: 2.347282
Amount Units: ng/ml



Reviewer: hannigana, 15-Feb-2018 15:50:40
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_007.d
Lims ID: IC L6 Full
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 15-Feb-2018 15:06:23 ALS Bottle#: 15 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L6-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:48 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: hannigana Date: 15-Feb-2018 15:51:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.401	1.401	0.0	0.534	6310811	2.53		101	78050	
2 Perfluorobutyric acid										
212.90 > 169.00	1.407	1.404	0.003	1.004	12057856	5.10		102	4093	
D 3 13C5-PFPeA										
267.90 > 223.00	1.652	1.648	0.004	0.630	4415477	2.49		99.4	85407	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.652	1.649	0.003	1.000	10236942	4.87		97.4	3511	
D 47 13C3-PFBS										
301.90 > 83.00	1.679	1.680	-0.001	0.640	119557	2.52		108	2293	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.688	1.683	0.005	1.005	16142738	4.22		95.5	159623	
298.90 > 99.00	1.688	1.683	0.005	1.005	6645964		2.43(1.25-3.74)	95.5	96467	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.892	1.891	0.001	1.000	2866992	4.04		86.5	107345	
D 60 M2-4:2FTS										
329.00 > 81.00	1.892	1.891	0.001	0.721	680255	NC			9051	
D 7 13C2 PFHxA										
315.00 > 270.00	1.933	1.925	0.008	0.737	4769108	2.50		99.8	106786	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.933	1.926	0.007	1.000	9534761	4.85		97.0	33909	
313.00 > 119.00	1.933	1.926	0.007	1.000	869950		10.96(5.03-15.10)	97.0	15673	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.265	2.251	0.014	1.000	9591435	4.91		98.3	12595	
363.00 > 169.00	2.265	2.251	0.014	1.000	3911537		2.45(1.13-3.40)	98.3	28013	
D 9 13C4-PFHpA										
367.00 > 322.00	2.265	2.251	0.014	0.863	4555544	2.52		101	107281	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.265	2.262	0.003	0.994	12339995	4.28		94.0	30967	
399.00 > 99.00	2.278	2.262	0.016	1.000	4213625		2.93(1.50-4.49)	94.0	11597	
D 11 18O2 PFHxS										
403.00 > 84.00	2.278	2.264	0.014	0.868	6184802	2.42		103	78178	
D 12 M2-6:2FTS										
429.00 > 81.00	2.596	2.588	0.008	0.990	1116434	2.46		103	30342	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.596	2.589	0.007	1.000	3686899	4.63		97.7	90966	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.623	2.614	0.009	1.000	9497642	5.00		100	1108	
413.00 > 169.00	2.623	2.614	0.009	1.000	5316099		1.79(0.84-2.52)	100	1668	
* 62 13C2-PFOA										
415.00 > 370.00	2.623	2.614	0.009		4786972	2.50			87283	
D 14 13C4 PFOA										
417.00 > 372.00	2.623	2.614	0.009	1.000	4303628	2.48		99.2	84555	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.623	2.620	0.003	1.000	11534246	4.78		100	114562	
449.00 > 99.00	2.630	2.620	0.010	1.003	3109358		3.71(1.94-5.82)	100	41659	
D 18 13C4 PFOS										
503.00 > 80.00	2.985	2.981	0.004	1.138	4367328	2.49		104	22353	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.993	2.982	0.011	1.003	9179603	4.68		101	52345	
499.00 > 99.00	2.985	2.982	0.003	1.000	1997449		4.60(2.31-6.93)	101	17072	
20 Perfluorononanoic acid										
463.00 > 419.00	2.993	2.983	0.010	1.000	7042071	5.12		102	8715	
463.00 > 169.00	2.993	2.983	0.010	1.000	1787980		3.94(1.90-5.69)	102	42868	
D 19 13C5 PFNA										
468.00 > 423.00	2.993	2.983	0.010	1.141	3338701	2.49		99.7	61404	
D 21 13C8 FOSA										
506.00 > 78.00	3.332	3.330	0.002	1.270	6263072	2.48		99.3	62422	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.340	3.330	0.010	1.000	2484459	4.56		95.2	61594	
D 26 M2-8:2FTS										
529.00 > 81.00	3.340	3.330	0.010	1.273	1026344	2.45		102	19712	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.332	3.333	-0.001	1.000	12529434	5.13		103	66672	
D 23 13C2 PFDA										
515.00 > 470.00	3.347	3.340	0.007	1.276	2746289	2.49		99.5	28348	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.347	3.341	0.006	1.000	5344360	4.98		99.5	18907	
513.00 > 169.00	3.347	3.341	0.006	1.000	1003909		5.32(2.36-7.09)	99.5	1539	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.500	3.493	0.007	1.334	856530	2.65		106	26392	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.507	3.497	0.010	1.002	1843893	4.83		96.5	15625	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.657	3.648	0.009	1.000	5919970	4.93		102	79005	
599.00 > 99.00	3.657	3.648	0.009	1.000	1915221		3.09(1.39-4.16)	102	22880	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.671	3.660	0.011	1.400	839234	2.46		98.5	1427	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.680	3.666	0.014	1.002	1643793	5.06		101	26125	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.680	3.668	0.012	1.000	3963592	4.54		90.9	9160	
563.00 > 169.00	3.680	3.668	0.012	1.000	908928		4.36(0.00-0.00)	90.9	50376	
D 30 13C2 PFUnA										
565.00 > 520.00	3.680	3.669	0.011	1.403	2039243	2.42		96.7	44869	
D 36 13C2 PFDoA										
615.00 > 570.00	3.972	3.960	0.012	1.514	1992225	2.48		99.1	23188	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.972	3.961	0.011	1.000	4294422	5.34		107	8527	
613.00 > 169.00	3.972	3.961	0.011	1.000	1152964		3.72(2.13-6.40)	107	53761	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.233	4.221	0.012	1.000	3706809	4.94		98.8	9215	
663.00 > 169.00	4.233	4.221	0.012	1.000	1179139		3.14(1.25-3.76)	98.8	44488	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.472	4.459	0.013	1.000	969776	5.17		103	24402	
713.00 > 219.00	4.461	4.459	0.002	0.997	634853		1.53(0.71-2.13)	103	10449	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.472	4.459	0.013	1.705	1773146	2.50		99.9	24122	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.877	4.867	0.010	1.859	2468689	2.58		103	14022	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.886	4.871	0.015	1.002	4699221	4.97		99.4	1052	
813.00 > 169.00	4.877	4.871	0.006	1.000	894565		5.25(2.86-8.58)	99.4	12442	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.231	5.216	0.015	1.000	4905987	5.02		100	869	
913.00 > 169.00	5.224	5.216	0.008	0.999	629946		7.79(0.00-0.00)	100	3545	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL6_00004 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:49 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_007.d

Injection Date: 15-Feb-2018 15:06:23 Instrument ID: A8_N

Lims ID: IC L6 Full

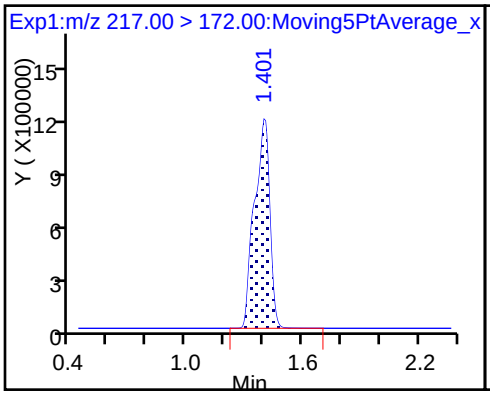
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 7

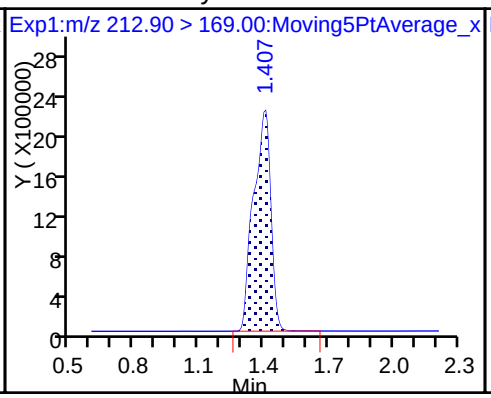
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

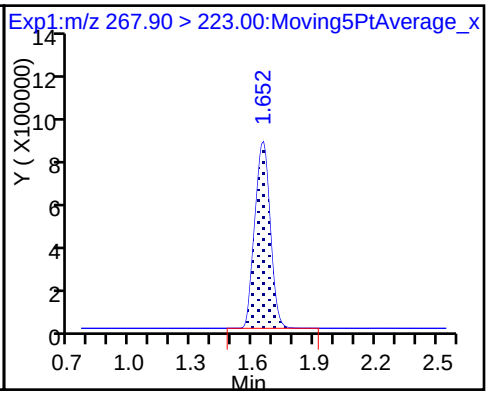
D 1 13C4 PFBA



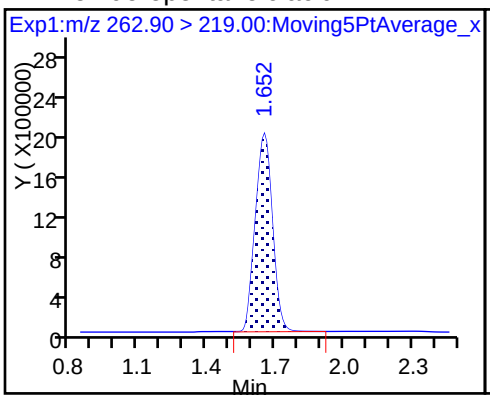
2 Perfluorobutyric acid



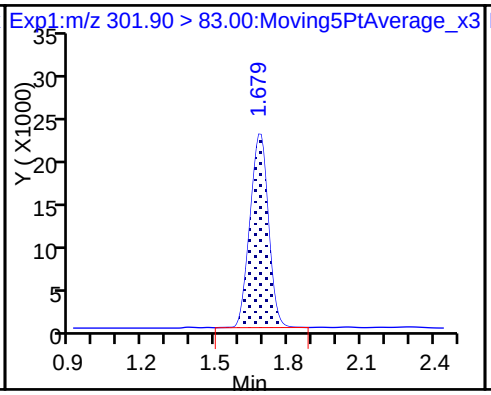
D 3 13C5-PFPeA



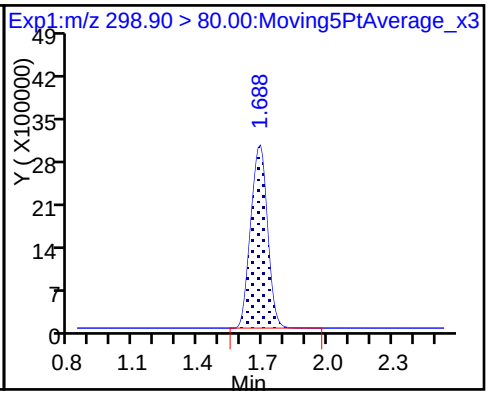
4 Perfluoropentanoic acid



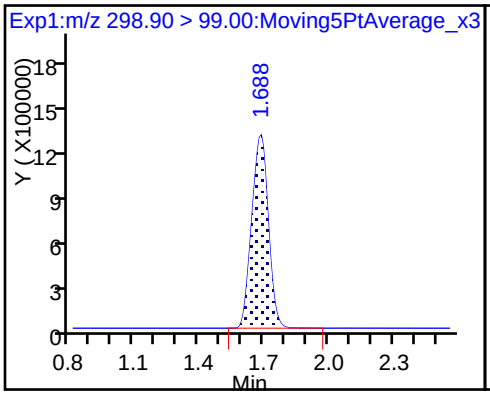
D 47 13C3-PFBS



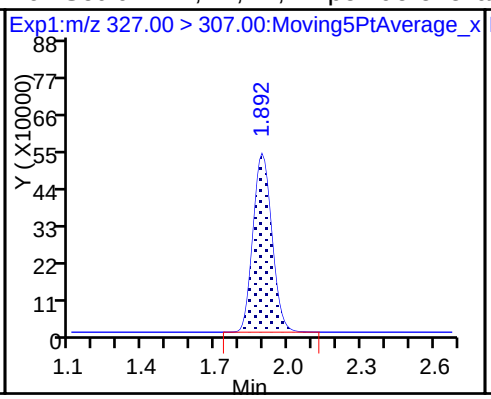
5 Perfluorobutanesulfonic acid



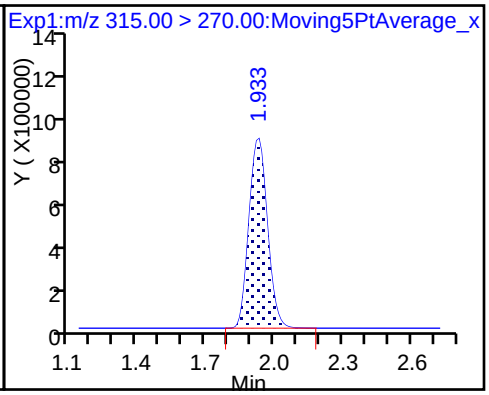
5 Perfluorobutanesulfonic acid



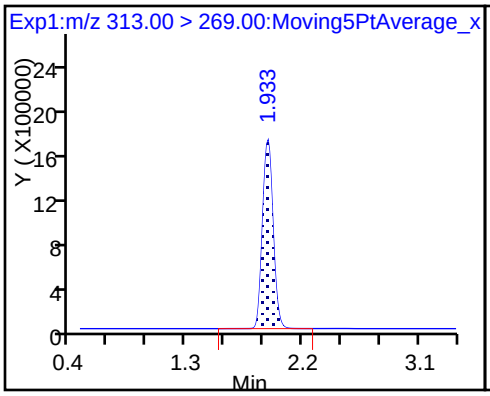
61 Sodium 1H,1H,2H,2H-perfluorohexa



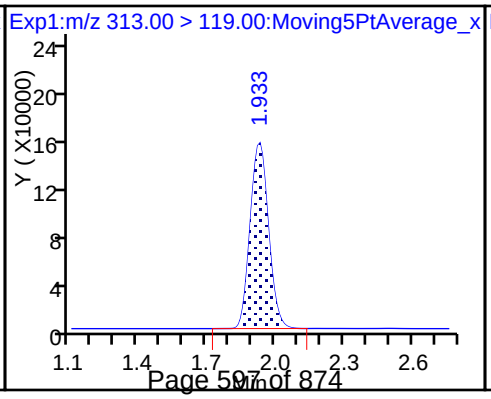
D 7 13C2 PFHxA



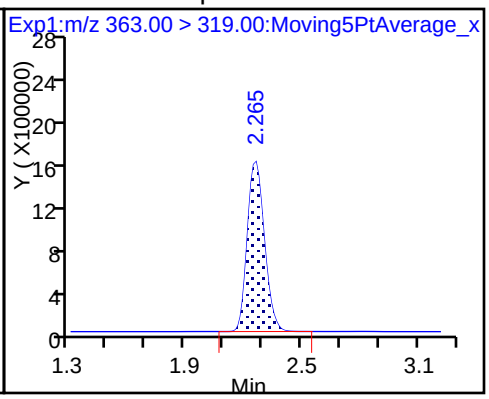
6 Perfluorohexanoic acid



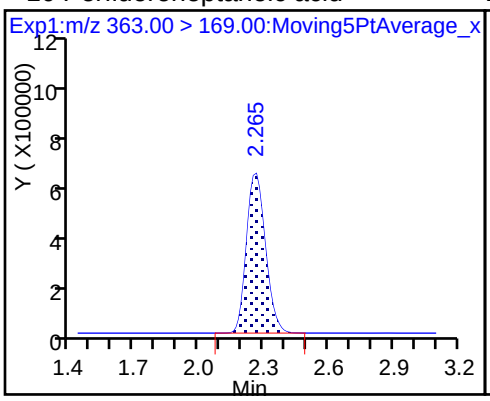
6 Perfluorohexanoic acid



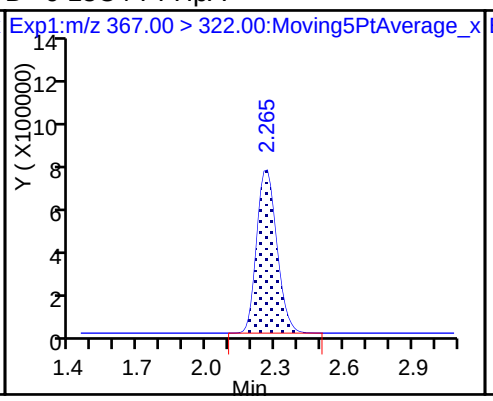
10 Perfluoroheptanoic acid



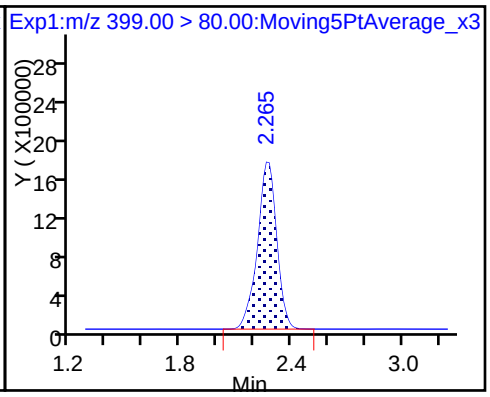
10 Perfluoroheptanoic acid



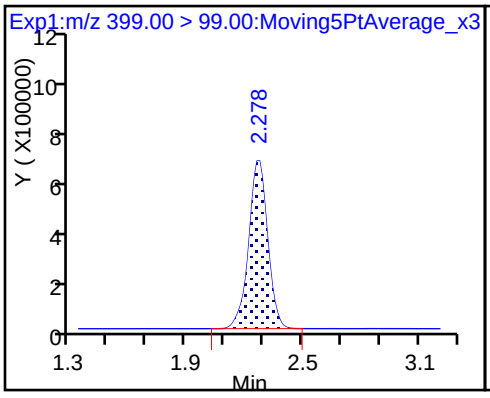
D 9 13C4-PFHpA



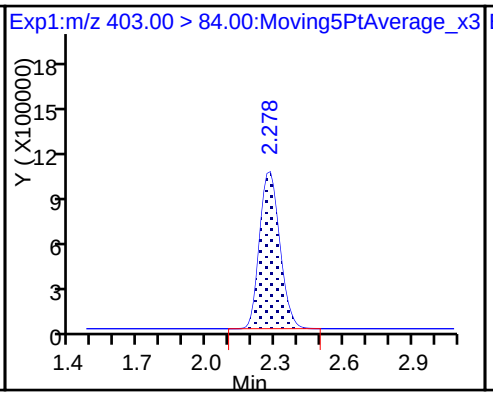
8 Perfluorohexanesulfonic acid



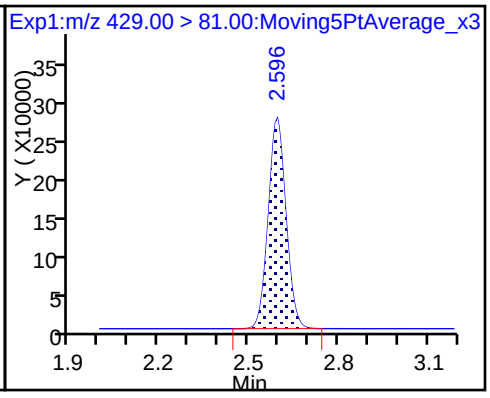
8 Perfluorohexanesulfonic acid



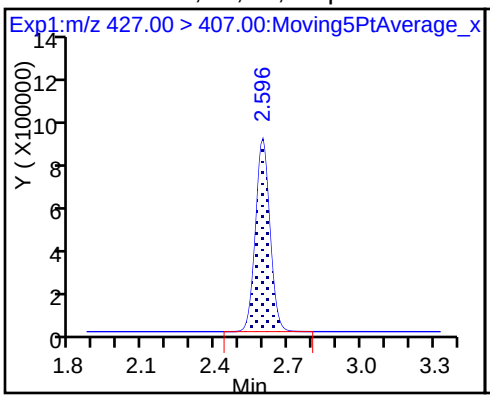
D 11 18O2 PFHxS



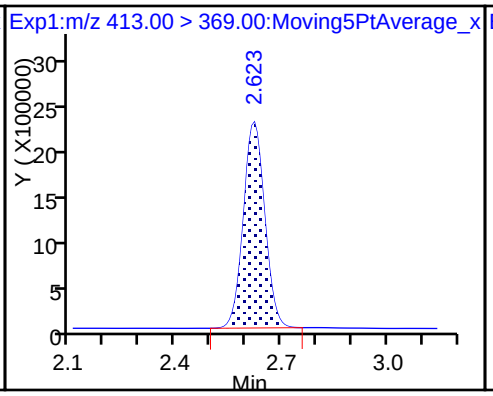
D 12 M2-6:2FTS



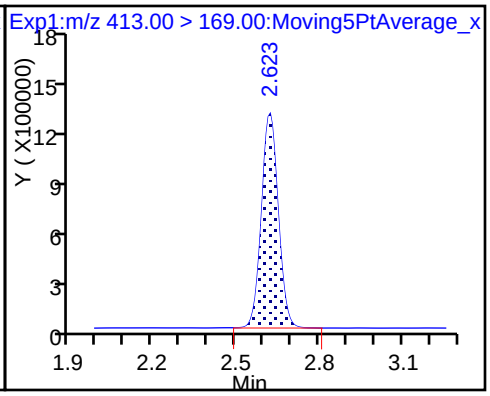
13 Sodium 1H,1H,2H,2H-perfluorooctane



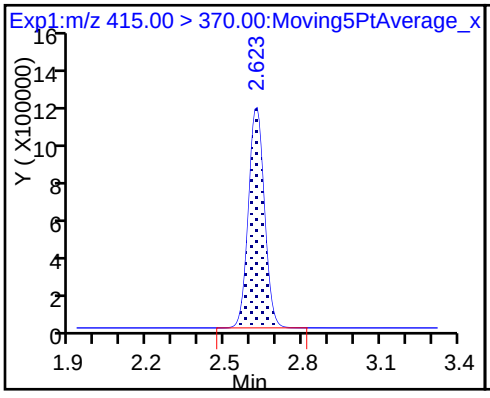
15 Perfluorooctanoic acid



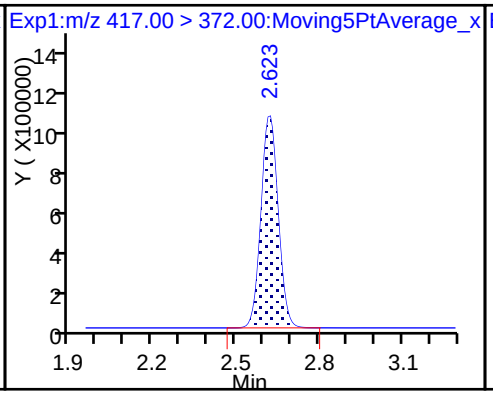
15 Perfluorooctanoic acid



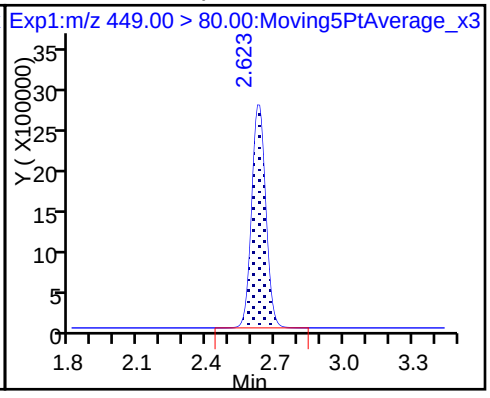
* 62 13C2-PFOA



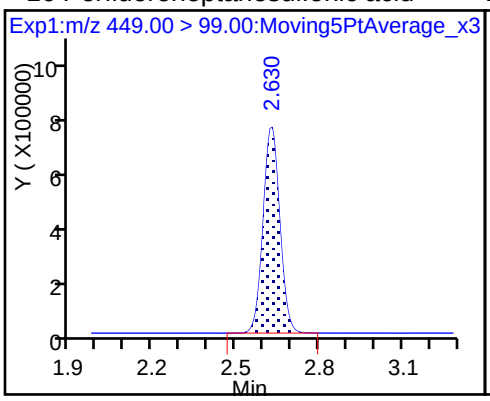
D 14 13C4 PFOA



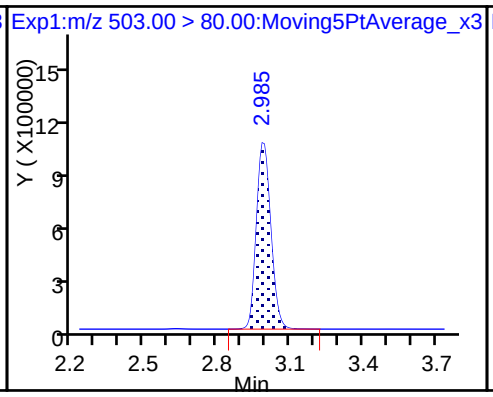
16 Perfluoroheptanesulfonic acid



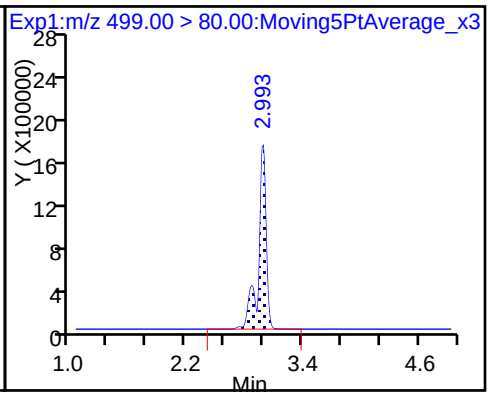
16 Perfluoroheptanesulfonic acid



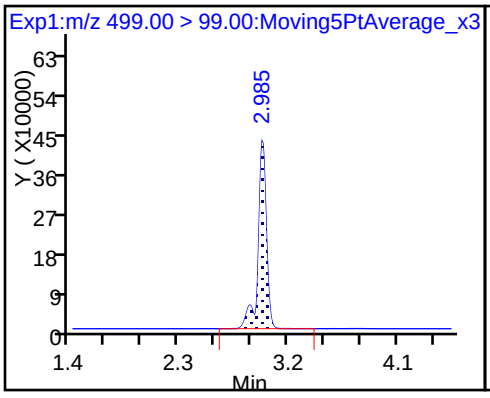
D 18 13C4 PFOS



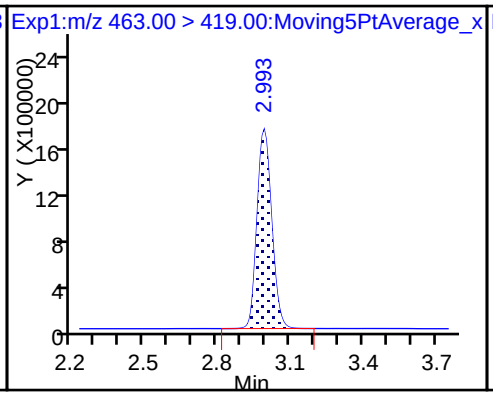
17 Perfluorooctane sulfonic acid



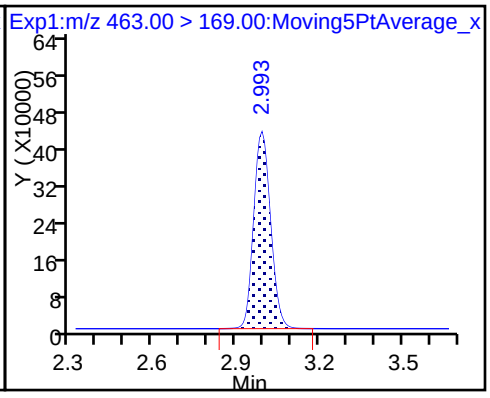
17 Perfluorooctane sulfonic acid



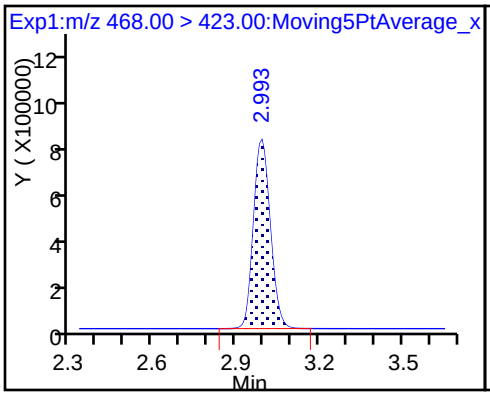
20 Perfluorononanoic acid



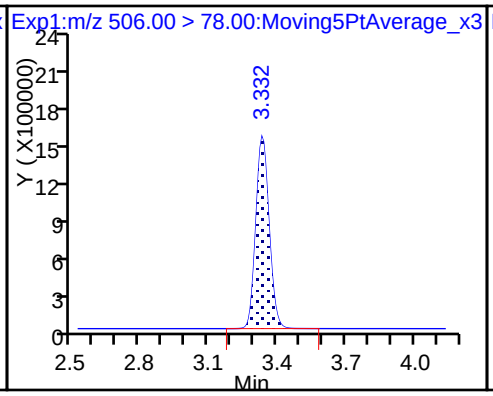
20 Perfluorononanoic acid



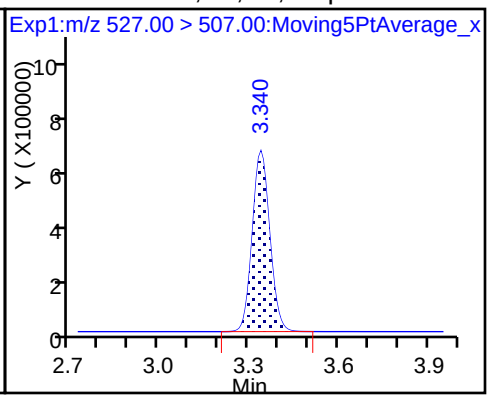
D 19 13C5 PFNA



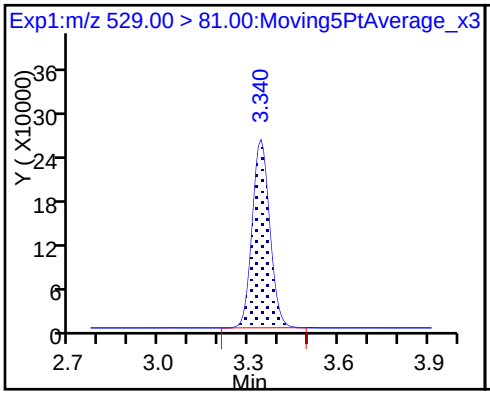
D 21 13C8 FOSA



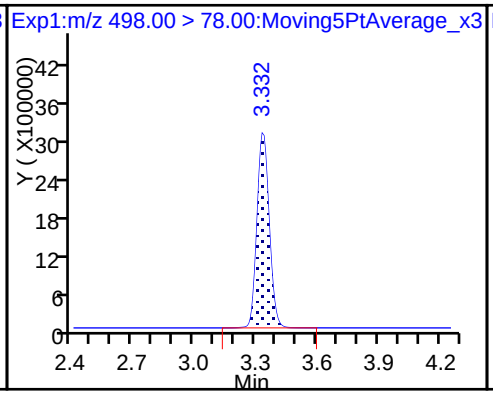
25 Sodium 1H,1H,2H,2H-perfluorodecane



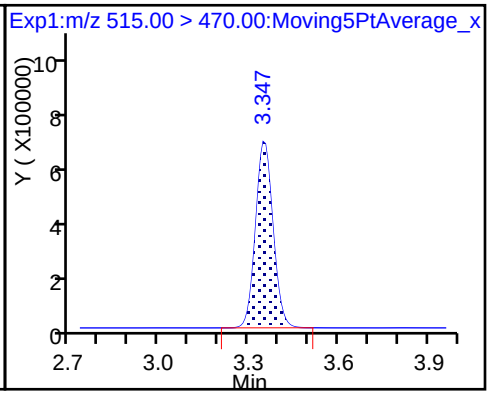
D 26 M2-8:2FTS



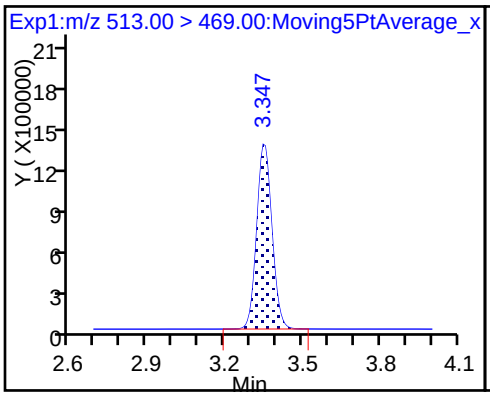
22 Perfluorooctane Sulfonamide



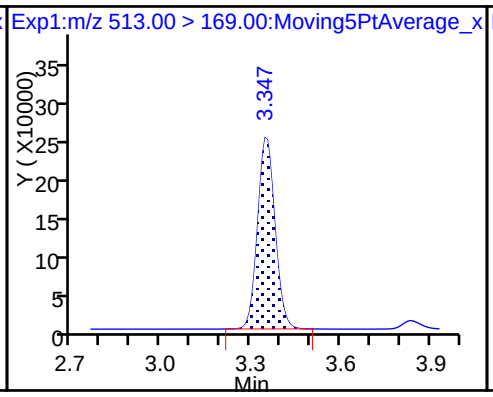
D 23 13C2 PFDA



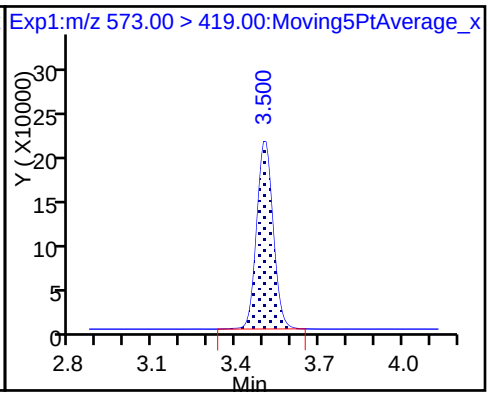
24 Perfluorodecanoic acid



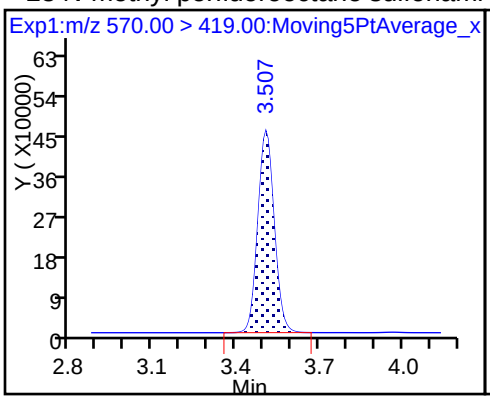
24 Perfluorodecanoic acid



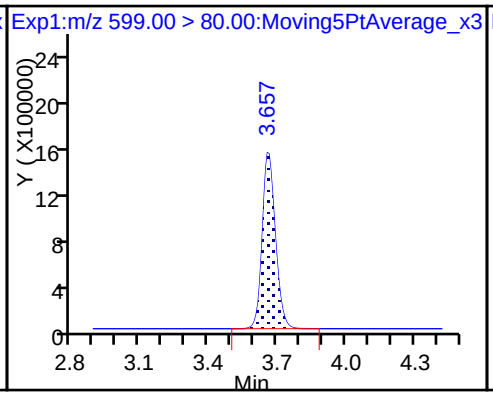
D 27 d3-NMeFOSAA



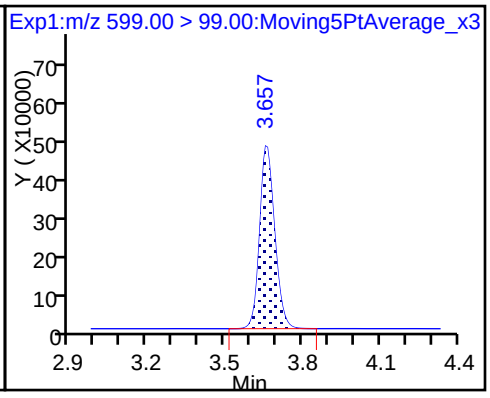
28 N-methyl perfluorooctane sulfonami



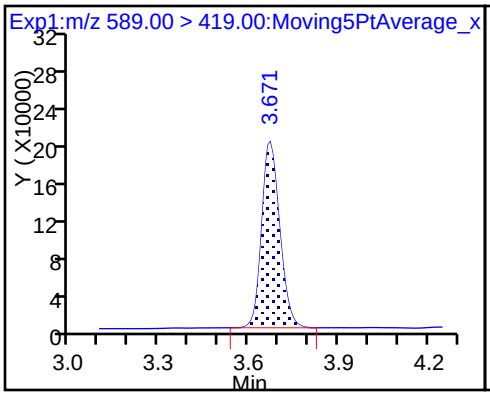
29 Perfluorodecane Sulfonic acid



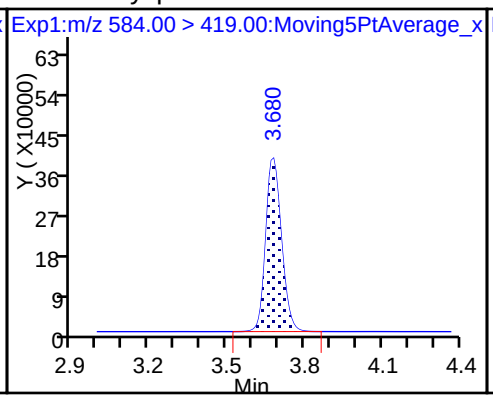
29 Perfluorodecane Sulfonic acid



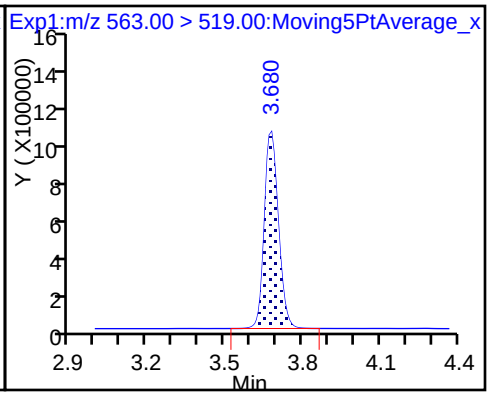
D 32 d5-NEtFOSAA



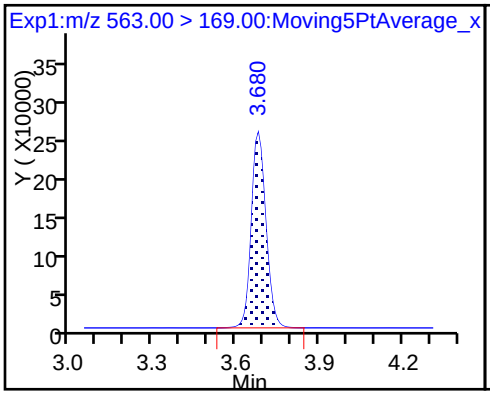
33 N-ethyl perfluorooctane sulfonamid



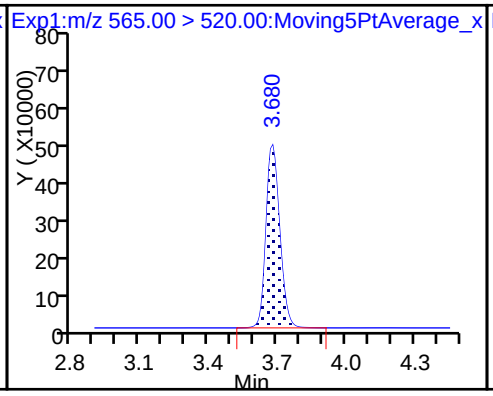
31 Perfluoroundecanoic acid



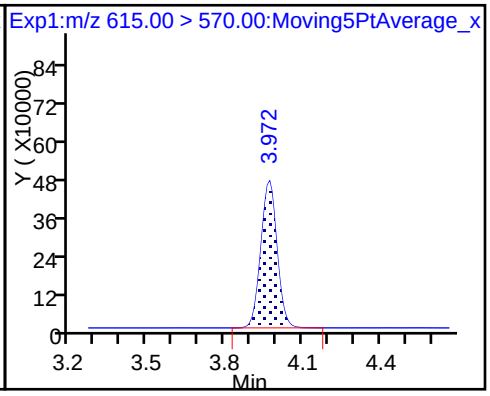
31 Perfluoroundecanoic acid



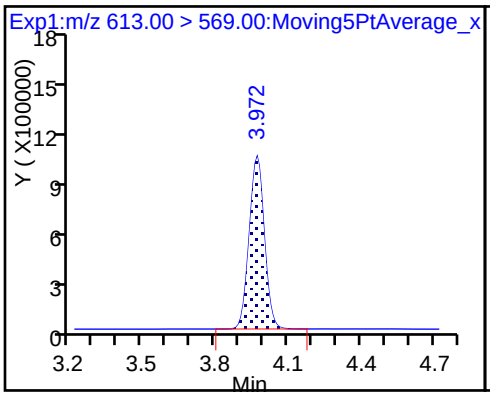
D 30 13C2 PFUnA



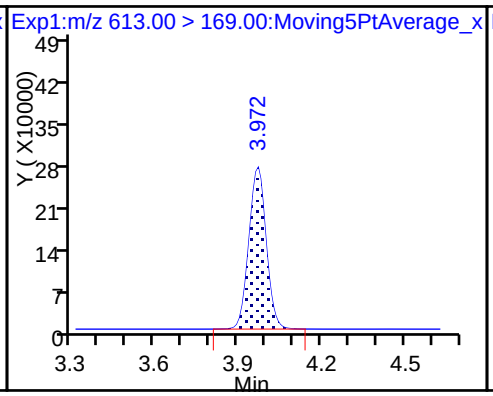
D 36 13C2 PFDoA



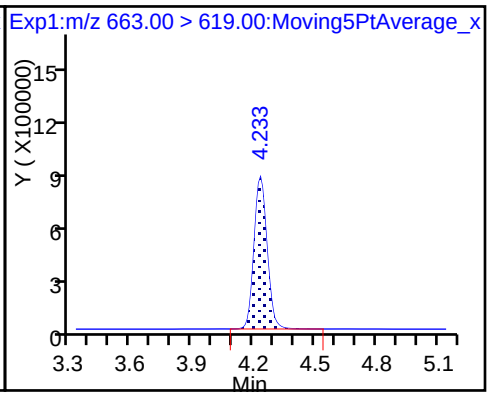
37 Perfluorododecanoic acid



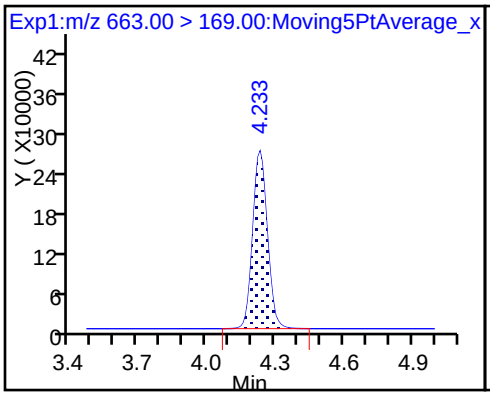
37 Perfluorododecanoic acid



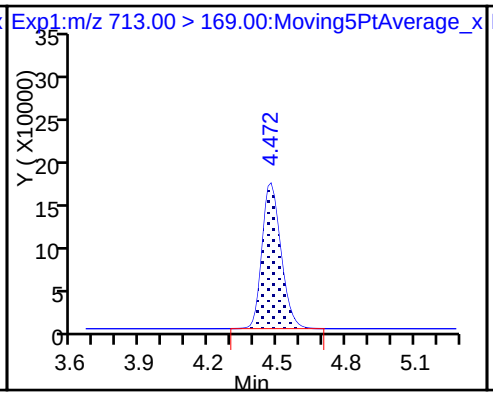
41 Perfluorotridecanoic acid



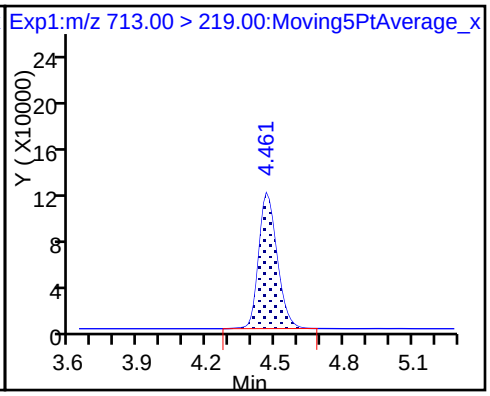
41 Perfluorotridecanoic acid



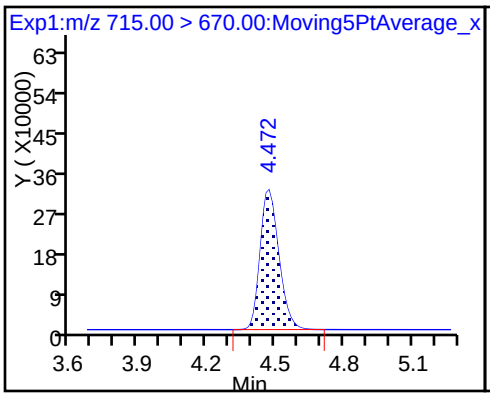
42 Perfluorotetradecanoic acid



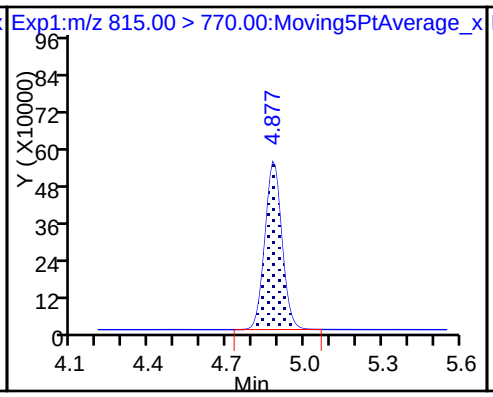
42 Perfluorotetradecanoic acid



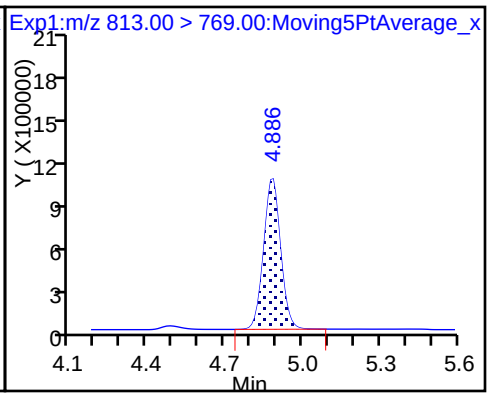
D 43 13C2-PFTeDA



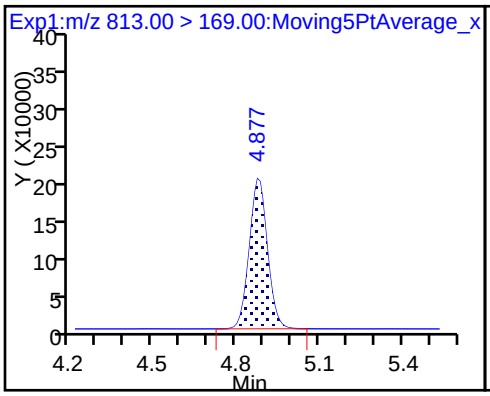
D 44 13C2-PFHxDA



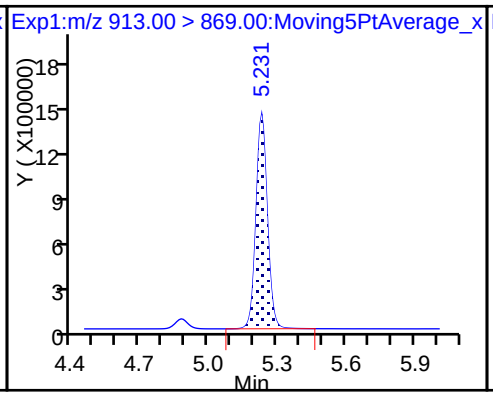
45 Perfluorohexadecanoic acid



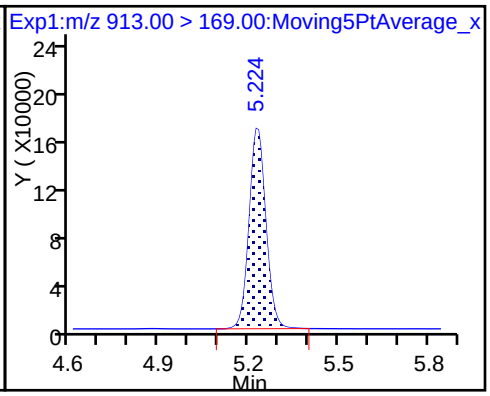
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d
Lims ID: IC L7 Full
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 15-Feb-2018 15:14:13 ALS Bottle#: 16 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L7-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:30:52 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: hannigana Date: 15-Feb-2018 15:52:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.405	1.401	0.004	0.535	5947991	2.70		108	71966	
2 Perfluorobutyric acid										
212.90 > 169.00	1.405	1.404	0.001	1.000	22290648	10.0		100	6838	
D 3 13C5-PFPeA										
267.90 > 223.00	1.649	1.648	0.001	0.628	4164286	2.65		106	65326	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.649	1.649	0.0	1.000	19290451	9.73		97.3	7016	
D 47 13C3-PFBS										
301.90 > 83.00	1.684	1.680	0.004	0.642	108892	2.59		111	2903	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.684	1.683	0.001	1.000	27917989	8.02		90.7	237512	
298.90 > 99.00	1.684	1.683	0.001	1.000	12793676		2.18(1.25-3.74)	90.7	136981	
D 60 M2-4:2FTS										
329.00 > 81.00	1.897	1.891	0.006	0.723	584611	NC			8846	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.897	1.891	0.006	1.000	5472525	8.46		90.6	143526	
D 7 13C2 PFHxA										
315.00 > 270.00	1.927	1.925	0.002	0.734	4304355	2.55		102	83598	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.927	1.926	0.001	1.000	17125411	9.65		96.5	49591	
313.00 > 119.00	1.927	1.926	0.001	1.000	1612620		10.62(5.03-15.10)	96.5	20120	
D 9 13C4-PFHpA										
367.00 > 322.00	2.258	2.251	0.007	0.860	4079334	2.55		102	73724	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.258	2.251	0.007	1.000	17306560	9.90		99.0	23262	
363.00 > 169.00	2.258	2.251	0.007	1.000	7111731		2.43(1.13-3.40)	99.0	60848	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.271	2.262	0.009	1.000	22693914	8.72		95.8	56586	
399.00 > 99.00	2.271	2.262	0.009	1.000	7738884		2.93(1.50-4.49)	95.8	20953	
D 11 18O2 PFHxS										
403.00 > 84.00	2.271	2.264	0.007	0.865	5582233	2.47		105	75375	
D 12 M2-6:2FTS										
429.00 > 81.00	2.597	2.588	0.009	0.990	966489	2.40		101	22765	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.597	2.589	0.008	1.000	6739268	9.77		103	115247	
D 14 13C4 PFOA										
417.00 > 372.00	2.624	2.614	0.010	1.000	3823432	2.49		99.6	80652	
* 62 13C2-PFOA										
415.00 > 370.00	2.624	2.614	0.010		4236527	2.50			89583	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.624	2.614	0.010	1.000	16997846	10.1		101	3026	
413.00 > 169.00	2.624	2.614	0.010	1.000	9536089		1.78(0.84-2.52)	101	3002	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.631	2.620	0.011	1.000	20025386	9.02		94.7	149283	
449.00 > 99.00	2.631	2.620	0.011	1.000	5786396		3.46(1.94-5.82)	94.7	52138	
D 18 13C4 PFOS										
503.00 > 80.00	2.995	2.981	0.014	1.141	4018963	2.59		108	11424	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.995	2.982	0.013	1.000	16829591	9.32		100	54240	
499.00 > 99.00	2.995	2.982	0.013	1.000	3916957		4.30(2.31-6.93)	100	39397	
D 19 13C5 PFNA										
468.00 > 423.00	2.995	2.983	0.012	1.141	2998617	2.53		101	49995	
20 Perfluorononanoic acid										
463.00 > 419.00	2.995	2.983	0.012	1.000	12318792	9.98		99.8	16154	
463.00 > 169.00	2.995	2.983	0.012	1.000	3288899		3.75(1.90-5.69)	99.8	59529	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.330	0.005	1.271	5715623	2.56		102	51879	
D 26 M2-8:2FTS										
529.00 > 81.00	3.342	3.330	0.012	1.274	879981	2.38		99.3	19151	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.342	3.330	0.012	1.000	4507537	9.65		101	83321	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.342	3.333	0.009	1.002	21089893	9.46		94.6	65050	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.340	0.010	1.277	2462652	2.52		101	27571	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.341	0.009	1.000	9484568	9.85		98.5	47821	
513.00 > 169.00	3.357	3.341	0.016	1.002	1798318		5.27(2.36-7.09)	98.5	1635	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.502	3.493	0.009	1.335	783958	2.74		110	27390	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.509	3.497	0.012	1.002	3539225	10.1		101	28308	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.659	3.648	0.011	1.000	10555415	9.56		99.2	116253	
599.00 > 99.00	3.659	3.648	0.011	1.000	3624091		2.91(1.39-4.16)	99.2	51077	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.673	3.660	0.013	1.400	792580	2.63		105	1446	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.673	3.666	0.007	1.000	3063005	9.98		99.8	38409	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.673	3.668	0.005	0.998	7296815	9.67		96.7	16860	
563.00 > 169.00	3.682	3.668	0.014	1.000	1613588		4.52(0.00-0.00)	96.7	53535	
D 30 13C2 PFUnA										
565.00 > 520.00	3.682	3.669	0.013	1.403	1764989	2.36		94.5	41828	
D 36 13C2 PFDoA										
615.00 > 570.00	3.975	3.960	0.015	1.515	1899251	2.67		107	16289	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.975	3.961	0.014	1.000	7948969	10.4		104	17191	
613.00 > 169.00	3.975	3.961	0.014	1.000	2080290		3.82(2.13-6.40)	104	53491	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.235	4.221	0.014	1.000	7201728	10.1		101	19062	
663.00 > 169.00	4.235	4.221	0.014	1.000	2325137		3.10(1.25-3.76)	101	48236	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.459	0.014	1.705	1669584	2.66		106	19822	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.459	0.014	1.000	1763312	9.98		99.8	44723	
713.00 > 219.00	4.462	4.459	0.003	0.997	1204373		1.46(0.71-2.13)	99.8	19749	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.878	4.867	0.011	1.859	2386294	2.82		113	15174	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.878	4.871	0.007	1.000	9061965	9.94		99.4	2054	
813.00 > 169.00	4.878	4.871	0.007	1.000	1702777		5.32(2.86-8.58)	99.4	17081	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.233	5.216	0.017	1.000	9395747	9.94		99.4	1546	
913.00 > 169.00	5.233	5.216	0.017	1.000	1218579		7.71(0.00-0.00)	99.4	4836	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL7_00003 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:30:52 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Injection Date: 15-Feb-2018 15:14:13 Instrument ID: A8_N

Lims ID: IC L7 Full

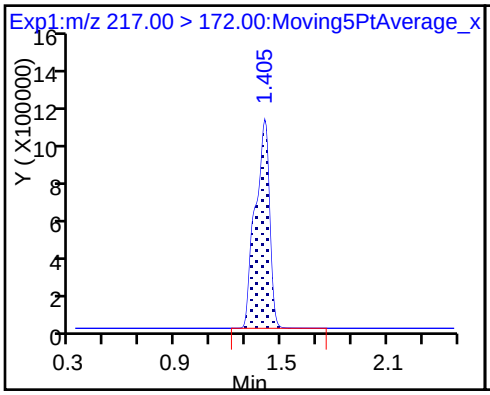
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 8

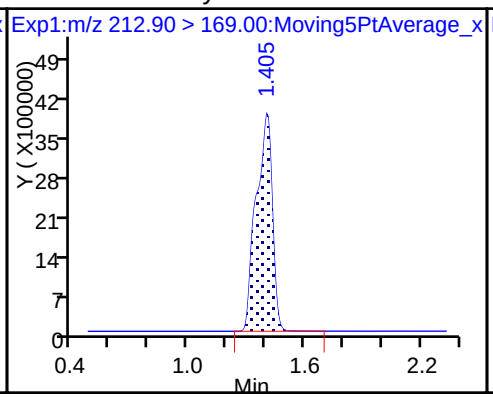
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

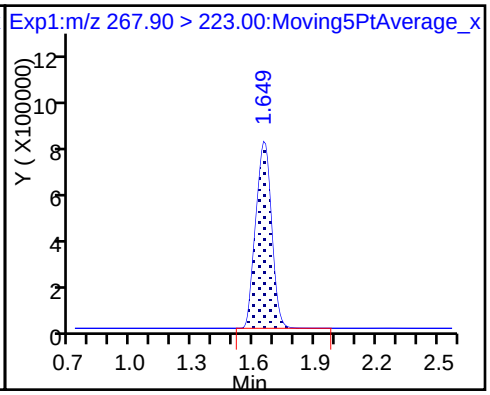
D 1 13C4 PFBA



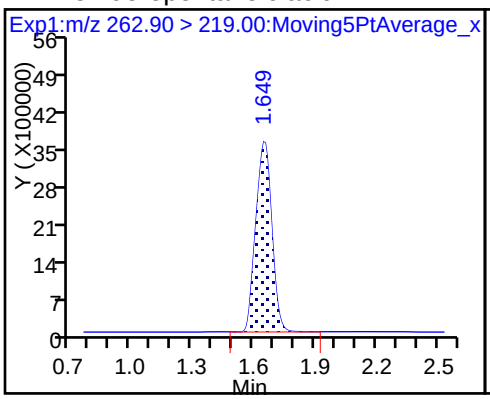
2 Perfluorobutyric acid



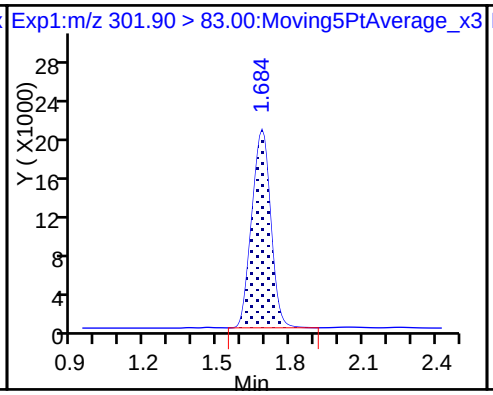
D 3 13C5-PFPeA



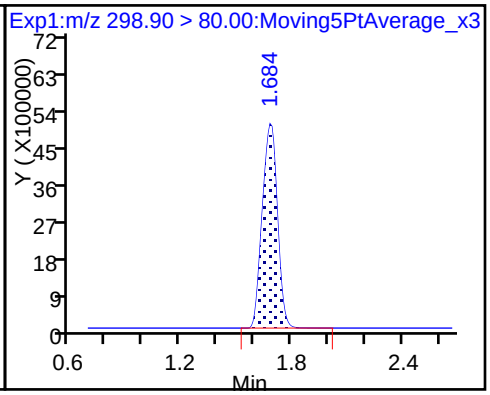
4 Perfluoropentanoic acid



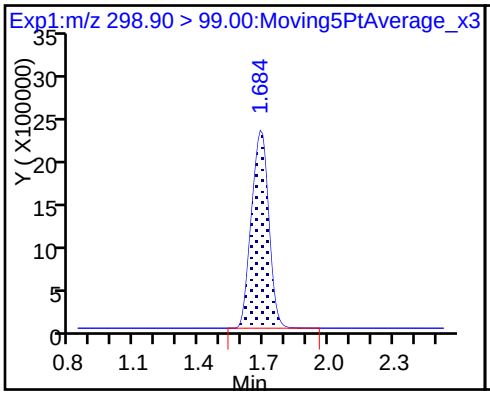
D 47 13C3-PFBS



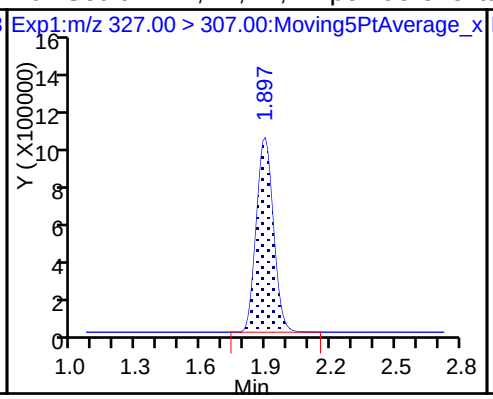
5 Perfluorobutanesulfonic acid



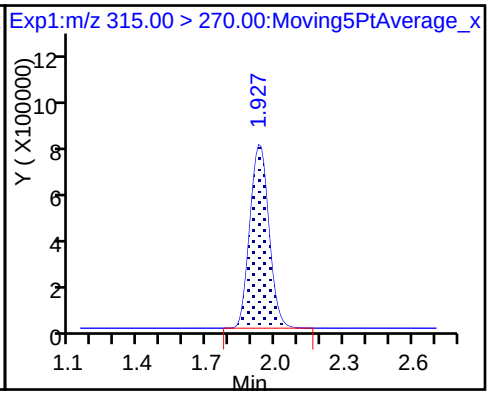
5 Perfluorobutanesulfonic acid



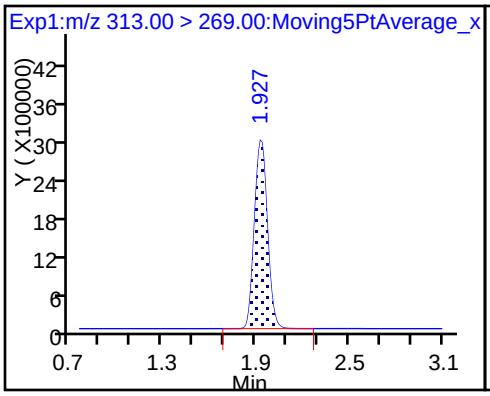
61 Sodium 1H,1H,2H,2H-perfluorohexa



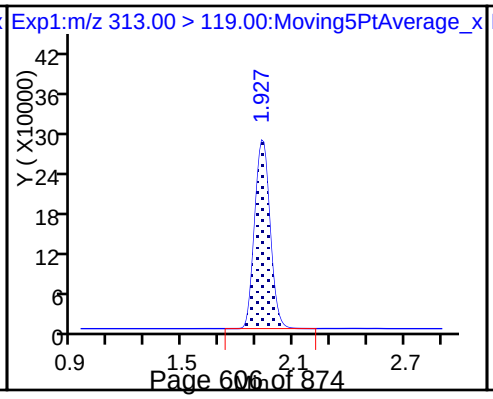
D 7 13C2 PFHxA



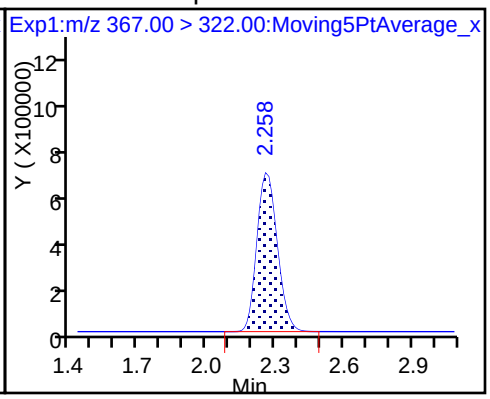
6 Perfluorohexanoic acid



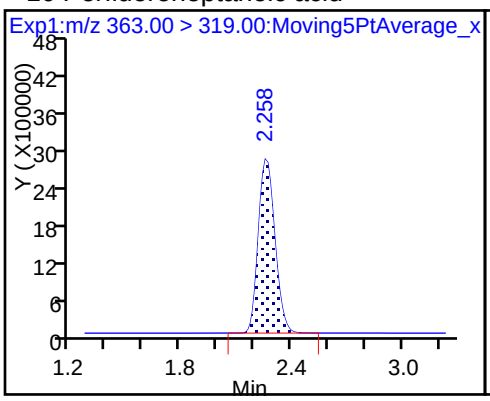
6 Perfluorohexanoic acid



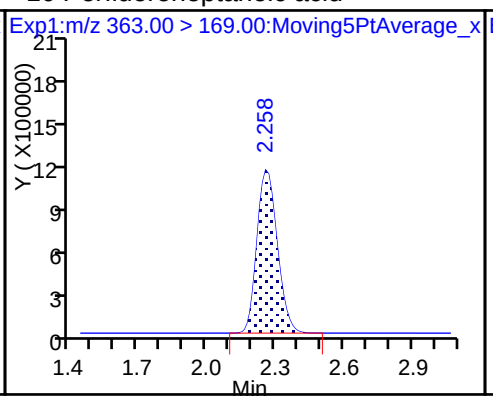
D 9 13C4-PFHpA



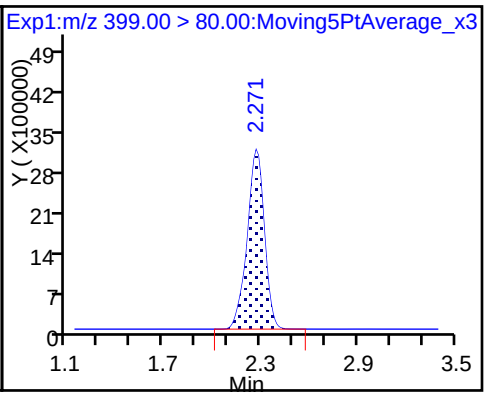
10 Perfluoroheptanoic acid



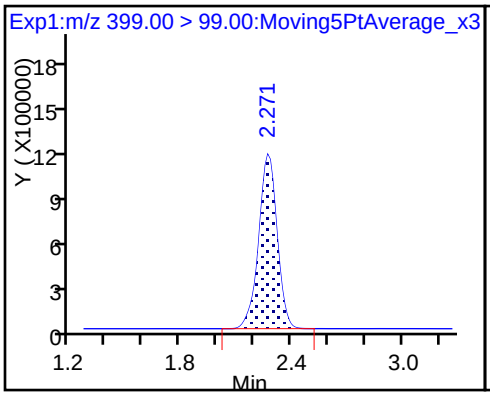
10 Perfluoroheptanoic acid



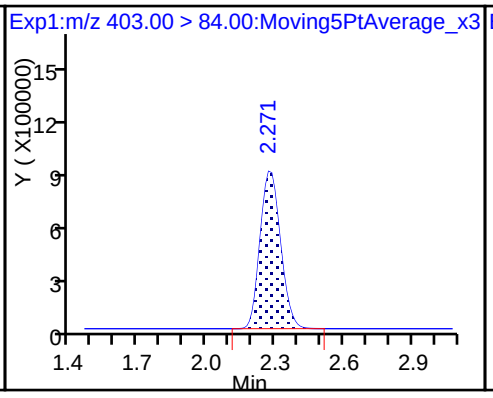
8 Perfluorohexanesulfonic acid



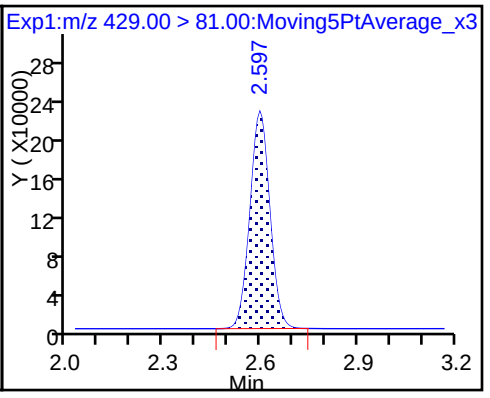
8 Perfluorohexanesulfonic acid



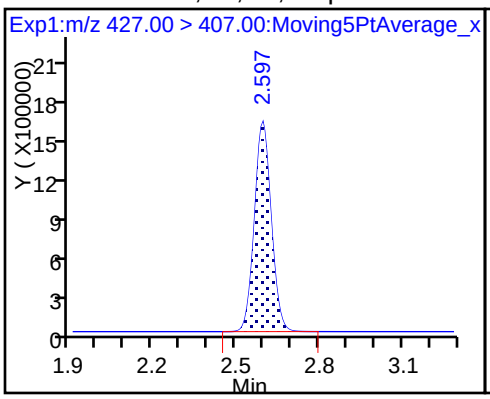
D 11 18O2 PFHxS



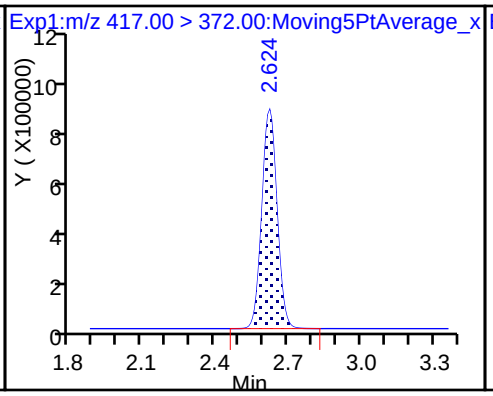
D 12 M2-6:2FTS



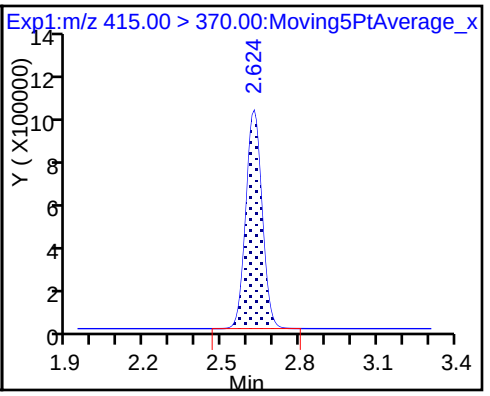
13 Sodium 1H,1H,2H,2H-perfluorooctane



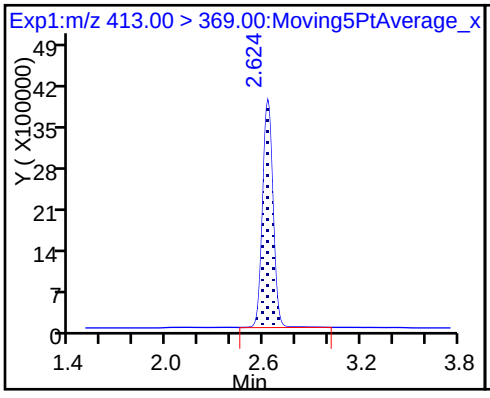
D 14 13C4 PFOA



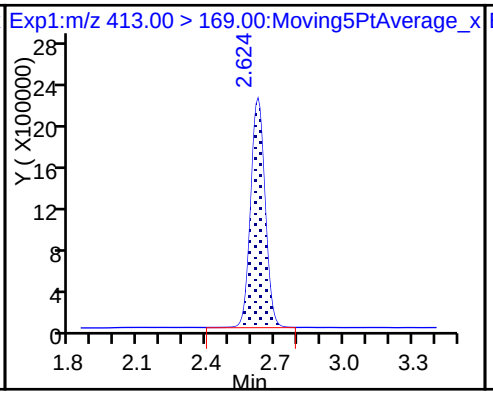
* 62 13C2-PFOA



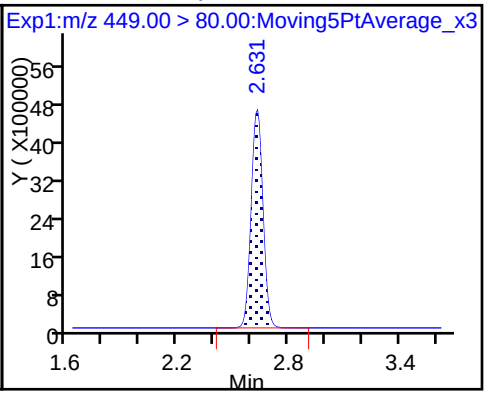
15 Perfluorooctanoic acid



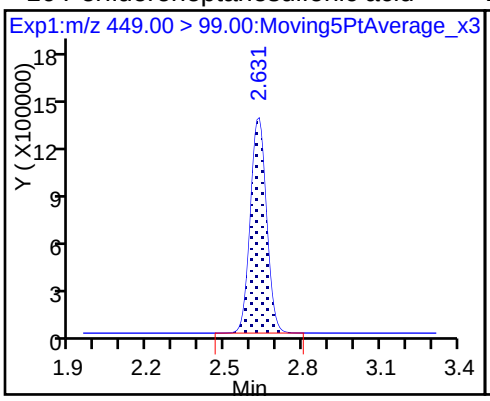
15 Perfluorooctanoic acid



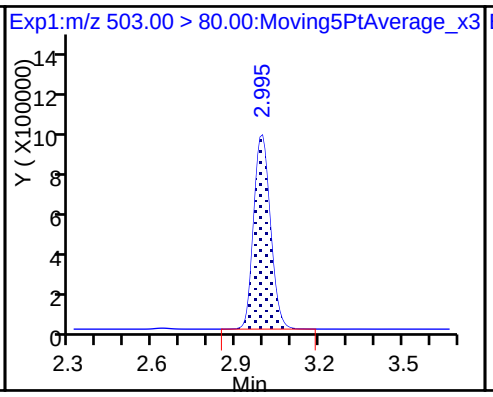
16 Perfluoroheptanesulfonic acid



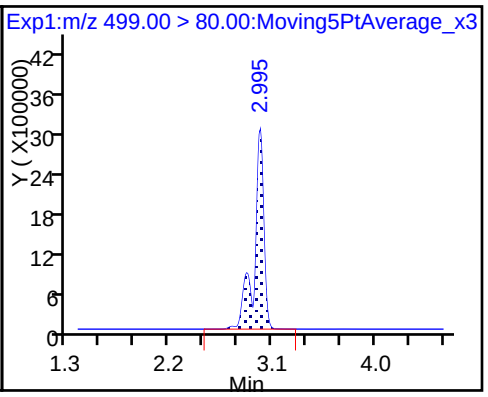
16 Perfluoroheptanesulfonic acid



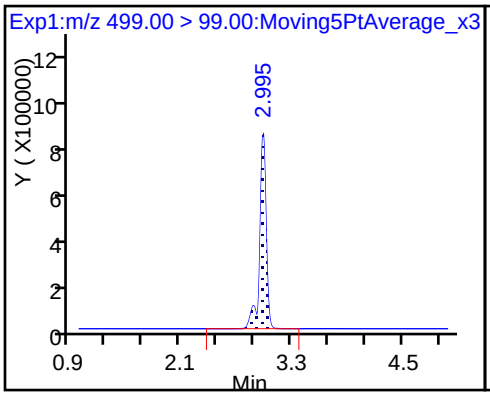
D 18 13C4 PFOS



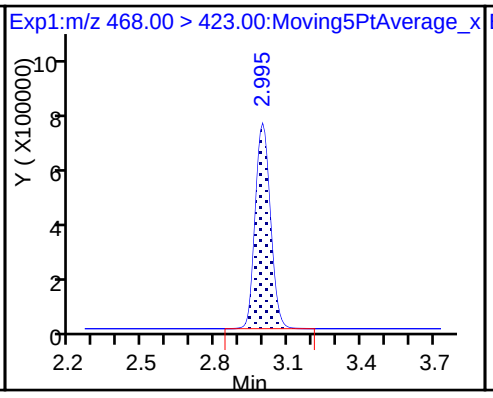
17 Perfluorooctane sulfonic acid



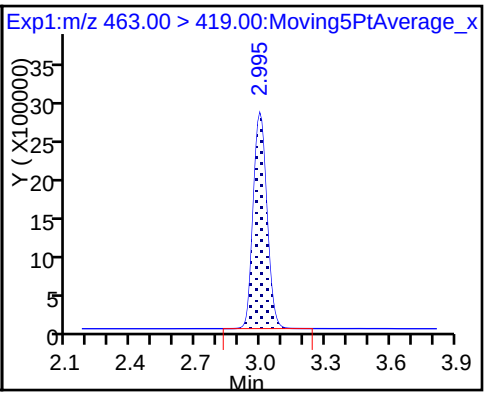
17 Perfluorooctane sulfonic acid



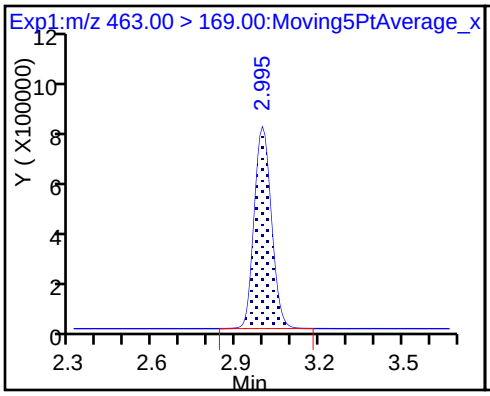
D 19 13C5 PFNA



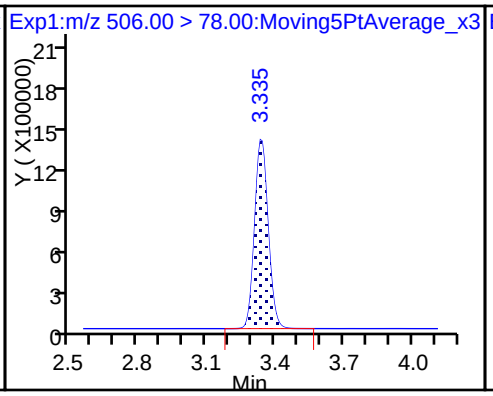
20 Perfluorononanoic acid



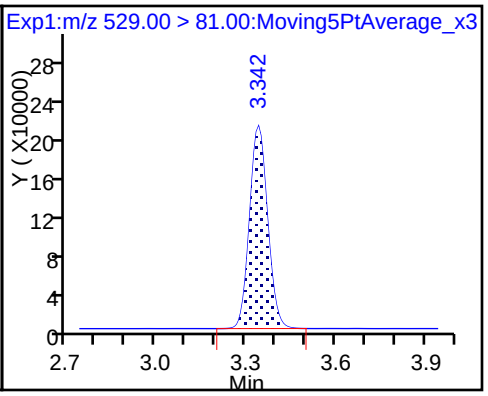
20 Perfluorononanoic acid



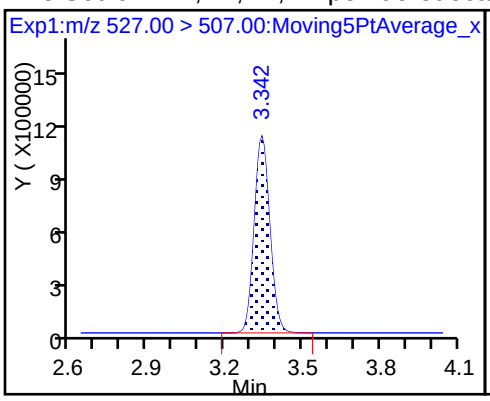
D 21 13C8 FOSA



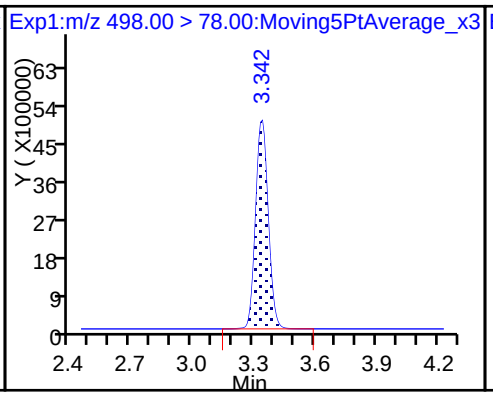
D 26 M2-8:2FTS



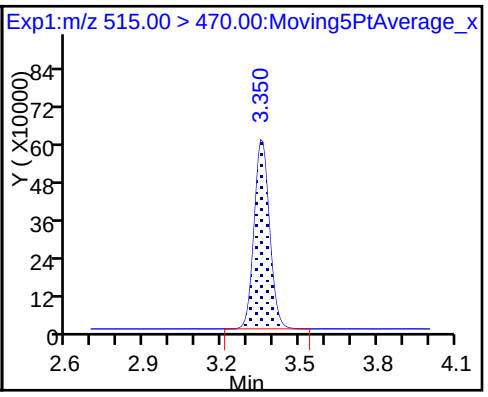
25 Sodium 1H,1H,2H,2H-perfluorodecane



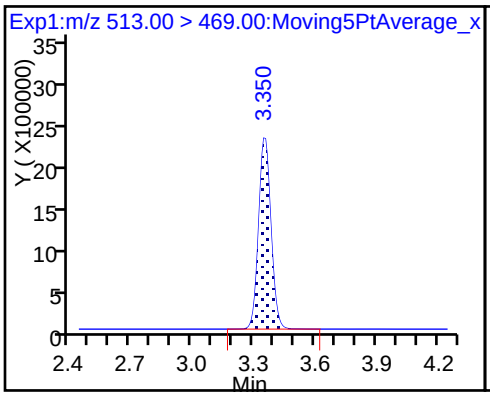
22 Perfluorooctane Sulfonamide



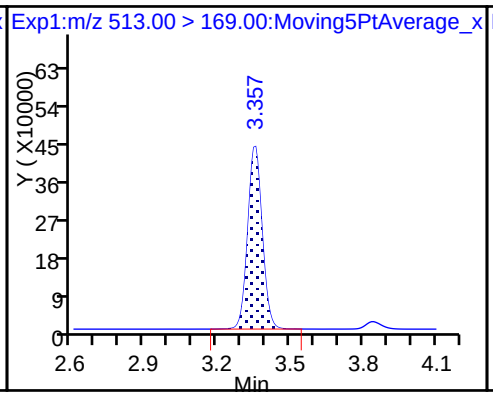
D 23 13C2 PFDA



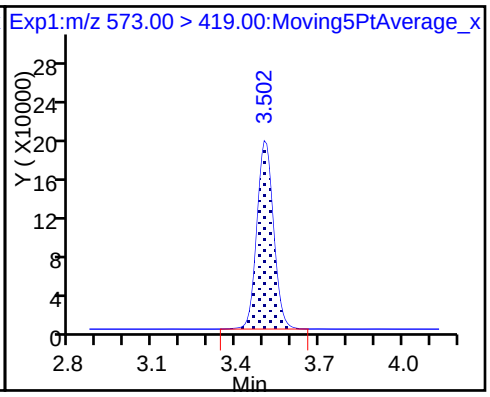
24 Perfluorodecanoic acid



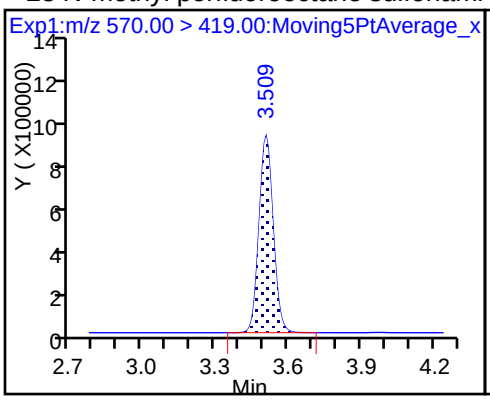
24 Perfluorodecanoic acid



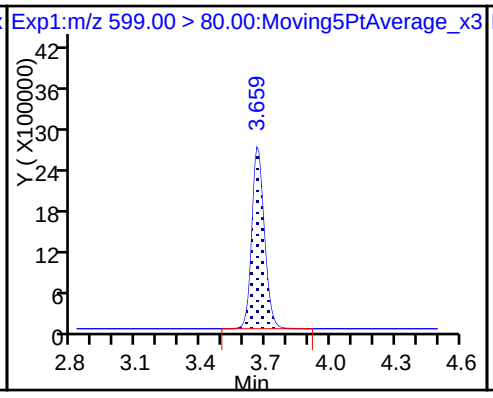
D 27 d3-NMeFOSAA



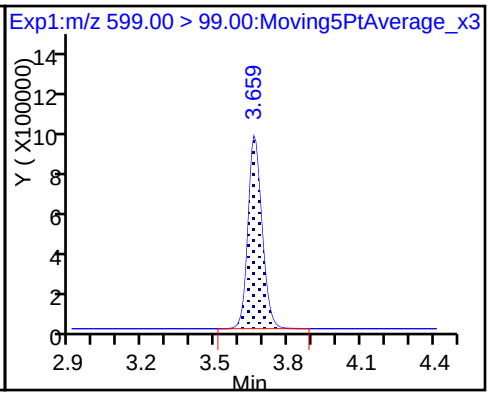
28 N-methyl perfluorooctane sulfonami



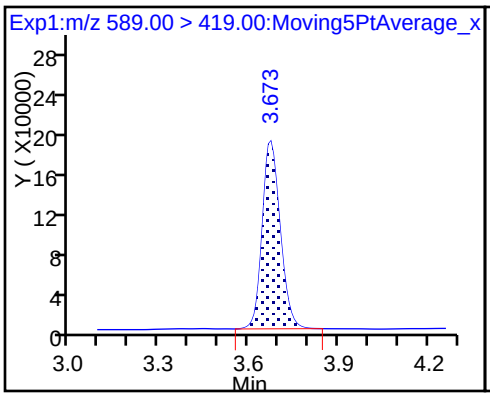
29 Perfluorodecane Sulfonic acid



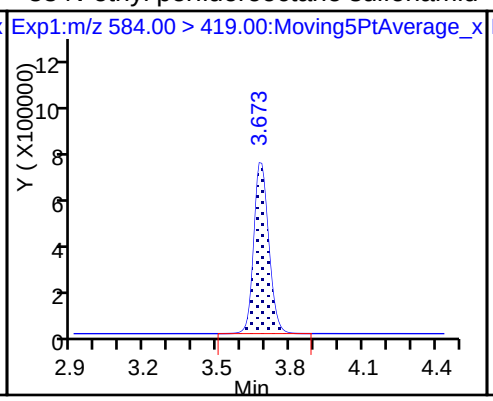
29 Perfluorodecane Sulfonic acid



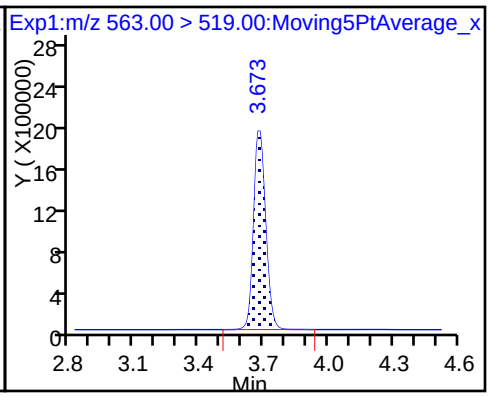
D 32 d5-NEtFOSAA



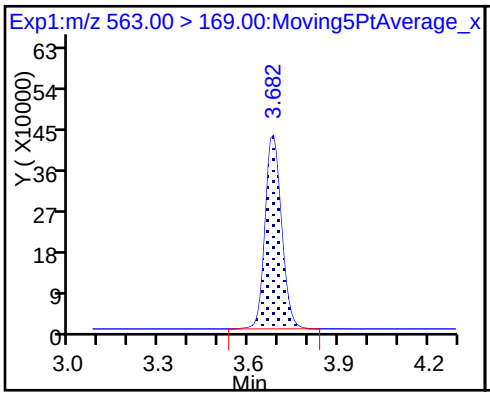
33 N-ethyl perfluorooctane sulfonamid



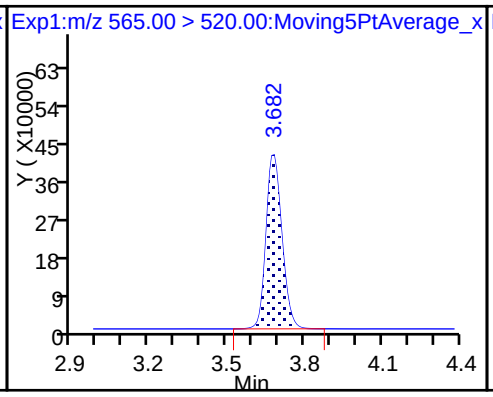
31 Perfluoroundecanoic acid



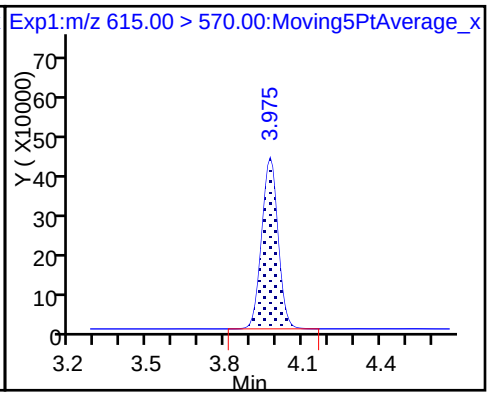
31 Perfluoroundecanoic acid



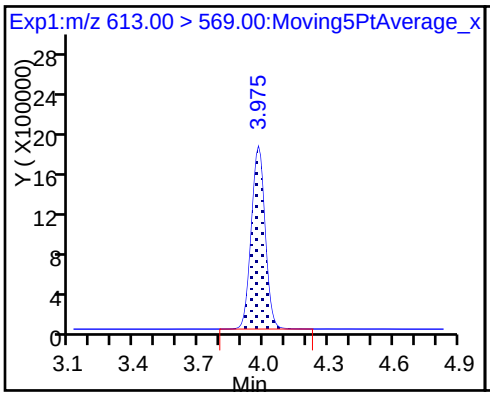
D 30 13C2 PFUnA



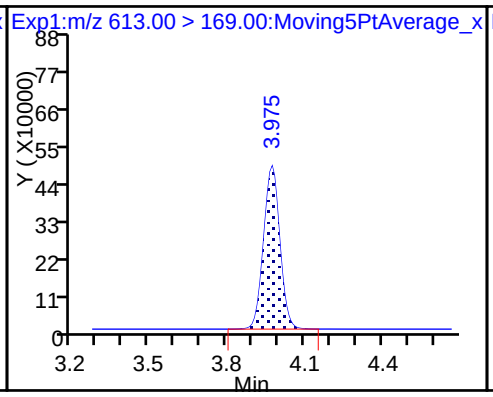
D 36 13C2 PFDoA



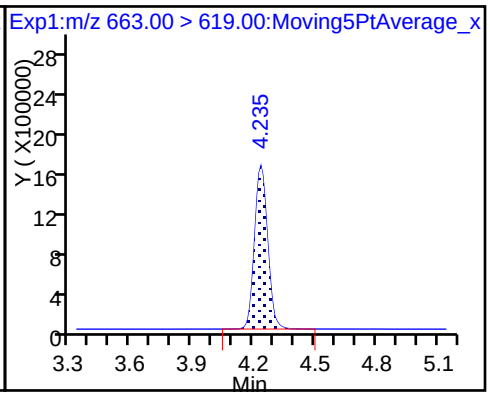
37 Perfluorododecanoic acid



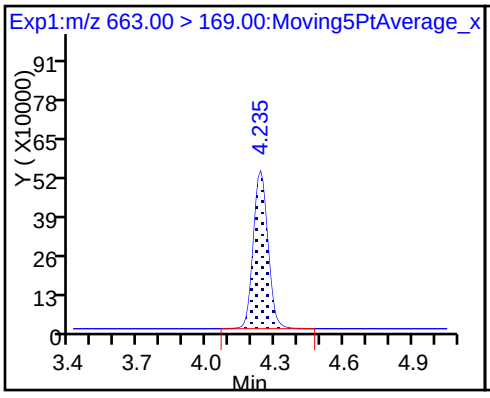
37 Perfluorododecanoic acid



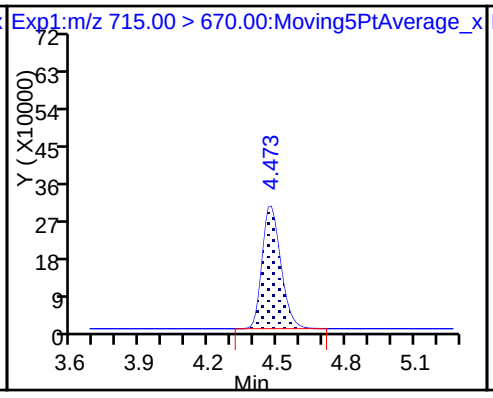
41 Perfluorotridecanoic acid



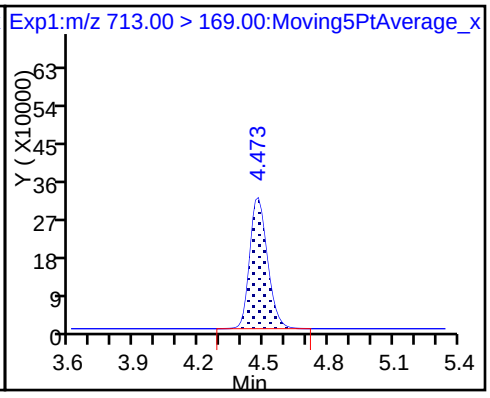
41 Perfluorotridecanoic acid



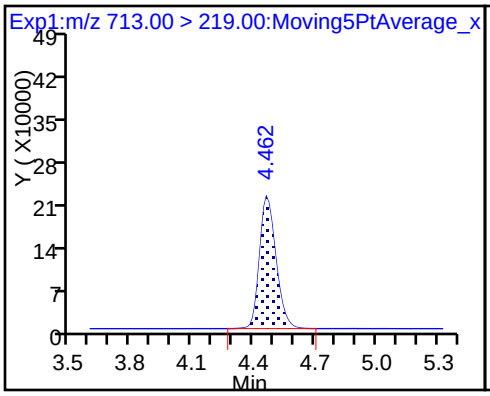
D 43 13C2-PFTeDA



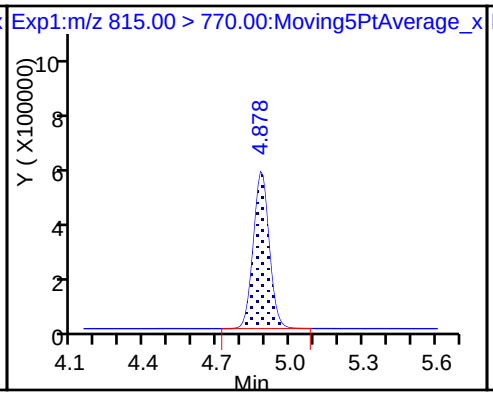
42 Perfluorotetradecanoic acid



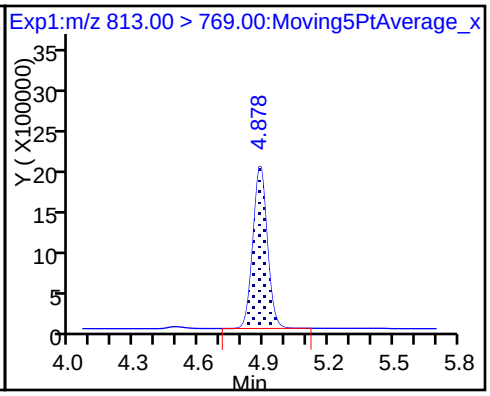
42 Perfluorotetradecanoic acid



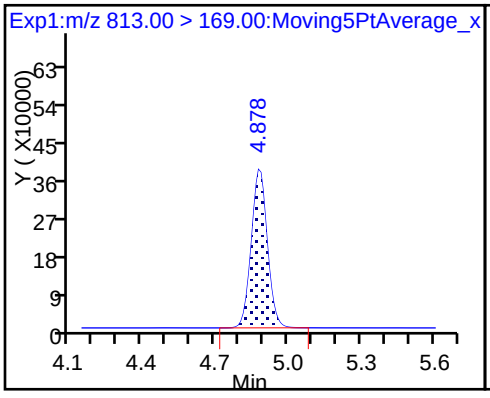
D 44 13C2-PFHxDA



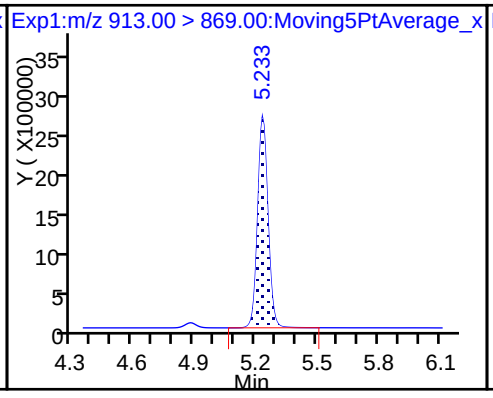
45 Perfluorohexadecanoic acid



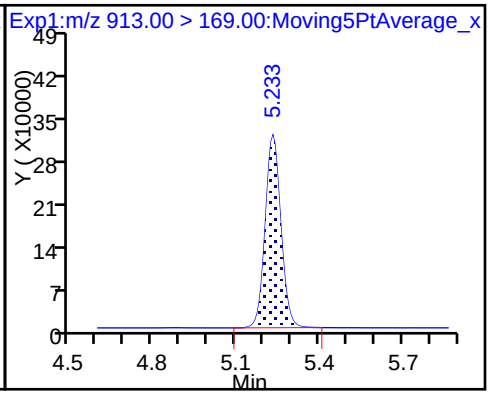
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-206706/10 Calibration Date: 02/01/2018 22:17

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.01LLICAL_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9425		2.49	2.50	-0.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.103		2.32	2.50	-7.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.03		2.22	2.21	0.2	25.0
4:2 FTS	AveID	16.11	15.72		2.28	2.34	-2.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9938		2.40	2.50	-3.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	0.996		2.39	2.50	-4.3	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.014		2.03	2.28	-10.8	25.0
6:2FTS	AveID	1.798	1.647		2.18	2.38	-8.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.108		2.43	2.50	-2.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.328		2.32	2.38	-2.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.005		2.47	2.50	-1.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.068		2.24	2.31	-3.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	1.031		2.60	2.50	4.1	25.0
8:2FTS	AveID	1.228	1.215		2.37	2.40	-1.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9868		2.42	2.50	-3.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.025		2.39	2.50	-4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.6882		2.51	2.41	4.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9436		2.29	2.50	-8.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9222		2.48	2.50	-0.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.092		2.60	2.50	3.9	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.104		2.47	2.50	-1.0	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2514		2.54	2.50	1.5	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9209		2.38	2.50	-4.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	1.085		2.45	2.50	-2.2	25.0
13C4 PFBA	Ave	1.444	1.511		2.62	2.50	4.6	50.0
13C5 PFPeA	Ave	0.8768	0.9346		2.66	2.50	6.6	50.0
13C3-PFBS	Ave	0.0196	0.0206		2.44	2.33	5.0	50.0
13C2 PFHxA	Ave	0.9470	1.012		2.67	2.50	6.9	50.0
13C4-PFHpA	Ave	0.9180	1.017		2.77	2.50	10.8	50.0
18O2 PFHxS	Ave	1.134	1.213		2.53	2.37	7.0	50.0
M2-6:2FTS	Ave	0.1948	0.2098		2.56	2.38	7.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-206706/10 Calibration Date: 02/01/2018 22:17

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.01LLICAL_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9494		2.64	2.50	5.7	50.0
13C4 PFOS	Ave	0.7450	0.7880		2.53	2.39	5.8	50.0
13C5 PFNA	Ave	0.7311	0.8031		2.75	2.50	9.9	50.0
13C8 FOSA	Ave	1.030	1.076		2.61	2.50	4.5	50.0
M2-8:2FTS	Ave	0.2169	0.2249		2.48	2.40	3.7	50.0
13C2 PFDA	Ave	0.6297	0.6578		2.61	2.50	4.5	50.0
d3-NMeFOSAA	Ave	0.3401	0.3675		2.70	2.50	8.1	50.0
d5-NEtFOSAA	Ave	0.3488	0.3783		2.71	2.50	8.5	50.0
13C2 PFUnA	Ave	0.4871	0.5201		2.67	2.50	6.8	50.0
13C2 PFDoA	Ave	0.4977	0.5203		2.61	2.50	4.5	50.0
13C2-PFTeDA	Ave	0.6138	0.6603		2.69	2.50	7.6	50.0
13C2-PFHxDA	Ave	1.061	1.133		2.67	2.50	6.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_010.d
Lims ID: ICV Full
Client ID:
Sample Type: ICV
Inject. Date: 01-Feb-2018 22:17:19 ALS Bottle#: 18 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 02-Feb-2018 15:32:29 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK049

First Level Reviewer: hannigana Date: 02-Feb-2018 15:25:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.416	-0.005	0.536	6877143	2.62		105	20885	
2 Perfluorobutyric acid										
212.90 > 169.00	1.417	1.419	-0.002	1.004	6481397	2.49			821	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.666	1.663	0.003	1.000	4692644	2.32			3533	
D 3 13C5-PFPeA										
267.90 > 223.00	1.666	1.663	0.003	0.633	4253556	2.66		107	39991	
D 47 13C3-PFBS										
301.90 > 83.00	1.702	1.696	0.006	0.647	87126	2.44		105	2319	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.702	1.698	0.004	1.000	6386404	2.22			20078	
298.90 > 99.00	1.702	1.698	0.004	1.000	2748564		2.32(1.25-3.74)		11060	
D 60 M2-4:2FTS										
329.00 > 81.00	1.907	1.902	0.005	0.725	607993	NC			6194	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.907	1.904	0.003	1.000	1377049	2.28			51668	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.948	1.937	0.011	1.000	4577273	2.40			9761	
313.00 > 119.00	1.948	1.937	0.011	1.000	428427		10.68(5.03-15.10)		8393	
D 7 13C2 PFHxA										
315.00 > 270.00	1.948	1.937	0.011	0.740	4605962	2.67		107	43072	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.271	2.268	0.003	1.000	4609824	2.39			5611	
363.00 > 169.00	2.271	2.268	0.003	1.000	1795531		2.57(1.13-3.40)		9216	
D 9 13C4-PFHpA										
367.00 > 322.00	2.271	2.268	0.003	0.863	4630423	2.77		111	27383	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.284	2.281	0.003	0.868	5223227	2.53		107	23581	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.284	2.281	0.003	1.000	5108222	2.03			5367	
399.00 > 99.00	2.284	2.281	0.003	1.000	1739941		2.94(1.50-4.49)		4053	
D 12 M2-6:2FTS										
429.00 > 81.00	2.603	2.598	0.005	0.989	907273	2.56		108	17004	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.603	2.598	0.005	1.000	1493825	2.18			21871	
D 14 13C4 PFOA										
417.00 > 372.00	2.624	2.622	0.002	0.997	4321144	2.64		106	24327	
* 62 13C2-PFOA										
415.00 > 370.00	2.631	2.623	0.008		4551390	2.50			31558	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.624	2.626	-0.002	1.000	4786712	2.43			1817	
413.00 > 169.00	2.624	2.626	-0.002	1.000	2478376		1.93(0.84-2.52)		12228	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.639	2.632	0.007	1.000	4525079	2.32			36673	
449.00 > 99.00	2.631	2.632	-0.001	0.997	1259838		3.59(1.94-5.82)		8566	
D 18 13C4 PFOS										
503.00 > 80.00	2.995	2.993	0.002	1.138	3428868	2.53		106	21077	
D 19 13C5 PFNA										
468.00 > 423.00	2.995	2.994	0.001	1.138	3655408	2.75		110	25051	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.995	2.995	0.0	1.000	3546501	2.24			5314	
499.00 > 99.00	2.995	2.995	0.0	1.000	773677		4.58(2.31-6.93)		3550	
20 Perfluorononanoic acid										
463.00 > 419.00	2.995	2.997	-0.002	1.000	3673198	2.47			5733	
463.00 > 169.00	2.995	2.997	-0.002	1.000	886871		4.14(1.90-5.69)		11108	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.334	0.001	1.267	4899471	2.61		104	16677	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.335	3.337	-0.002	1.000	5049666	2.60			16564	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.342	3.345	-0.003	1.000	1194298	2.37			13889	
D 26 M2-8:2FTS										
529.00 > 81.00	3.342	3.345	-0.003	1.270	980769	2.48		104	12019	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.354	-0.004	1.000	2954283	2.42			10070	
513.00 > 169.00	3.350	3.354	-0.004	1.000	521926		5.66(2.36-7.09)		7184	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.354	-0.004	1.273	2993837	2.61		104	21705	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.510	3.508	0.002	1.334	1672515	2.70		108	11900	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.510	3.513	-0.003	1.000	1714543	2.39			7567	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.666	3.666	0.0	1.000	2381968	2.51			35266	
599.00 > 99.00	3.666	3.666	0.0	1.000	762789		3.12(1.39-4.16)		15699	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.674	3.676	-0.002	1.396	1721881	2.71		108	7221	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.682	3.682	0.0	1.002	1587966	2.48			9634	
D 30 13C2 PFUnA										
565.00 > 520.00	3.682	3.682	0.0	1.399	2367060	2.67		107	28497	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.674	3.682	-0.008	0.998	2233618	2.29			7933	
563.00 > 169.00	3.682	3.682	0.0	1.000	472257		4.73(0.00-0.00)		14186	
D 36 13C2 PFDoA										
615.00 > 570.00	3.975	3.980	-0.005	1.511	2368239	2.61		105	20223	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.975	3.980	-0.005	1.000	2586223	2.60			8275	
613.00 > 169.00	3.975	3.980	-0.005	1.000	600032		4.31(2.13-6.40)		17449	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.245	4.245	0.0	1.000	2615587	2.47			7320	
663.00 > 169.00	4.245	4.245	0.0	1.000	810392		3.23(1.25-3.76)		18192	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.485	-0.012	1.700	3005114	2.69		108	20193	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.485	-0.012	1.000	755566	2.54			14607	
713.00 > 219.00	4.473	4.485	-0.012	1.000	524552		1.44(0.71-2.13)		11753	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.896	4.905	-0.009	1.000	4750406	2.38			2834	
813.00 > 169.00	4.896	4.905	-0.009	1.000	853982		5.56(2.86-8.58)		6400	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.896	4.905	-0.009	1.861	5158603	2.67		107	14364	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.254	5.257	-0.003	1.000	5596735	2.45			968	
913.00 > 169.00	5.247	5.257	-0.010	0.999	704110		7.95(0.00-0.00)		2014	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFCIC_FULL_00009 Amount Added: 1.00 Units: mL

Report Date: 02-Feb-2018 15:32:30 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_010.d

Injection Date: 01-Feb-2018 22:17:19 Instrument ID: A8_N

Lims ID: ICV Full

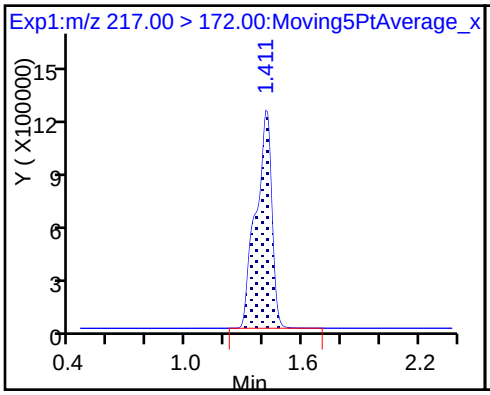
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 10

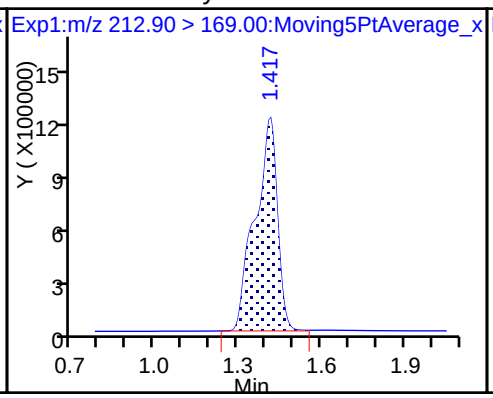
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

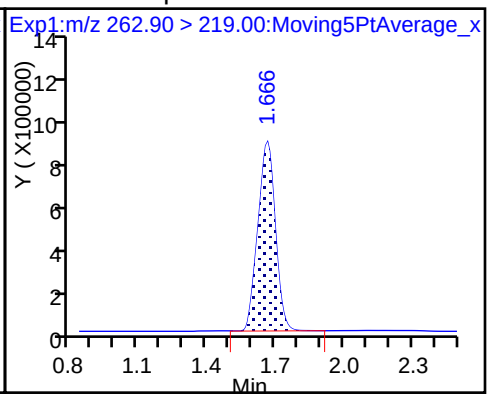
D 1 13C4 PFBA



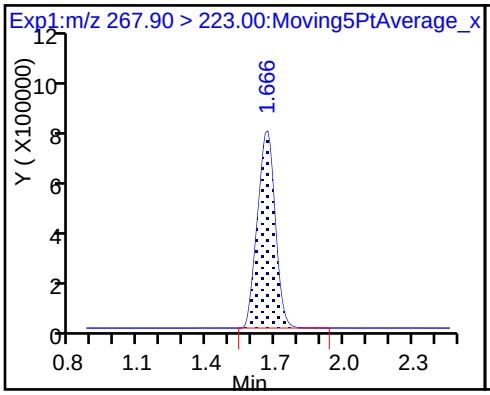
2 Perfluorobutyric acid



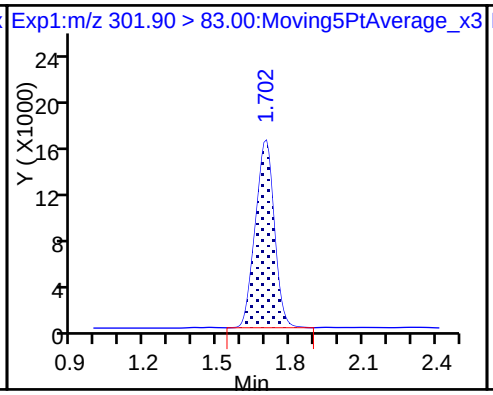
4 Perfluoropentanoic acid



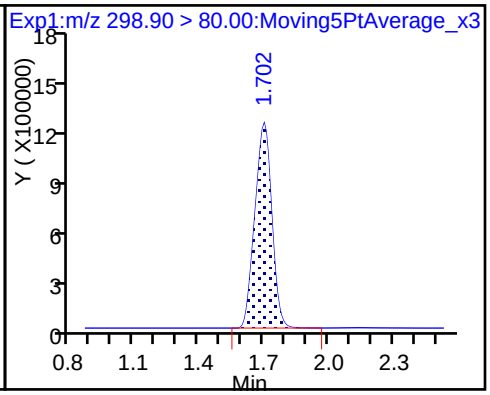
D 3 13C5-PFPeA



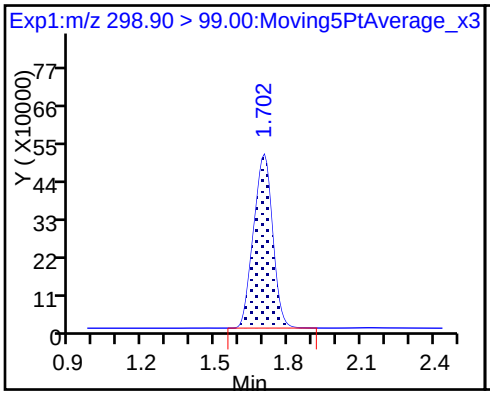
D 47 13C3-PFBS



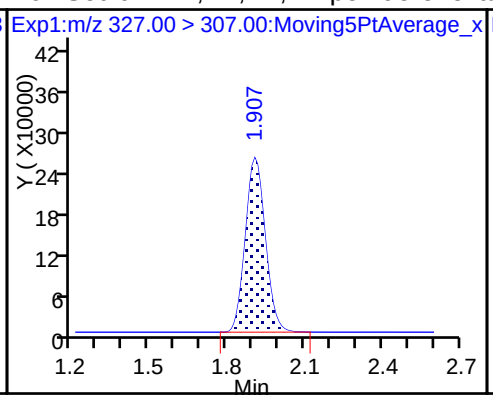
5 Perfluorobutanesulfonic acid



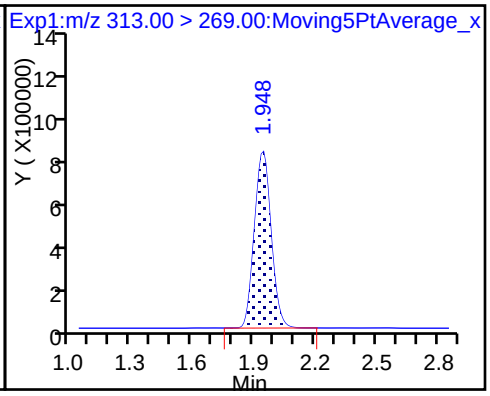
5 Perfluorobutanesulfonic acid



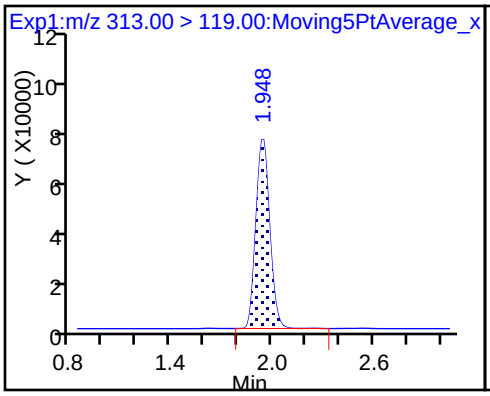
61 Sodium 1H,1H,2H,2H-perfluorohexane



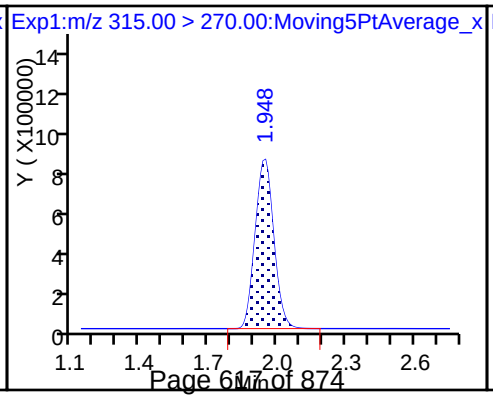
6 Perfluorohexanoic acid



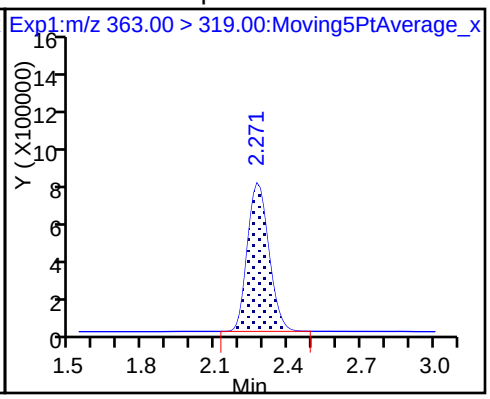
6 Perfluorohexanoic acid



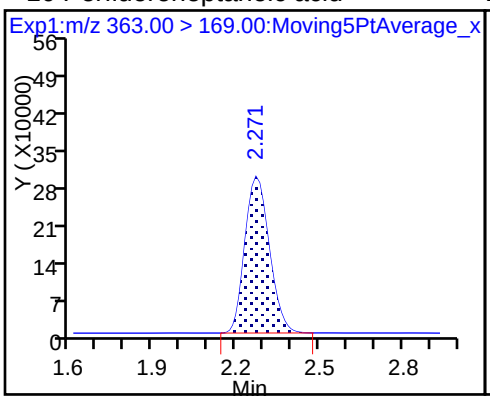
D 7 13C2 PFHxA



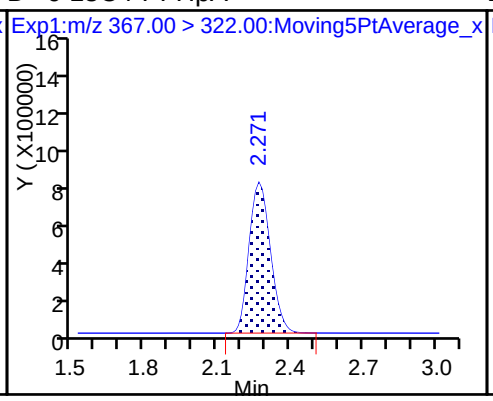
10 Perfluoroheptanoic acid



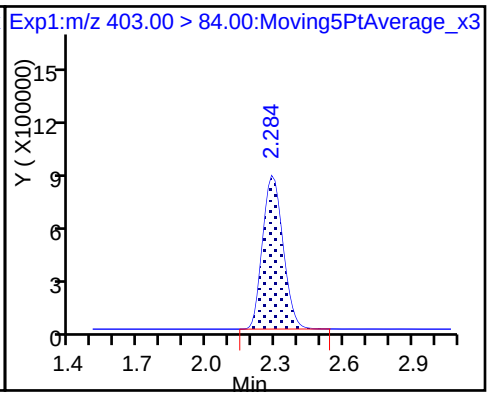
10 Perfluoroheptanoic acid



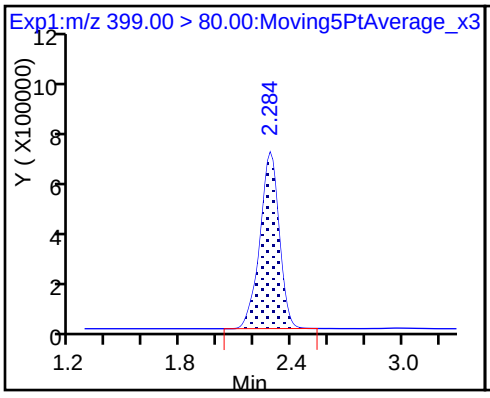
D 9 13C4-PFHpA



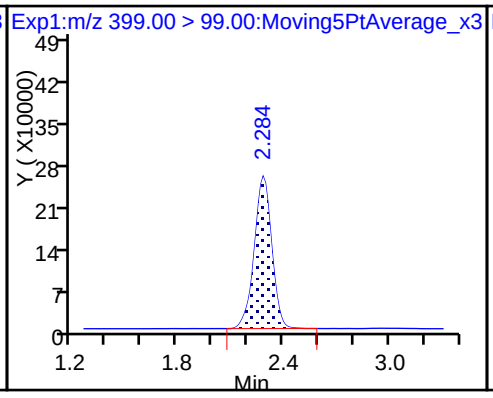
D 11 18O2 PFHxS



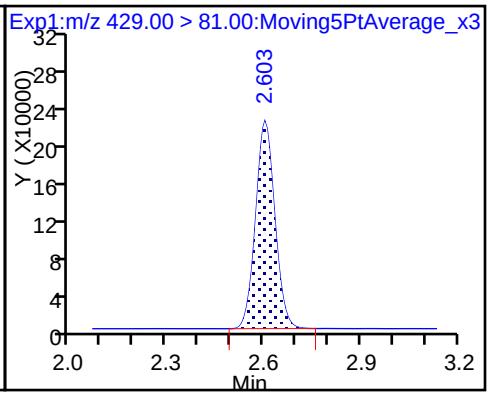
8 Perfluorohexanesulfonic acid



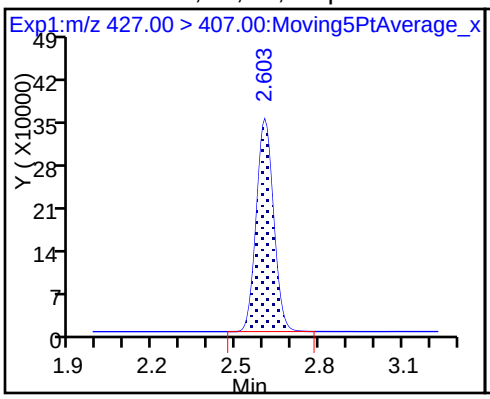
8 Perfluorohexanesulfonic acid



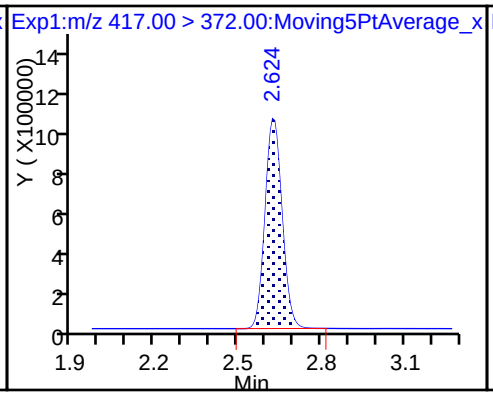
D 12 M2-6:2FTS



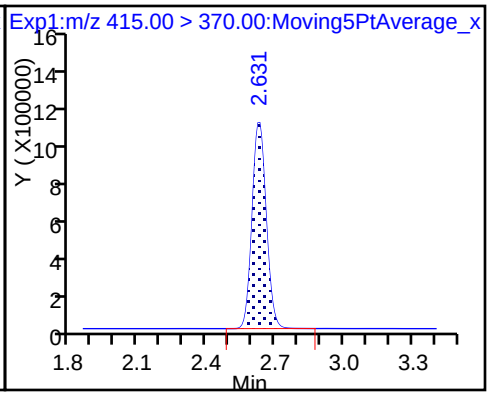
13 Sodium 1H,1H,2H,2H-perfluorooctane



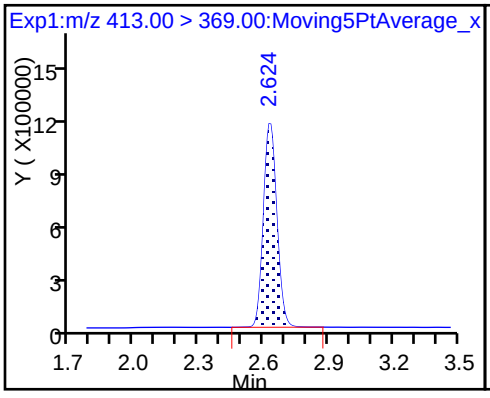
D 14 13C4 PFOA



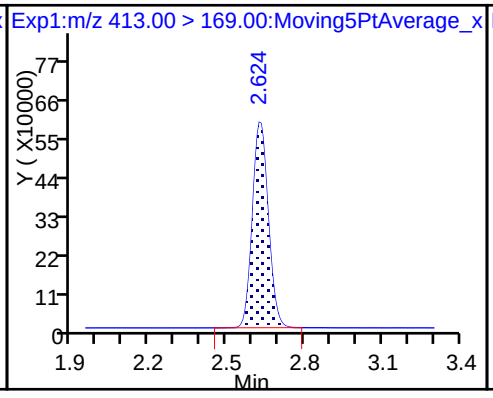
* 62 13C2-PFOA



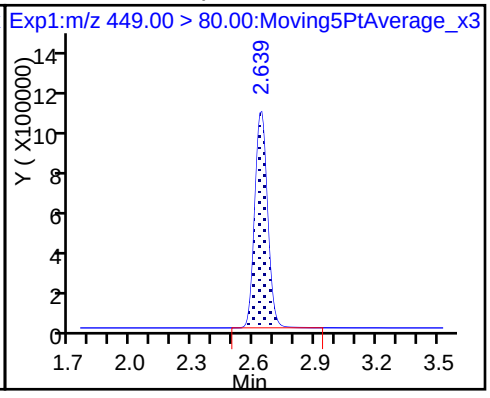
15 Perfluorooctanoic acid



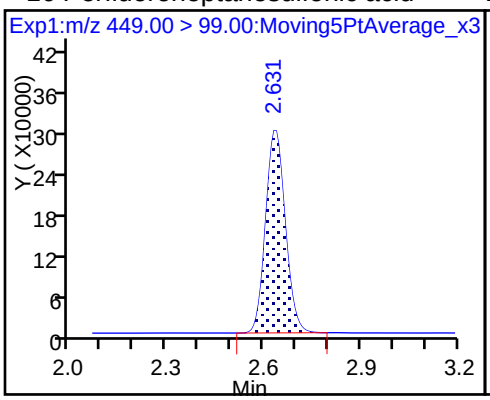
15 Perfluorooctanoic acid



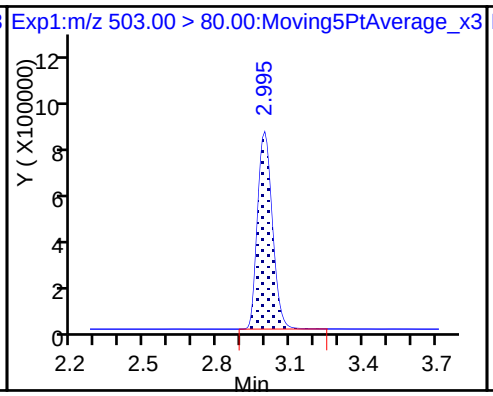
16 Perfluoroheptanesulfonic acid



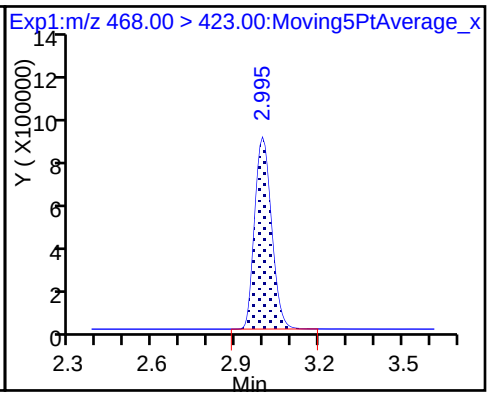
16 Perfluoroheptanesulfonic acid



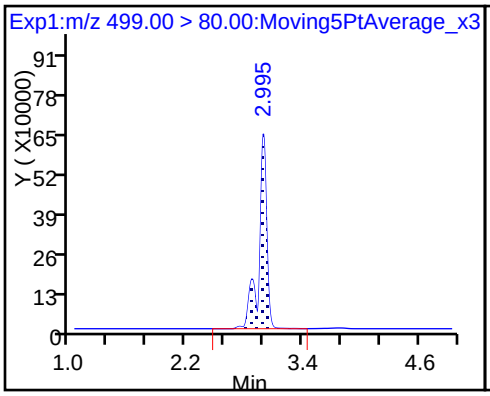
D 18 13C4 PFOS



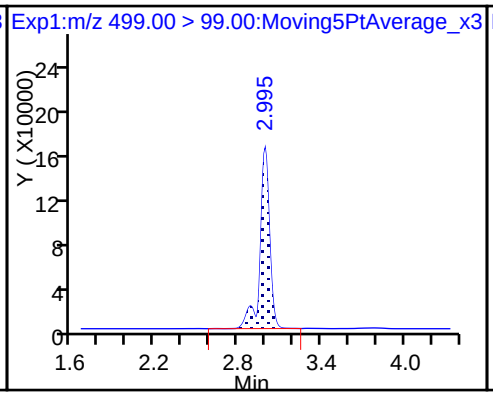
D 19 13C5 PFNA



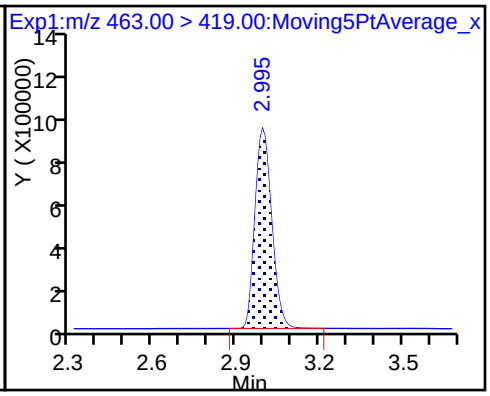
17 Perfluorooctane sulfonic acid



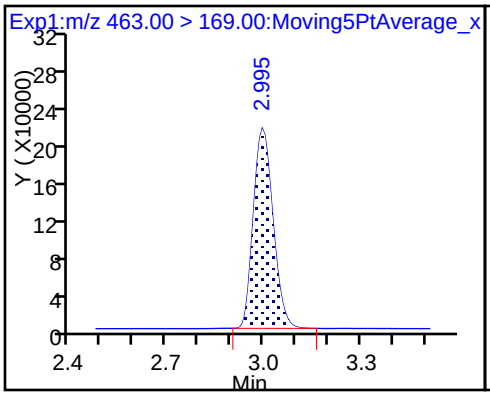
17 Perfluorooctane sulfonic acid



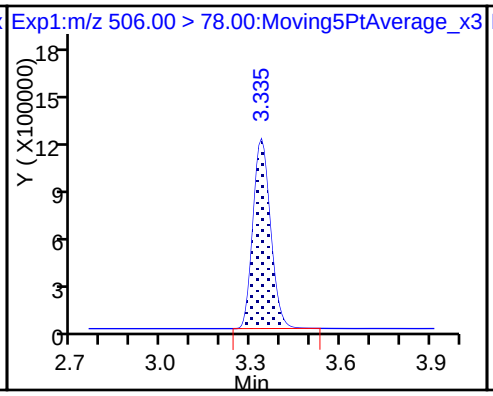
20 Perfluorononanoic acid



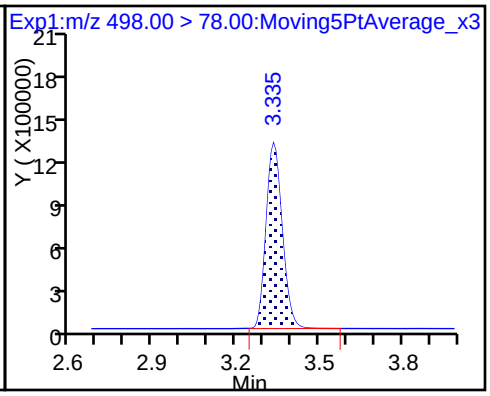
20 Perfluorononanoic acid



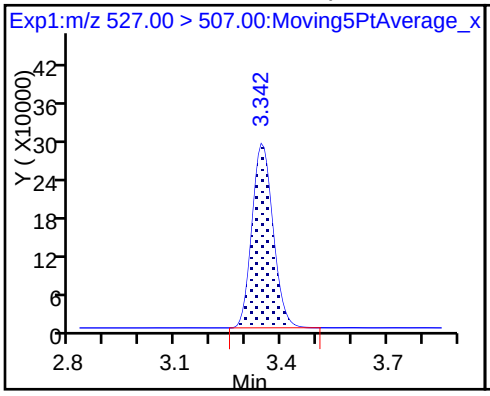
D 21 13C8 FOSA



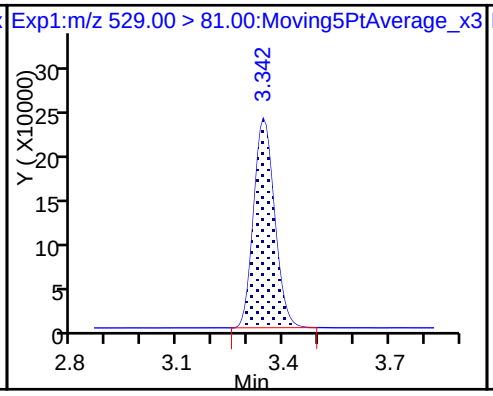
22 Perfluorooctane Sulfonamide



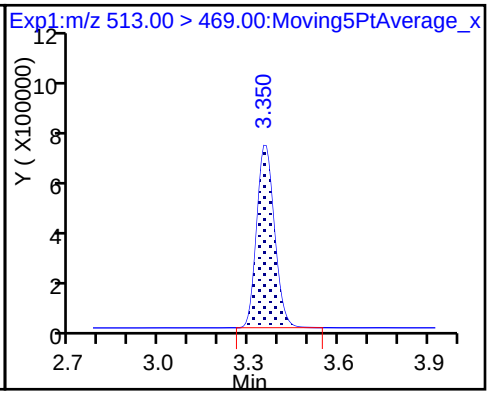
25 Sodium 1H,1H,2H,2H-perfluorodecane



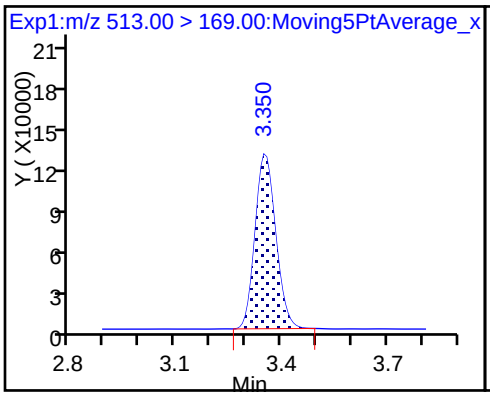
D 26 M2-8:2FTS



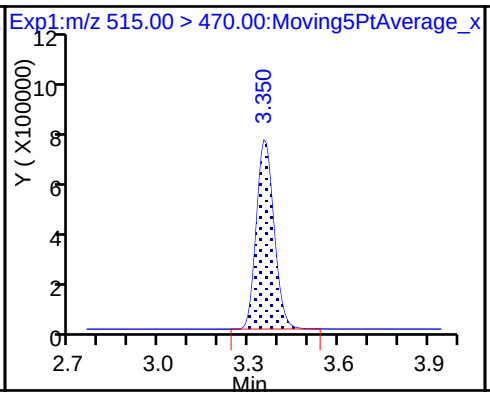
24 Perfluorodecanoic acid



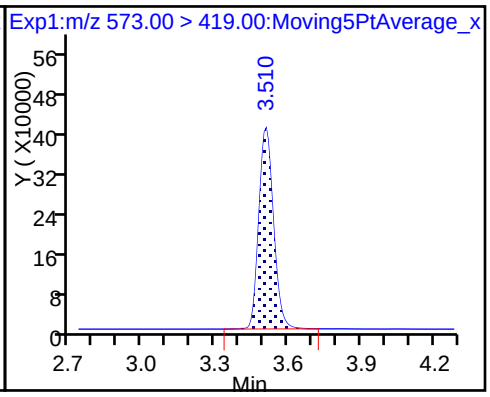
24 Perfluorodecanoic acid



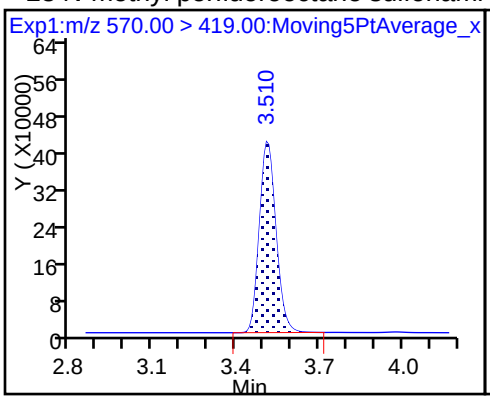
D 23 13C2 PFDA



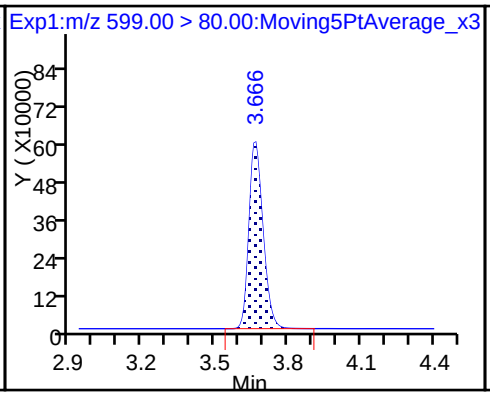
D 27 d3-NMeFOSAA



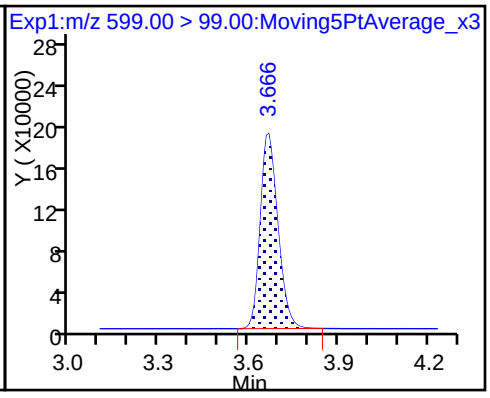
28 N-methyl perfluorooctane sulfonami



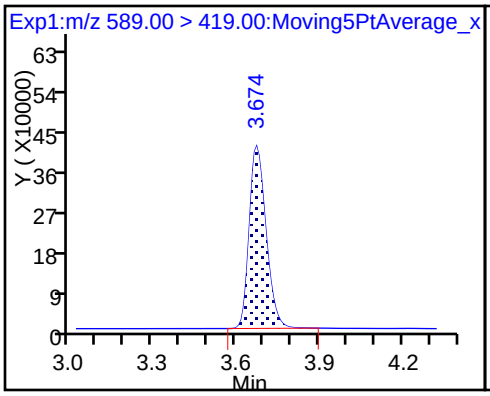
29 Perfluorodecane Sulfonic acid



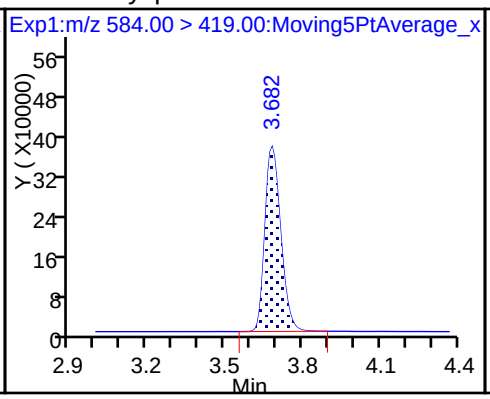
29 Perfluorodecane Sulfonic acid



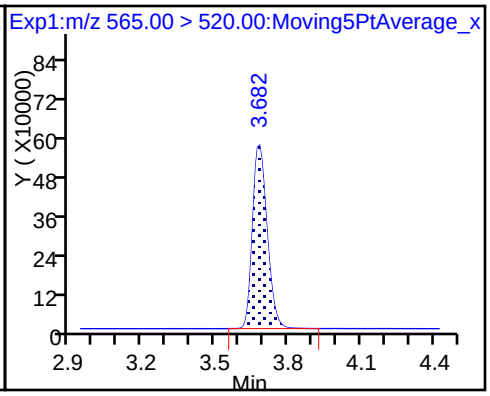
D 32 d5-NEtFOSAA



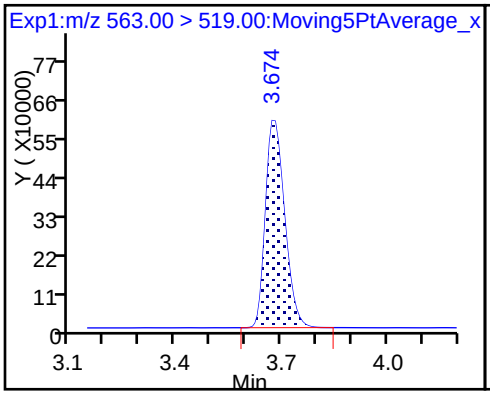
33 N-ethyl perfluorooctane sulfonamid



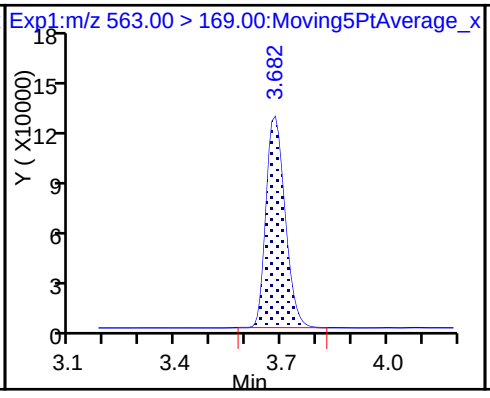
D 30 13C2 PFUnA



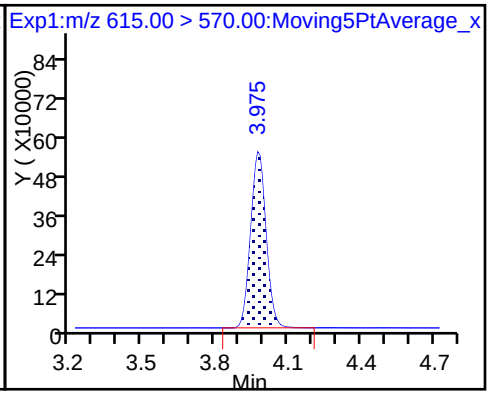
31 Perfluoroundecanoic acid



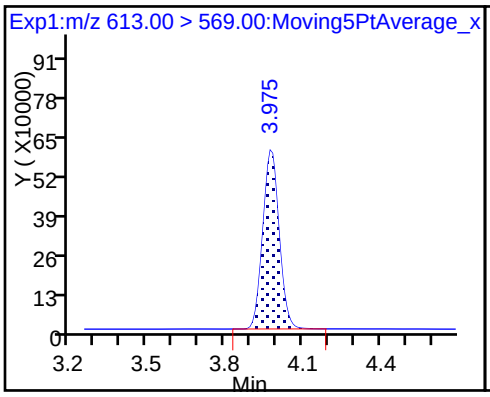
31 Perfluoroundecanoic acid



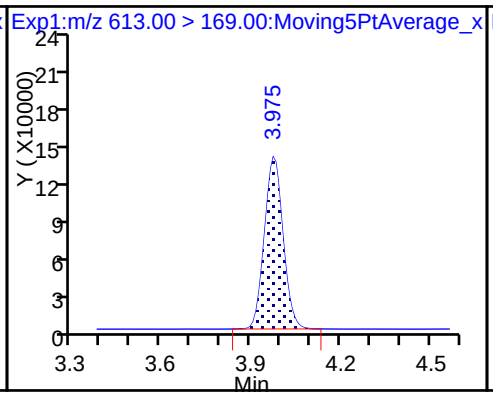
D 36 13C2 PFDoA



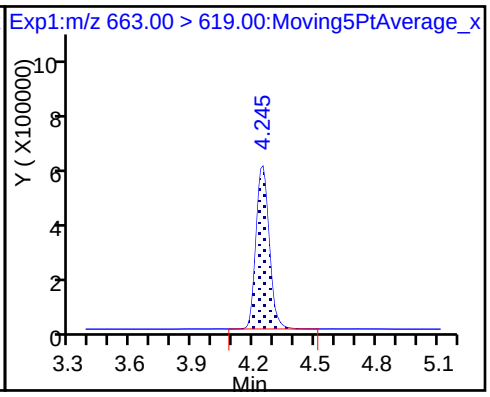
37 Perfluorododecanoic acid



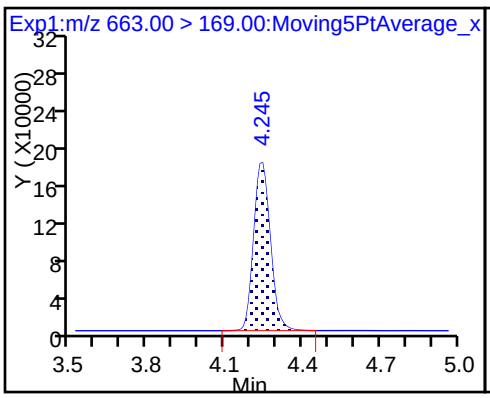
37 Perfluorododecanoic acid



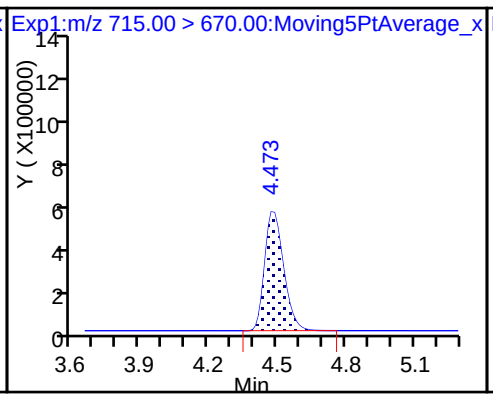
41 Perfluorotridecanoic acid



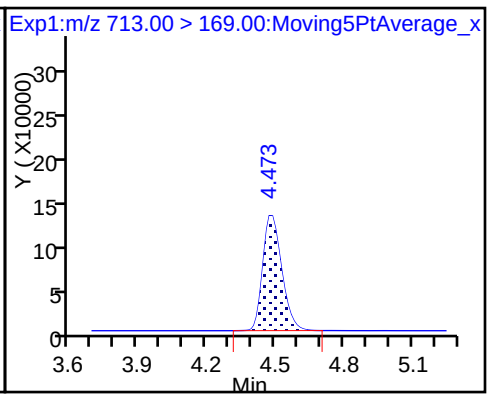
41 Perfluorotridecanoic acid



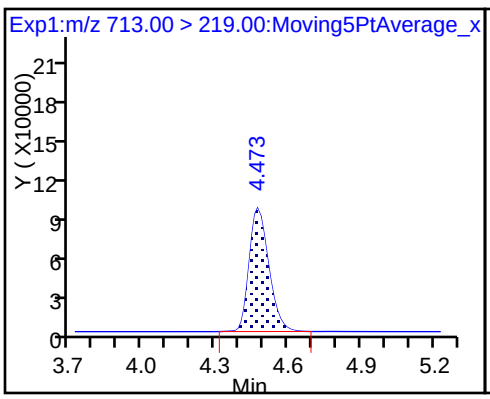
D 43 13C2-PFTeDA



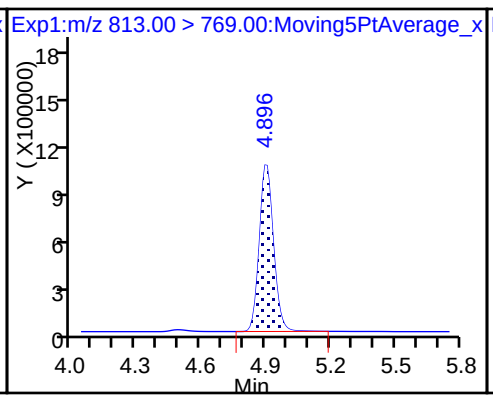
42 Perfluorotetradecanoic acid



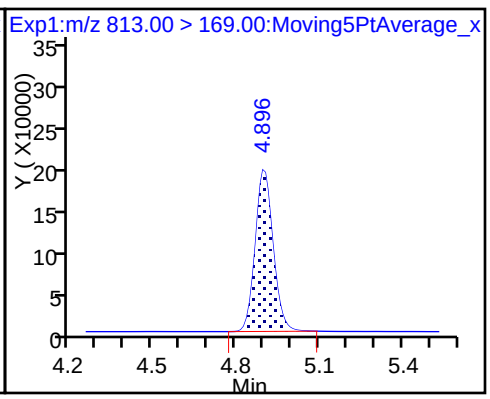
42 Perfluorotetradecanoic acid



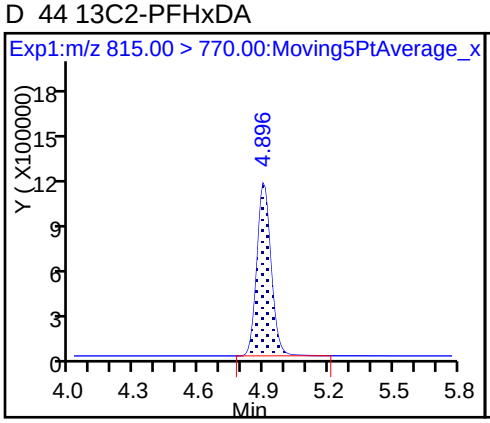
45 Perfluorohexadecanoic acid



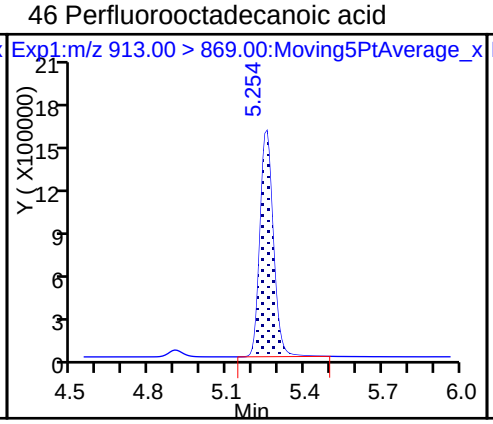
45 Perfluorohexadecanoic acid



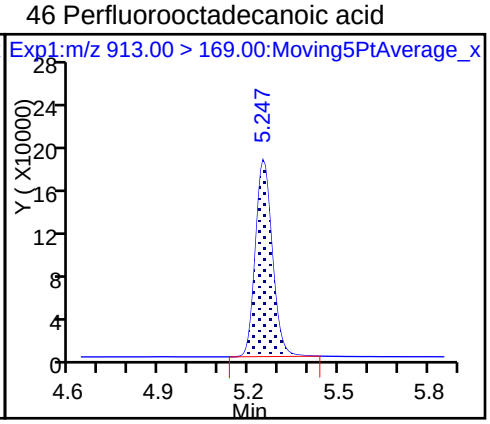
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207314/1 Calibration Date: 02/07/2018 05:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLA_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.8799		0.0464	0.0500	-7.1	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.180		0.0496	0.0500	-0.7	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	74.22		0.0427	0.0442	-3.4	50.0
4:2 FTS	AveID	16.11	14.06		0.408	0.467	-12.7	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9614		0.0465	0.0500	-7.1	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.078		0.0518	0.0500	3.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.149		0.0460	0.0455	1.1	50.0
6:2FTS	AveID	1.798	1.388		0.366	0.474	-22.8	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.181		0.0518	0.0500	3.7	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.325		0.0463	0.0476	-2.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.018	0.9569		0.0470	0.0500	-6.0	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.155		0.0486	0.0464	4.7	50.0
8:2FTS	AveID	1.228	1.191		0.465	0.479	-3.0	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9602		0.0485	0.0500	-3.0	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9326		0.0456	0.0500	-8.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.004		0.468	0.500	-6.4	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7103		0.0519	0.0482	7.6	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.8791		0.473	0.500	-5.3	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.069		0.0519	0.0500	3.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.057		0.0503	0.0500	0.6	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.132		0.0507	0.0500	1.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2374		0.0479	0.0500	-4.2	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.294		0.0533	0.0500	6.5	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9538		0.0430	0.0500	-14.0	50.0
13C4 PFBA	Ave	1.444	1.468		2.54	2.50	1.6	50.0
13C5 PFPeA	Ave	0.8768	0.8987		2.56	2.50	2.5	50.0
13C3-PFBS	Ave	0.0196	0.0202		2.40	2.33	3.2	50.0
13C2 PFHxA	Ave	0.9470	0.9608		2.54	2.50	1.5	50.0
13C4-PFHpA	Ave	0.9180	0.9394		2.56	2.50	2.3	50.0
18O2 PFHxS	Ave	1.134	1.157		2.41	2.37	2.1	50.0
M2-6:2FTS	Ave	0.1948	0.2021		2.46	2.38	3.8	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207314/1 Calibration Date: 02/07/2018 05:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLA_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9265		2.58	2.50	3.2	50.0
13C4 PFOS	Ave	0.7450	0.7130		2.29	2.39	-4.3	50.0
13C5 PFNA	Ave	0.7311	0.7663		2.62	2.50	4.8	50.0
13C8 FOSA	Ave	1.030	1.063		2.58	2.50	3.1	50.0
M2-8:2FTS	Ave	0.2169	0.2006		2.21	2.40	-7.5	50.0
13C2 PFDA	Ave	0.6297	0.6697		2.66	2.50	6.4	50.0
d3-NMeFOSAA	Ave	0.3401	0.3416		2.51	2.50	0.5	50.0
d5-NEtFOSAA	Ave	0.3488	0.3627		2.60	2.50	4.0	50.0
13C2 PFUnA	Ave	0.4871	0.5236		2.69	2.50	7.5	50.0
13C2 PFDoA	Ave	0.4977	0.5177		2.60	2.50	4.0	50.0
13C2-PFTeDA	Ave	0.6138	0.6519		2.66	2.50	6.2	50.0
13C2-PFHxDA	Ave	1.061	1.203		2.83	2.50	13.4	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b\2018.02.07LLA_055.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 07-Feb-2018 05:40:59 ALS Bottle#: 21 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 07-Feb-2018 09:25:41 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK017

First Level Reviewer: roycea Date: 07-Feb-2018 09:25:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.418	1.412	0.006	0.543	6998698	2.54		102	25644	
2 Perfluorobutyric acid										
212.90 > 169.00	1.418	1.412	0.006	1.000	123166	0.0464		92.9	25.2	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.669	1.660	0.009	1.000	101158	0.0496		99.3	68.4	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.669	1.660	0.009	0.639	4285482	2.56		102	71837	
D 47 13C3-PFBS										
301.90 > 83.00	1.695	1.695	0.0	0.649	89717	2.40		103	3214	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.704	1.695	0.009	1.005	126585	0.0427		96.6	824	
298.90 > 99.00	1.704	1.695	0.009	1.005	53342		2.37(1.25-3.74)		528	
D 60 M2-4:2FTS										
329.00 > 81.00	1.909	1.899	0.010	0.731	605819	NC			6862	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.909	1.899	0.010	1.000	253383	0.4077		87.3	15356	
D 7 13C2 PFHxA										
315.00 > 270.00	1.940	1.930	0.010	0.742	4581728	2.54		101	42051	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.940	1.940	0.0	1.000	88094	0.0465		92.9	189	
313.00 > 119.00	1.940	1.940	0.0	1.000	9987		8.82(5.03-15.10)		183	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.262	2.262	0.0	1.000	96618	0.0518		104	122	
363.00 > 169.00	2.262	2.262	0.0	1.000	37184		2.60(1.13-3.40)		223	
D 9 13C4-PFHpA										
367.00 > 322.00	2.262	2.262	0.0	0.866	4479546	2.56		102	30441	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.288	2.275	0.013	0.876	5219726	2.41		102	21930	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.275	2.275	0.0	0.994	115373	0.0460		101	502	
399.00 > 99.00	2.275	2.275	0.0	0.994	39571		2.92(1.50-4.49)		276	
D 12 M2-6:2FTS										
429.00 > 81.00	2.595	2.588	0.007	0.993	915632	2.46		104	18341	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.595	2.588	0.007	1.000	253670	0.3660		77.2	5960	
D 14 13C4 PFOA										
417.00 > 372.00	2.613	2.606	0.007	1.000	4417891	2.58		103	29256	
* 62 13C2-PFOA										
415.00 > 370.00	2.613	2.606	0.007		4768527	2.50			27024	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.613	2.606	0.007	1.000	104325	0.0518		104	39.7	
413.00 > 169.00	2.613	2.606	0.007	1.000	52407		1.99(0.84-2.52)		371	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.628	2.613	0.015	1.000	85764	0.0463		97.3	1999	
449.00 > 99.00	2.621	2.613	0.008	0.997	24701		3.47(1.94-5.82)		837	
D 18 13C4 PFOS										
503.00 > 80.00	2.984	2.976	0.008	1.142	3250321	2.29		95.7	19438	
D 19 13C5 PFNA										
468.00 > 423.00	2.984	2.976	0.008	1.142	3653930	2.62		105	26697	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.984	2.976	0.008	1.000	72908	0.0486		105	133	M
499.00 > 99.00	2.984	2.976	0.008	1.000	17683		4.12(2.31-6.93)		148	
20 Perfluorononanoic acid										
463.00 > 419.00	2.984	2.976	0.008	1.000	69928	0.0470		94.0	95.3	
463.00 > 169.00	2.984	2.976	0.008	1.000	16566		4.22(1.90-5.69)		316	
D 26 M2-8:2FTS										
529.00 > 81.00	3.331	3.316	0.015	1.275	916406	2.21		92.5	18715	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.331	3.323	0.008	1.000	218322	0.4645		97.0	4901	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.331	0.0	1.275	5066783	2.58		103	23332	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.331	3.331	0.0	1.000	97303	0.0485		97.0	761	
D 23 13C2 PFDA										
515.00 > 470.00	3.339	3.331	0.008	1.277	3193685	2.66		106	24112	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.339	3.331	0.008	1.000	59566	0.0456		91.3	240	
513.00 > 169.00	3.339	3.331	0.008	1.000	9310		6.40(2.36-7.09)		344	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.491	3.483	0.008	1.336	1629122	2.51		100	11957	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.498	3.491	0.007	1.002	326969	0.4681		93.6	2657	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.648	3.641	0.007	1.000	46558	0.0519		108	2328	
599.00 > 99.00	3.648	3.641	0.007	1.000	15300		3.04(1.39-4.16)		580	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.655	3.648	0.007	1.399	1729325	2.60		104	9160	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.662	3.655	0.007	1.002	304046	0.4735		94.7	4397	
D 30 13C2 PFUnA										
565.00 > 520.00	3.662	3.655	0.007	1.401	2496819	2.69		107	24125	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.662	3.655	0.007	1.000	53378	0.0519		104	204	
563.00 > 169.00	3.662	3.655	0.007	1.000	11875		4.49(0.00-0.00)		517	
D 36 13C2 PFDoA										
615.00 > 570.00	3.952	3.952	0.0	1.512	2468470	2.60		104	23930	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.961	3.952	0.009	1.002	52190	0.0503		101	188	
613.00 > 169.00	3.961	3.952	0.009	1.002	11992		4.35(2.13-6.40)		383	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.222	4.204	0.018	1.000	55897	0.0507		101	121	
663.00 > 169.00	4.222	4.204	0.018	1.000	16836		3.32(1.25-3.76)		757	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.455	4.443	0.012	1.705	3108396	2.66		106	21018	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.455	4.443	0.012	1.000	14756	0.0479		95.8	455	
713.00 > 219.00	4.455	4.443	0.012	1.000	11633		1.27(0.71-2.13)		435	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.871	4.862	0.009	1.000	148474	0.0533		107	199	
813.00 > 169.00	4.871	4.862	0.009	1.000	24775		5.99(2.86-8.58)		539	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.871	4.862	0.009	1.864	5737138	2.83		113	14163	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.221	5.199	0.022	1.000	109443	0.0430		86.0	32.8	
913.00 > 169.00	5.221	5.199	0.022	1.000	13938		7.85(0.00-0.00)		144	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_CCVL_00002 Amount Added: 1.00 Units: mL

Report Date: 07-Feb-2018 09:25:42 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b\2018.02.07LLA_055.d

Injection Date: 07-Feb-2018 05:40:59 Instrument ID: A8_N

Lims ID: CCVL

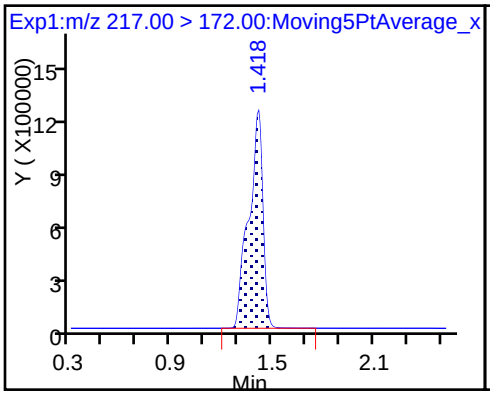
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 1

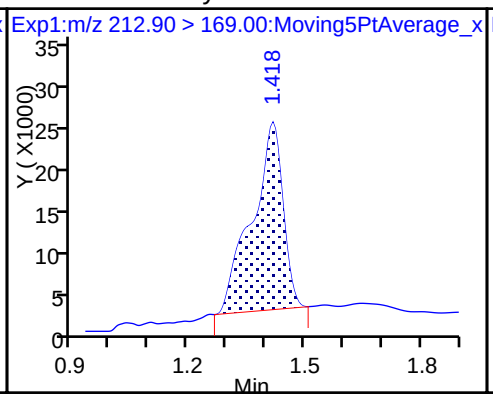
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

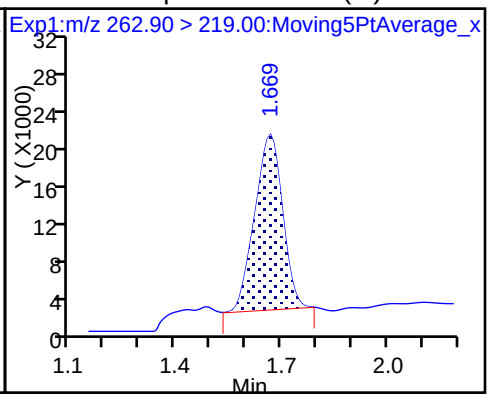
D 1 13C4 PFBA



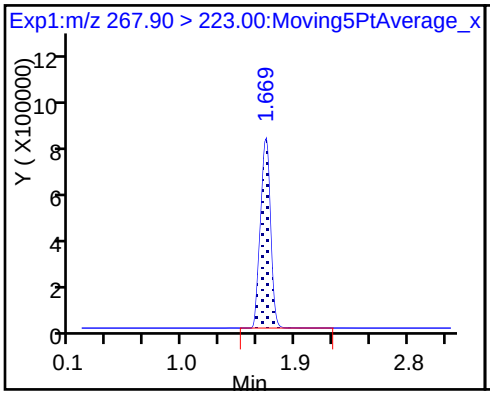
2 Perfluorobutyric acid



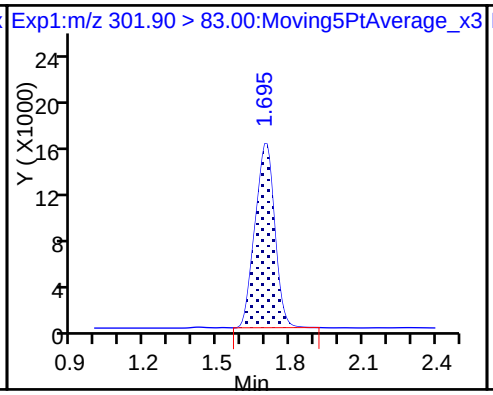
4 Perfluoropentanoic acid (M)



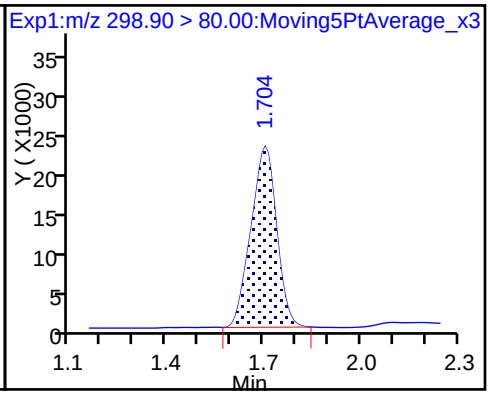
D 3 13C5-PFPeA



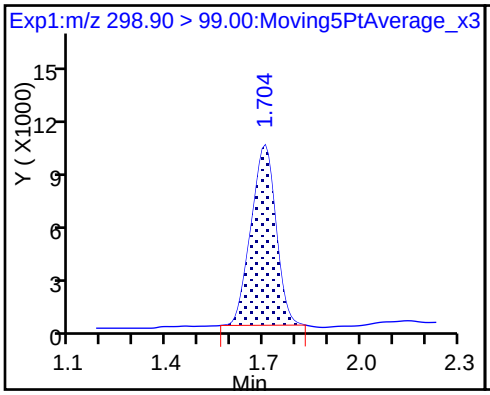
D 47 13C3-PFBS



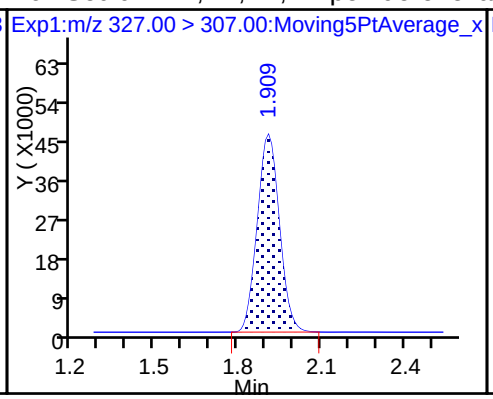
5 Perfluorobutanesulfonic acid



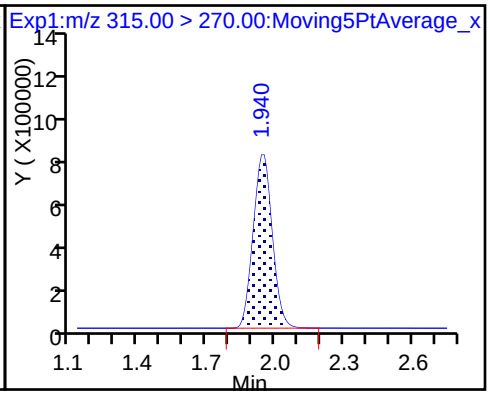
5 Perfluorobutanesulfonic acid



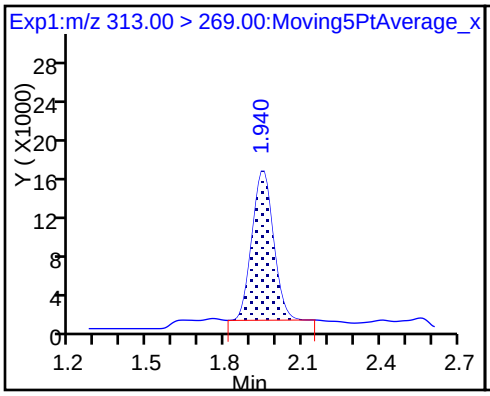
61 Sodium 1H,1H,2H,2H-perfluorohexa



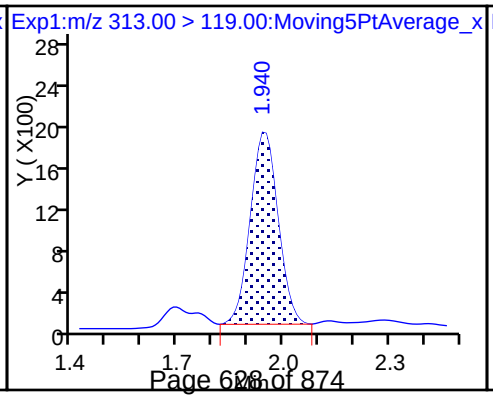
D 7 13C2 PFHxA



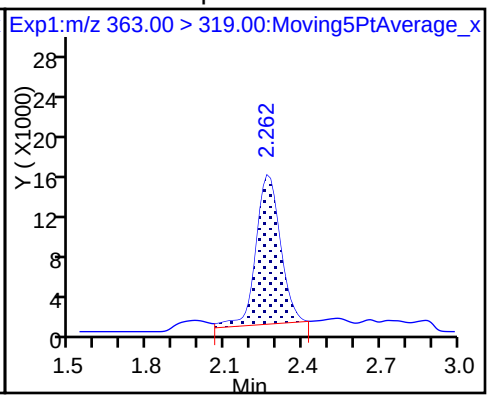
6 Perfluorohexanoic acid



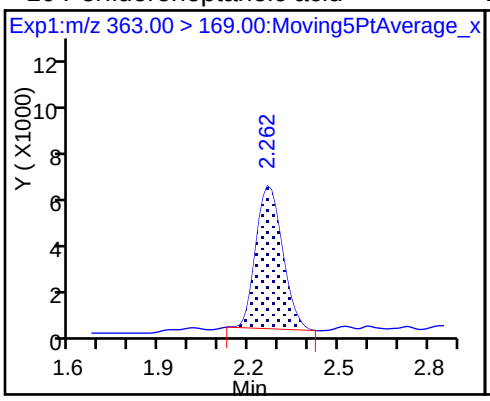
6 Perfluorohexanoic acid



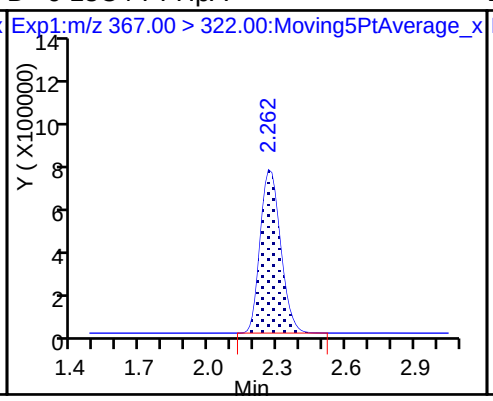
10 Perfluoroheptanoic acid



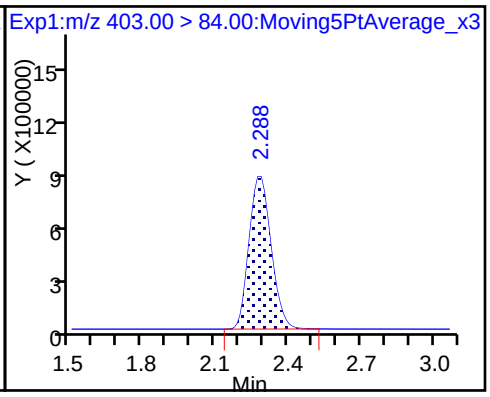
10 Perfluoroheptanoic acid



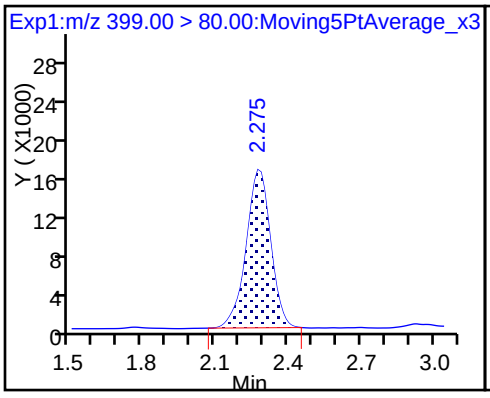
D 9 13C4-PFHpA



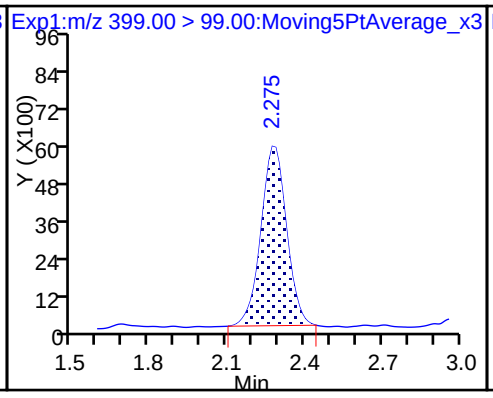
D 11 18O2 PFHxS



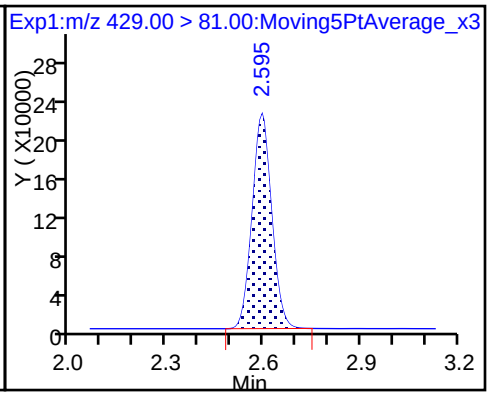
8 Perfluorohexanesulfonic acid



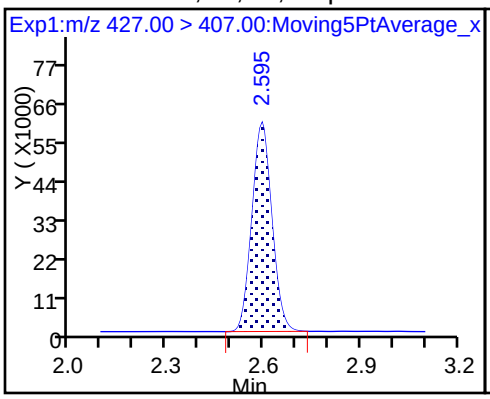
8 Perfluorohexanesulfonic acid



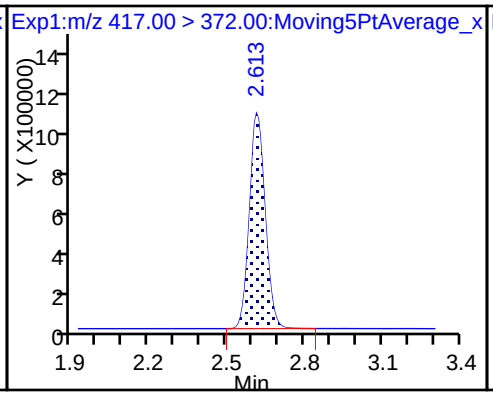
D 12 M2-6:2FTS



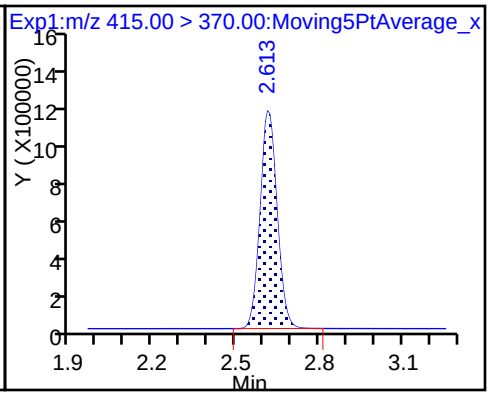
13 Sodium 1H,1H,2H,2H-perfluorooctane



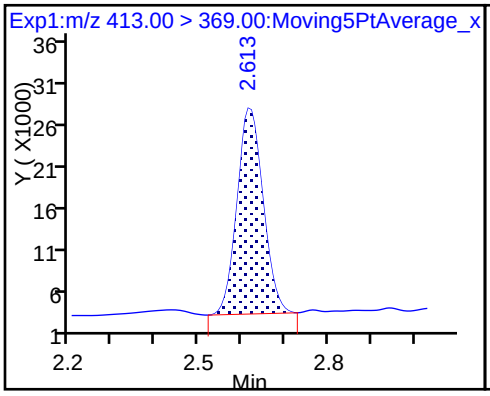
D 14 13C4 PFOA



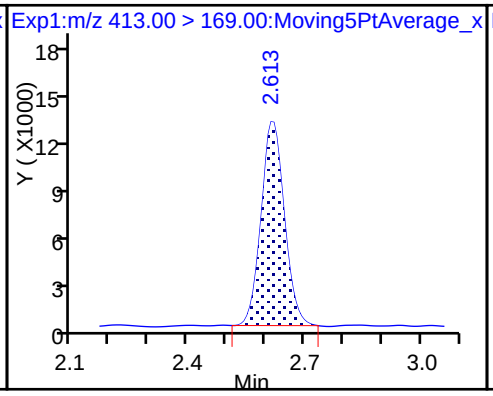
* 62 13C2-PFOA



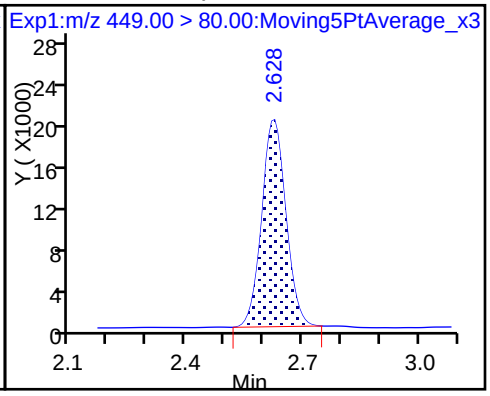
15 Perfluorooctanoic acid



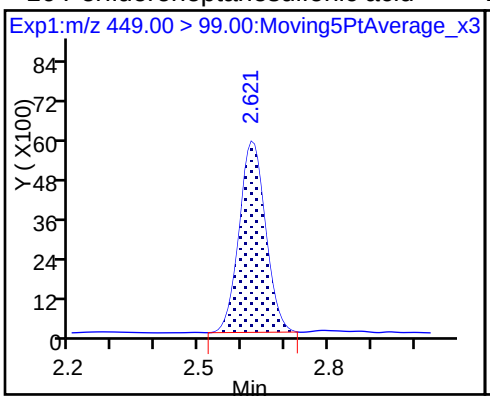
15 Perfluorooctanoic acid



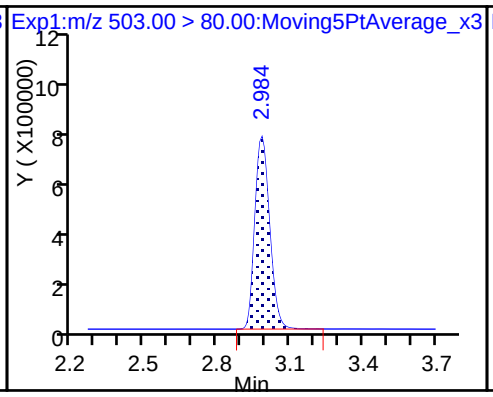
16 Perfluoroheptanesulfonic acid



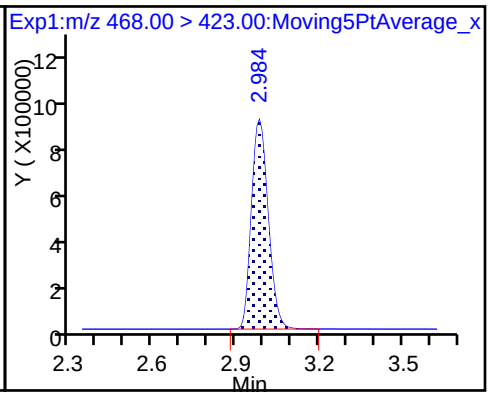
16 Perfluoroheptanesulfonic acid



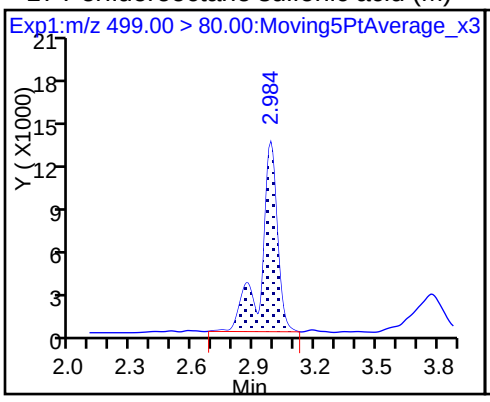
D 18 13C4 PFOS



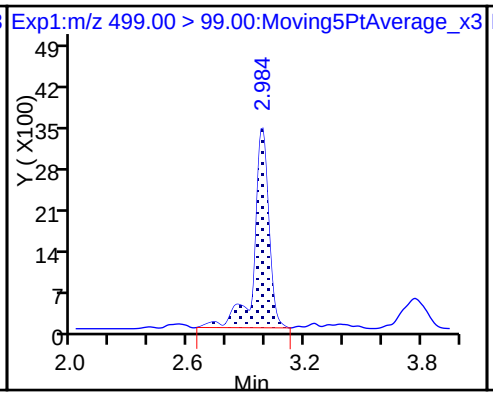
D 19 13C5 PFNA



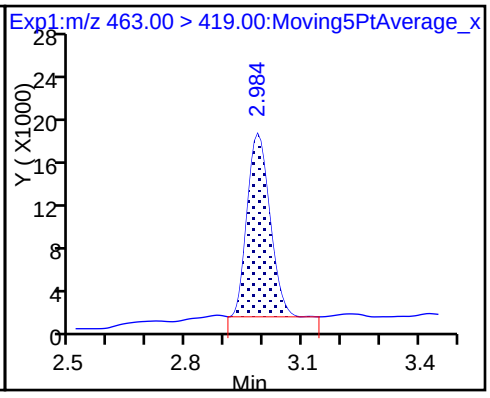
17 Perfluorooctane sulfonic acid (M)



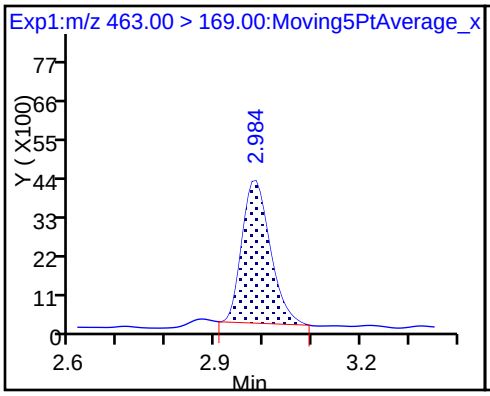
17 Perfluorooctane sulfonic acid



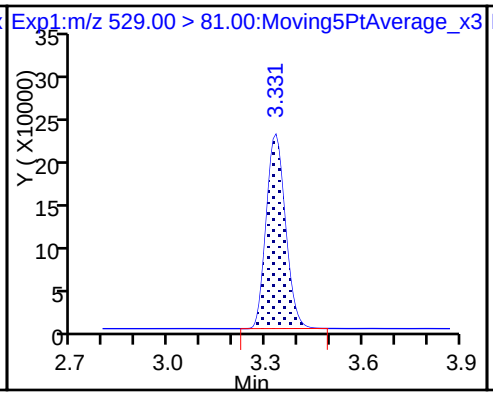
20 Perfluorononanoic acid



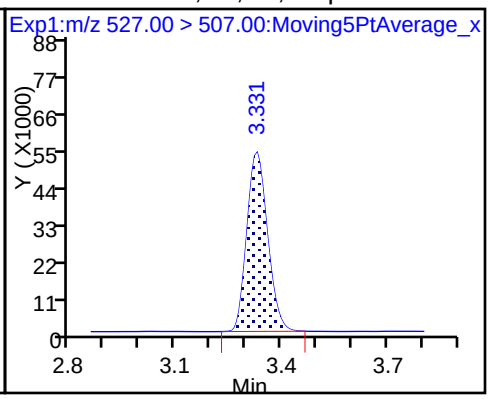
20 Perfluorononanoic acid



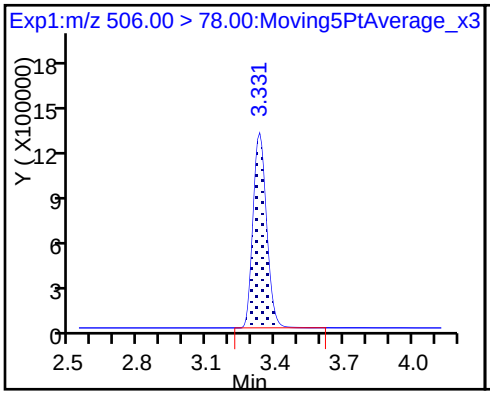
D 26 M2-8:2FTS



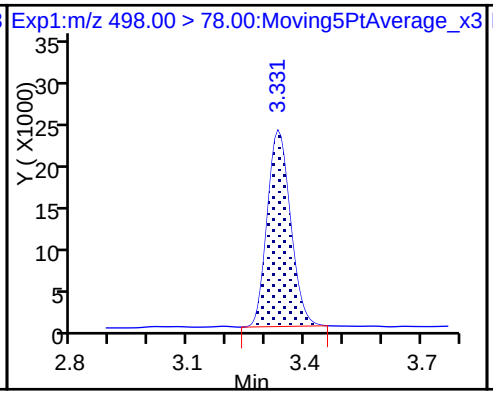
25 Sodium 1H,1H,2H,2H-perfluorodecane



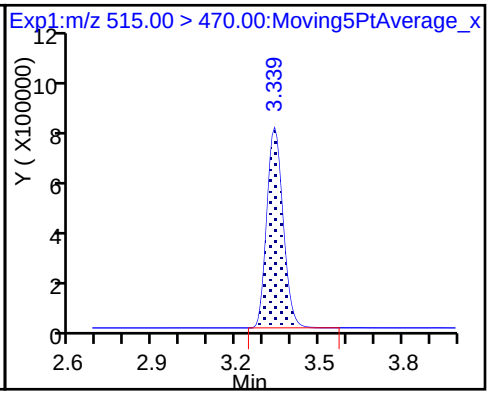
D 21 13C8 FOSA



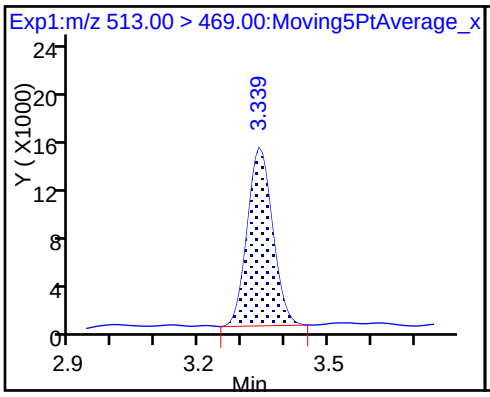
22 Perfluorooctane Sulfonamide



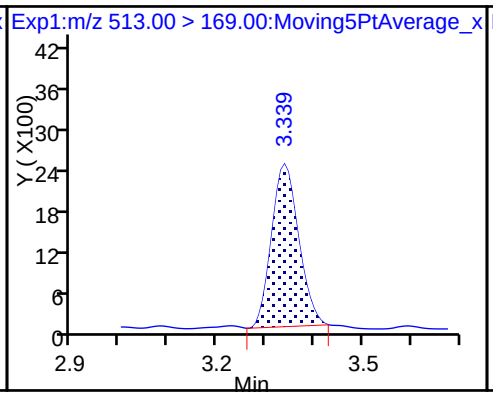
D 23 13C2 PFDA



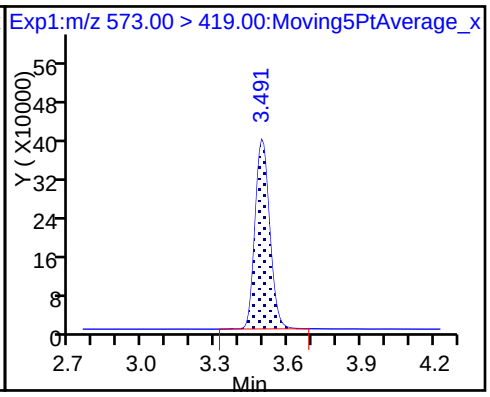
24 Perfluorodecanoic acid



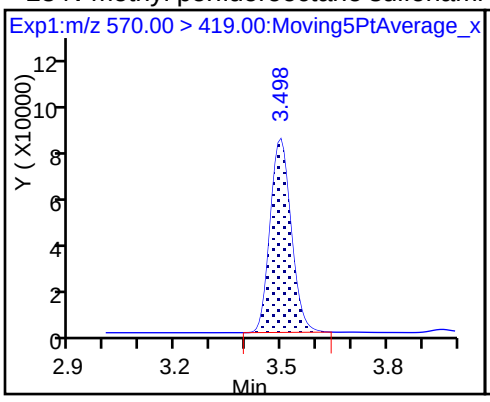
24 Perfluorodecanoic acid



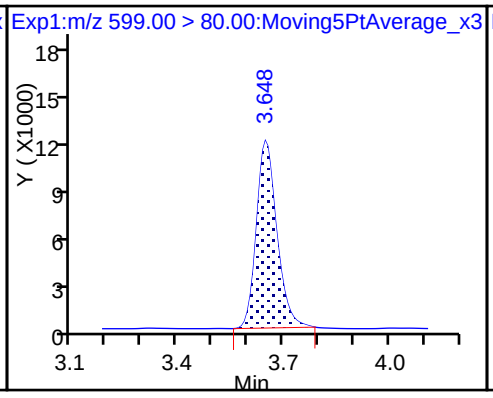
D 27 d3-NMeFOSAA



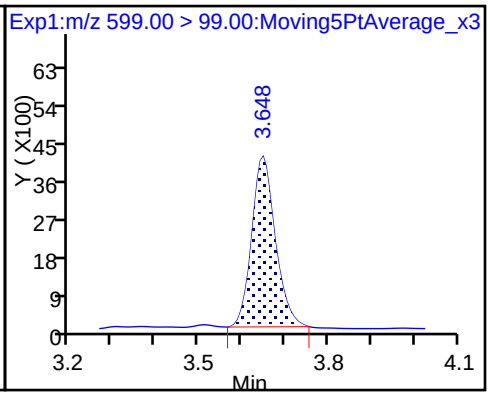
28 N-methyl perfluorooctane sulfonami



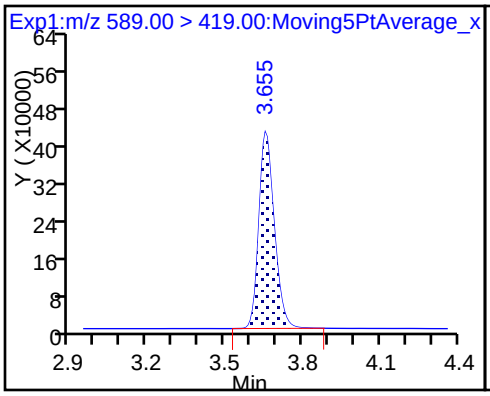
29 Perfluorodecane Sulfonic acid



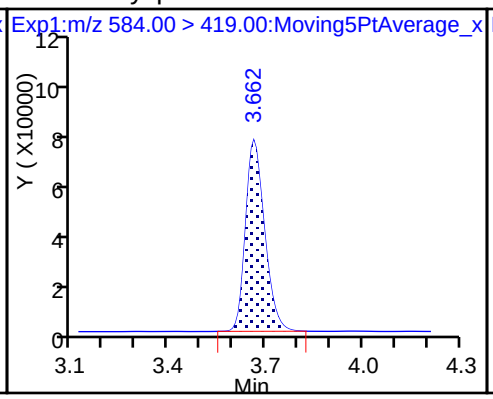
29 Perfluorodecane Sulfonic acid



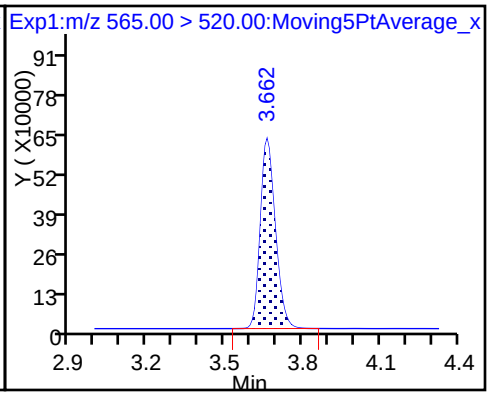
D 32 d5-NEtFOSAA



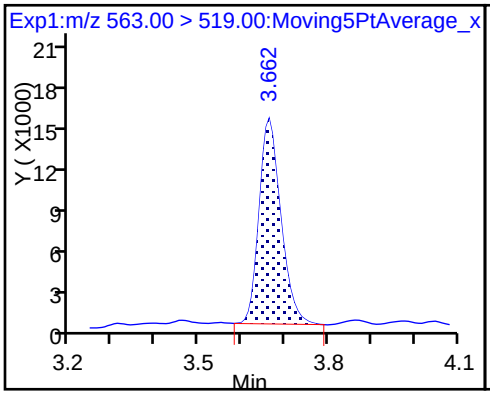
33 N-ethyl perfluorooctane sulfonamid



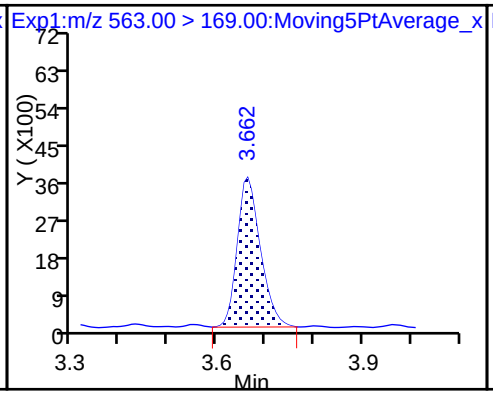
D 30 13C2 PFUnA



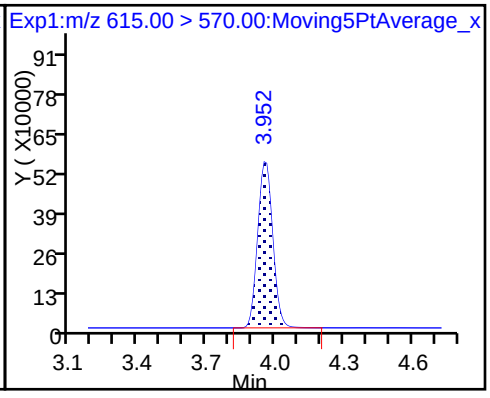
31 Perfluoroundecanoic acid



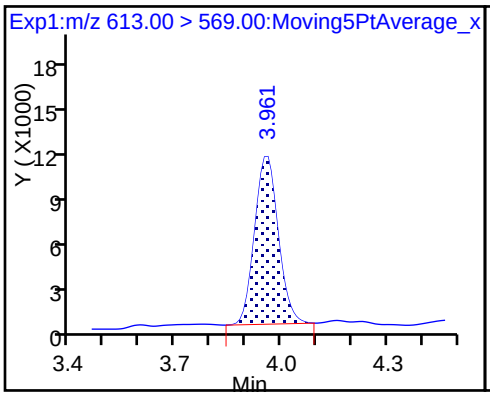
31 Perfluoroundecanoic acid



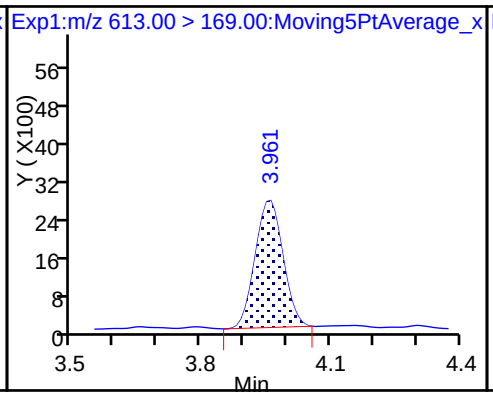
D 36 13C2 PFDoA



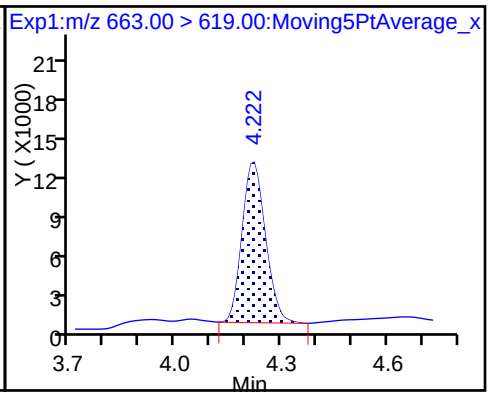
37 Perfluorododecanoic acid



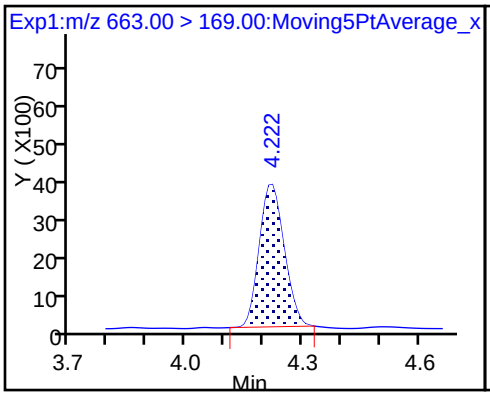
37 Perfluorododecanoic acid



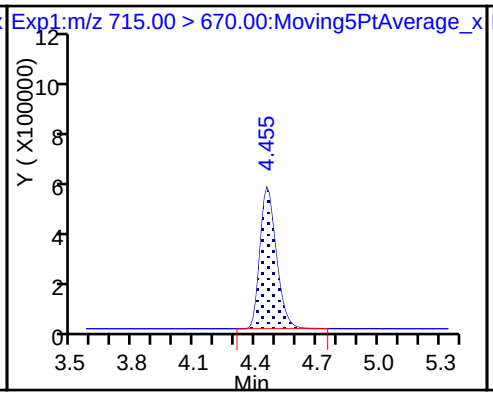
41 Perfluorotridecanoic acid



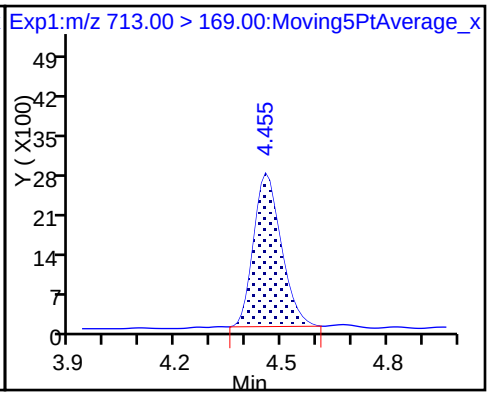
41 Perfluorotridecanoic acid



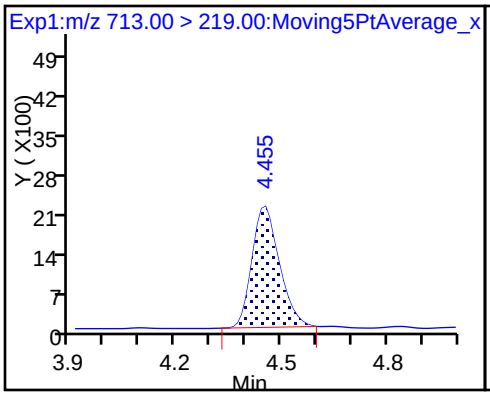
D 43 13C2-PFTeDA



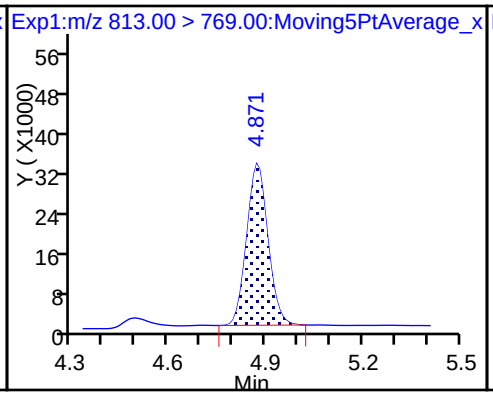
42 Perfluorotetradecanoic acid



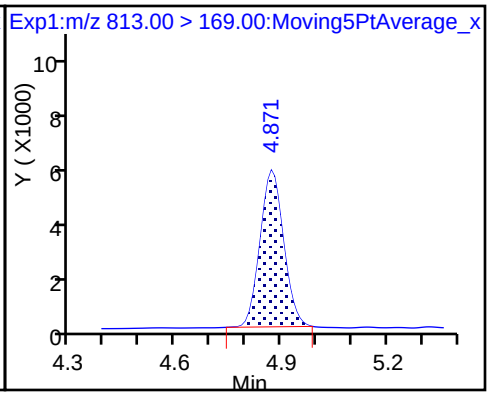
42 Perfluorotetradecanoic acid



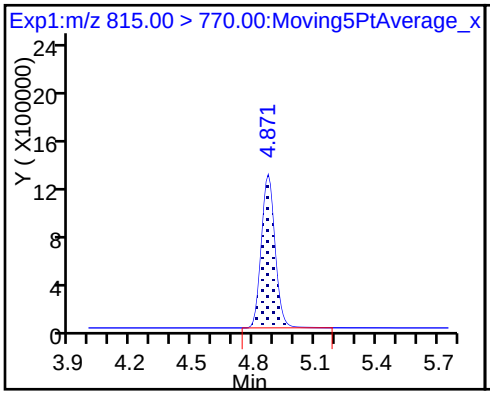
45 Perfluorohexadecanoic acid



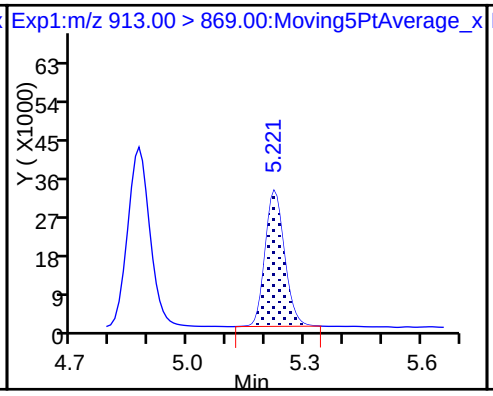
45 Perfluorohexadecanoic acid



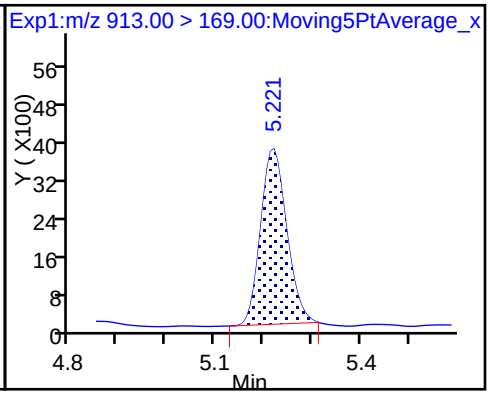
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

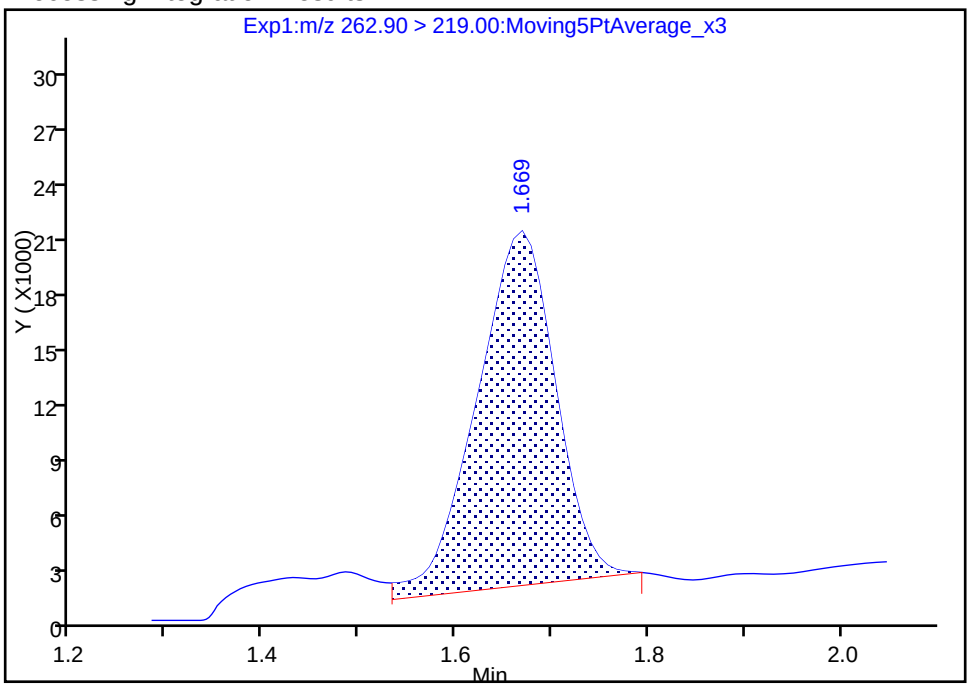
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b\2018.02.07LLA_055.d
Injection Date: 07-Feb-2018 05:40:59 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

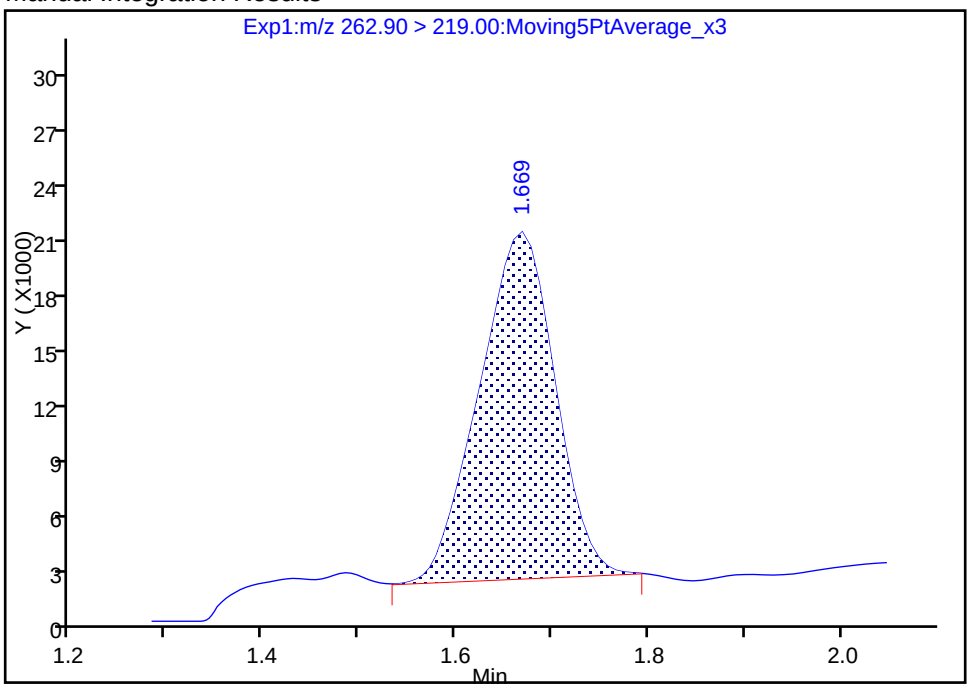
Processing Integration Results

RT: 1.67
Area: 107440
Amount: 0.052708
Amount Units: ng/ml



Manual Integration Results

RT: 1.67
Area: 101158
Amount: 0.049626
Amount Units: ng/ml



Reviewer: roycea, 07-Feb-2018 09:24:54
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

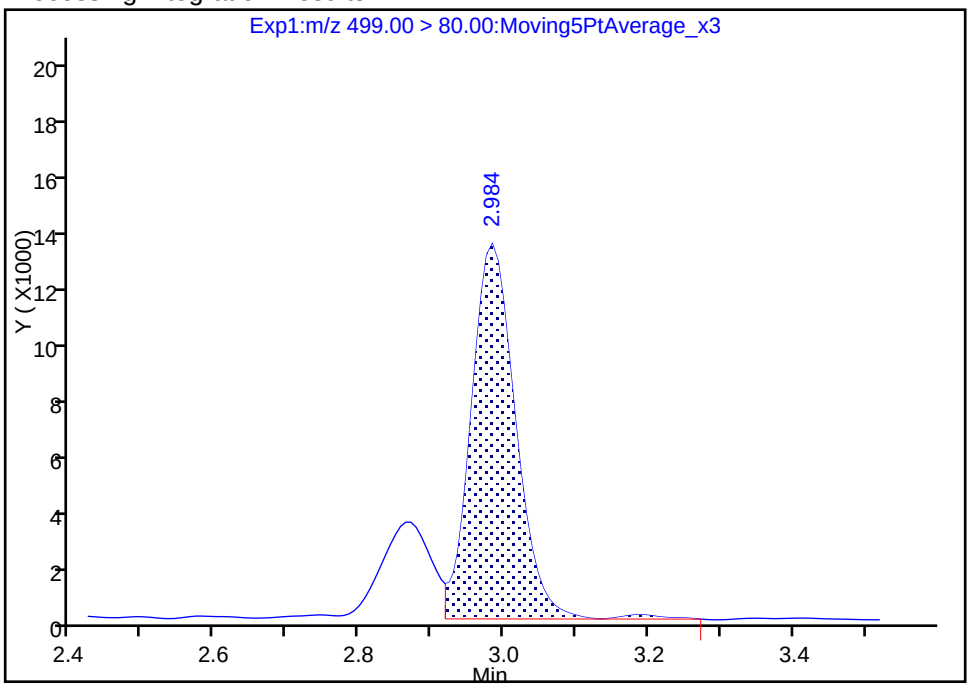
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b\2018.02.07LLA_055.d
Injection Date: 07-Feb-2018 05:40:59 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

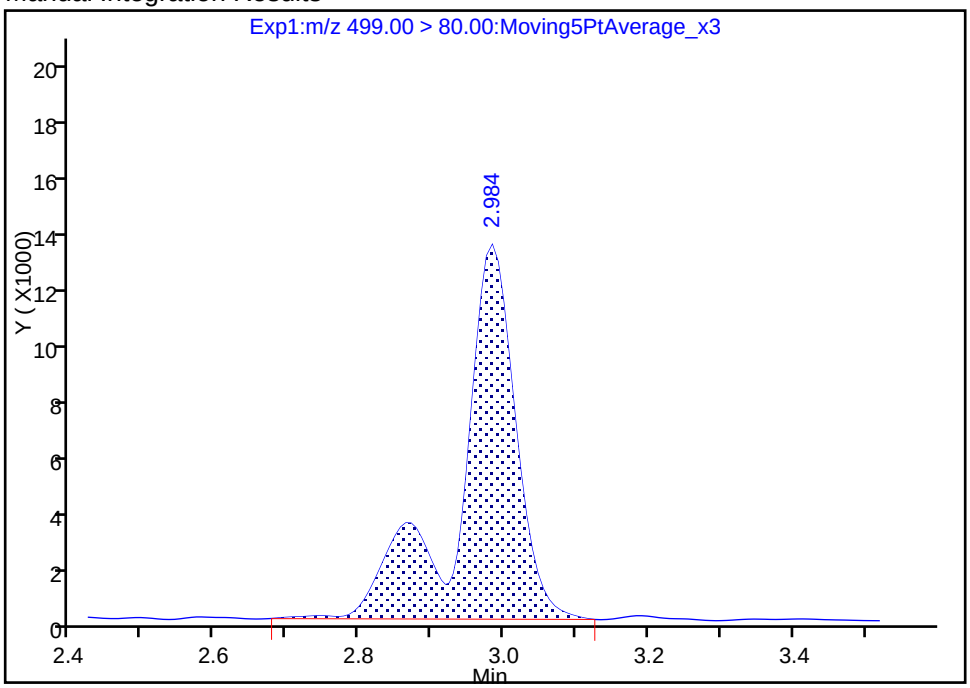
Processing Integration Results

RT: 2.98
Area: 57211
Amount: 0.038112
Amount Units: ng/ml



Manual Integration Results

RT: 2.98
Area: 72908
Amount: 0.048569
Amount Units: ng/ml



Reviewer: roycea, 07-Feb-2018 09:24:40
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/1 Calibration Date: 02/07/2018 13:09

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9221		0.973	1.00	-2.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.156		0.972	1.00	-2.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	76.19		0.876	0.884	-0.9	25.0
4:2 FTS	AveID	16.11	15.90		0.922	0.934	-1.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9566		0.925	1.00	-7.5	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.015		0.976	1.00	-2.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.039		0.831	0.910	-8.7	25.0
6:2FTS	AveID	1.798	1.595		0.841	0.948	-11.3	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.049		0.921	1.00	-7.9	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.374		0.961	0.952	0.9	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.063		1.04	1.00	4.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.122		0.944	0.928	1.7	25.0
8:2FTS	AveID	1.228	1.266		0.988	0.958	3.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9646		0.974	1.00	-2.6	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9145		0.895	1.00	-10.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.084		1.01	1.00	1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7027		1.03	0.964	6.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9827		1.06	1.00	5.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9868		0.958	1.00	-4.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.064		1.01	1.00	1.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.076		0.964	1.00	-3.6	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2459		0.993	1.00	-0.7	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9287		0.953	1.00	-4.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9367		0.845	1.00	-15.5	25.0
13C4 PFBA	Ave	1.444	1.471		2.55	2.50	1.9	50.0
13C5 PFPeA	Ave	0.8768	0.8651		2.47	2.50	-1.3	50.0
13C3-PFBS	Ave	0.0196	0.0196		2.32	2.33	-0.2	50.0
13C2 PFHxA	Ave	0.9470	0.9944		2.63	2.50	5.0	50.0
13C4-PFHpA	Ave	0.9180	0.9175		2.50	2.50	-0.0	50.0
18O2 PFHxS	Ave	1.134	1.129		2.36	2.37	-0.4	50.0
M2-6:2FTS	Ave	0.1948	0.1940		2.37	2.38	-0.4	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/1 Calibration Date: 02/07/2018 13:09

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9196		2.56	2.50	2.4	50.0
13C4 PFOS	Ave	0.7450	0.7277		2.33	2.39	-2.3	50.0
13C5 PFNA	Ave	0.7311	0.7284		2.49	2.50	-0.4	50.0
13C8 FOSA	Ave	1.030	1.048		2.54	2.50	1.7	50.0
M2-8:2FTS	Ave	0.2169	0.2034		2.25	2.40	-6.3	50.0
13C2 PFDA	Ave	0.6297	0.6493		2.58	2.50	3.1	50.0
d3-NMeFOSAA	Ave	0.3401	0.3270		2.40	2.50	-3.8	50.0
d5-NEtFOSAA	Ave	0.3488	0.3456		2.48	2.50	-0.9	50.0
13C2 PFUnA	Ave	0.4871	0.4800		2.46	2.50	-1.5	50.0
13C2 PFDoA	Ave	0.4977	0.4775		2.40	2.50	-4.1	50.0
13C2-PFTeDA	Ave	0.6138	0.6013		2.45	2.50	-2.0	50.0
13C2-PFHxDA	Ave	1.061	1.089		2.57	2.50	2.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_036.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 07-Feb-2018 13:09:56 ALS Bottle#: 28 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:42:42 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:13:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.426	1.412	0.014	0.543	6432468	2.55		102	26179	
2 Perfluorobutyric acid										
212.90 > 169.00	1.426	1.412	0.014	1.000	2372551	0.9731		97.3	421	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.671	1.660	0.011	1.000	1748741	0.9719		97.2	1314	
D 3 13C5-PFPeA										
267.90 > 223.00	1.671	1.660	0.011	0.637	3782965	2.47		98.7	68360	
D 47 13C3-PFBS										
301.90 > 83.00	1.707	1.695	0.012	0.651	79561	2.32		99.8	2365	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.716	1.695	0.021	1.005	2304656	0.8762		99.1	12508	
298.90 > 99.00	1.707	1.695	0.012	1.000	970776		2.37(1.25-3.74)		8630	
D 60 M2-4:2FTS										
329.00 > 81.00	1.913	1.899	0.014	0.729	588624	NC			8214	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.913	1.899	0.014	1.000	508289	0.9222		98.7	22938	
D 7 13C2 PFHxA										
315.00 > 270.00	1.955	1.930	0.025	0.745	4348269	2.63		105	37669	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.955	1.940	0.015	1.000	1663857	0.9249		92.5	3836	
313.00 > 119.00	1.955	1.940	0.015	1.000	147466		11.28(5.03-15.10)		2606	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.279	2.262	0.017	1.000	1628940	0.9759		97.6	2567	
363.00 > 169.00	2.279	2.262	0.017	1.000	653488		2.49(1.13-3.40)		3940	
D 9 13C4-PFHpA										
367.00 > 322.00	2.279	2.262	0.017	0.869	4012007	2.50		99.9	24677	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.292	2.275	0.017	0.874	4670412	2.36		99.6	25791	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.279	2.275	0.004	0.994	1866353	0.8313		91.3	6316	
399.00 > 99.00	2.292	2.275	0.017	1.000	630697		2.96(1.50-4.49)		3836	
D 12 M2-6:2FTS										
429.00 > 81.00	2.602	2.588	0.014	0.992	805794	2.37		99.6	17432	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.602	2.588	0.014	1.000	513078	0.8413		88.7	9182	
D 14 13C4 PFOA										
417.00 > 372.00	2.623	2.606	0.017	1.000	4021145	2.56		102	33786	
* 62 13C2-PFOA										
415.00 > 370.00	2.623	2.606	0.017		4372711	2.50			24035	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.623	2.606	0.017	1.000	1688045	0.9214		92.1	665	
413.00 > 169.00	2.623	2.606	0.017	1.000	926176		1.82(0.84-2.52)		7068	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.631	2.613	0.018	1.000	1665167	0.9606		101	17713	
449.00 > 99.00	2.631	2.613	0.018	1.000	467797		3.56(1.94-5.82)		9149	
D 18 13C4 PFOS										
503.00 > 80.00	2.986	2.976	0.010	1.138	3042121	2.33		97.7	21248	
D 19 13C5 PFNA										
468.00 > 423.00	2.986	2.976	0.010	1.138	3184934	2.49		99.6	22439	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.986	2.976	0.010	1.000	1325631	0.9435		102	2018	
499.00 > 99.00	2.986	2.976	0.010	1.000	291147		4.55(2.31-6.93)		2148	
20 Perfluorononanoic acid										
463.00 > 419.00	2.986	2.976	0.010	1.000	1354464	1.04		104	1958	
463.00 > 169.00	2.986	2.976	0.010	1.000	329289		4.11(1.90-5.69)		5280	
D 26 M2-8:2FTS										
529.00 > 81.00	3.333	3.316	0.017	1.270	851919	2.25		93.7	14103	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.333	3.323	0.010	1.000	431466	0.9876		103	9755	
D 21 13C8 FOSA										
506.00 > 78.00	3.333	3.331	0.002	1.270	4581718	2.54		102	16387	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.333	3.331	0.002	1.000	1767757	0.9740		97.4	8842	
D 23 13C2 PFDA										
515.00 > 470.00	3.340	3.331	0.009	1.273	2839238	2.58		103	25156	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.340	3.331	0.009	1.000	1038582	0.8953		89.5	4027	
513.00 > 169.00	3.340	3.331	0.009	1.000	189689		5.48(2.36-7.09)		1422	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.500	3.483	0.017	1.334	1429866	2.40		96.2	10136	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.500	3.491	0.009	1.000	620253	1.01		101	4212	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.657	3.641	0.016	1.000	862172	1.03		106	18126	
599.00 > 99.00	3.657	3.641	0.016	1.000	297015		2.90(1.39-4.16)		7550	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.664	3.648	0.016	1.397	1511029	2.48		99.1	8137	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.671	3.655	0.016	1.002	593980	1.06		106	7077	
D 30 13C2 PFUnA										
565.00 > 520.00	3.671	3.655	0.016	1.399	2098681	2.46		98.5	24142	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.671	3.655	0.016	1.000	828356	0.9583		95.8	3924	
563.00 > 169.00	3.671	3.655	0.016	1.000	168730		4.91(0.00-0.00)		5151	
D 36 13C2 PFDoA										
615.00 > 570.00	3.964	3.952	0.012	1.511	2087902	2.40		95.9	15372	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.964	3.952	0.012	1.000	888445	1.01		101	3840	
613.00 > 169.00	3.964	3.952	0.012	1.000	221438		4.01(2.13-6.40)		8338	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.224	4.204	0.020	1.000	898294	0.9640		96.4	2281	
663.00 > 169.00	4.224	4.204	0.020	1.000	303779		2.96(1.25-3.76)		6859	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.461	4.443	0.017	1.700	2629358	2.45		98.0	17504	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.461	4.443	0.017	1.000	258616	0.99		99.3	6642	
713.00 > 219.00	4.461	4.443	0.017	1.000	174407		1.48(0.71-2.13)		4536	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.886	4.862	0.024	1.000	1769432	0.9529		95.3	1710	
813.00 > 169.00	4.886	4.862	0.024	1.000	314304		5.63(2.86-8.58)		4652	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.886	4.862	0.024	1.862	4763035	2.57		103	13916	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.231	5.199	0.032	1.000	1784668	0.8446		84.5	534	
913.00 > 169.00	5.231	5.199	0.032	1.000	220603		8.09(0.00-0.00)		1404	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL4_00003 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 16:42:42 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_036.d

Injection Date: 07-Feb-2018 13:09:56 Instrument ID: A8_N

Lims ID: CCV L4

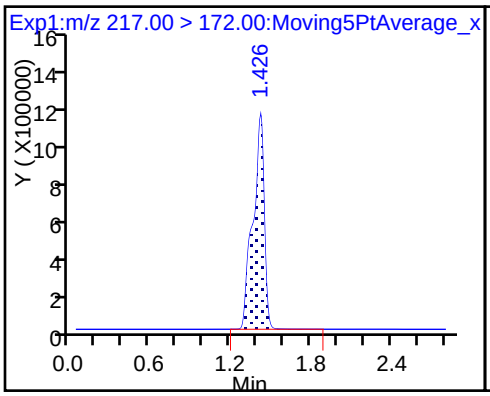
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 1

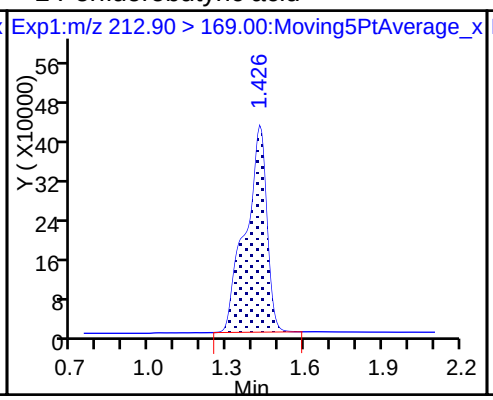
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

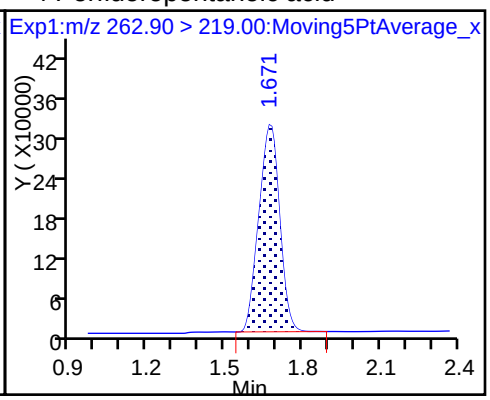
D 1 13C4 PFBA



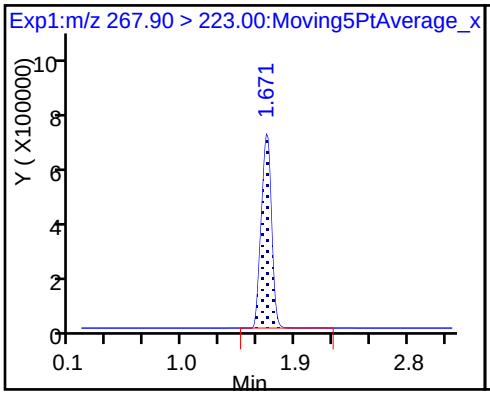
2 Perfluorobutyric acid



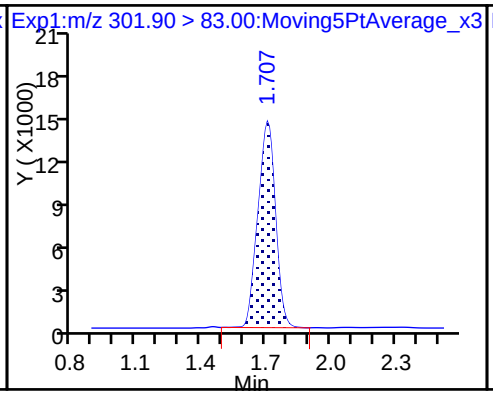
4 Perfluoropentanoic acid



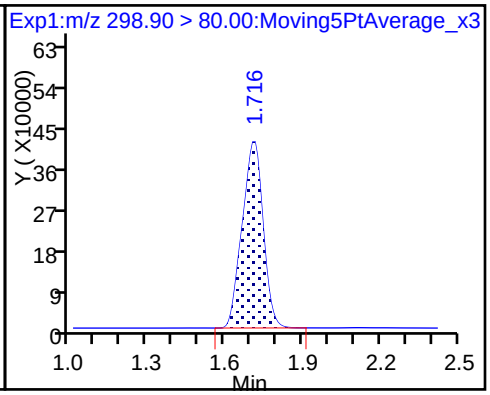
D 3 13C5-PFPeA



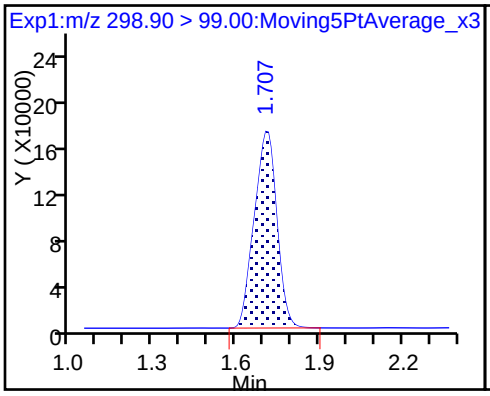
D 47 13C3-PFBS



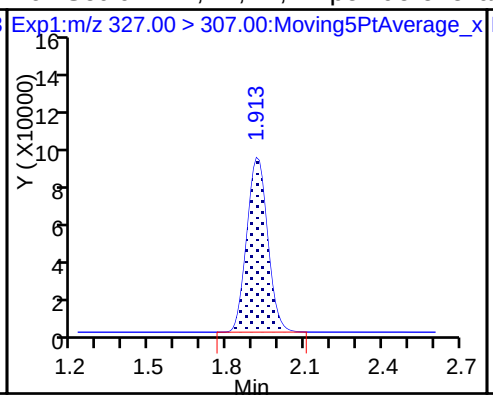
5 Perfluorobutanesulfonic acid



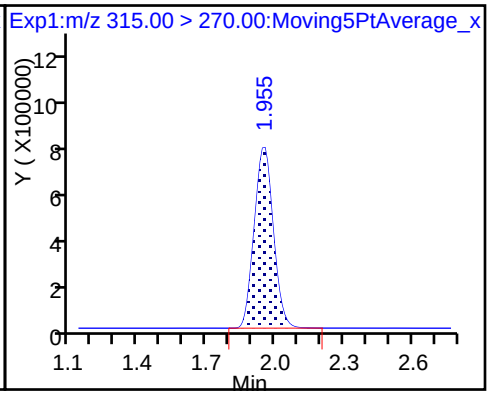
5 Perfluorobutanesulfonic acid



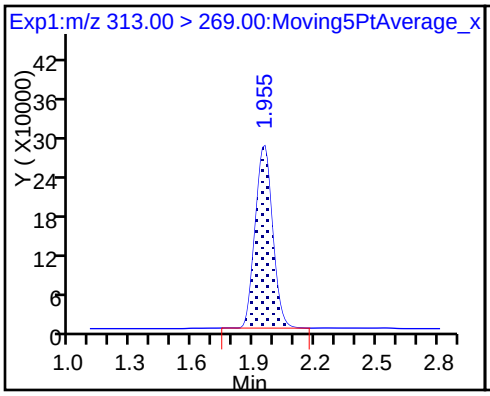
61 Sodium 1H,1H,2H,2H-perfluorohexa



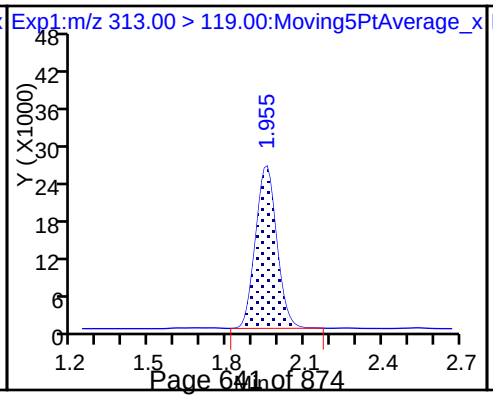
D 7 13C2 PFHxA



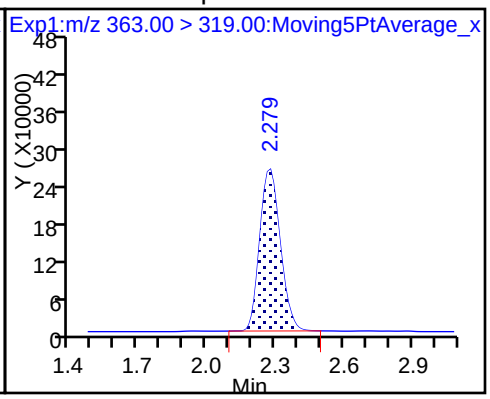
6 Perfluorohexanoic acid



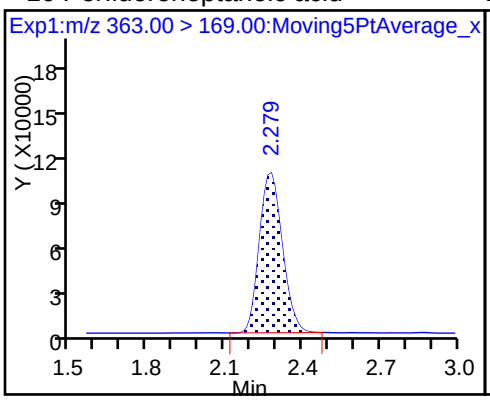
6 Perfluorohexanoic acid



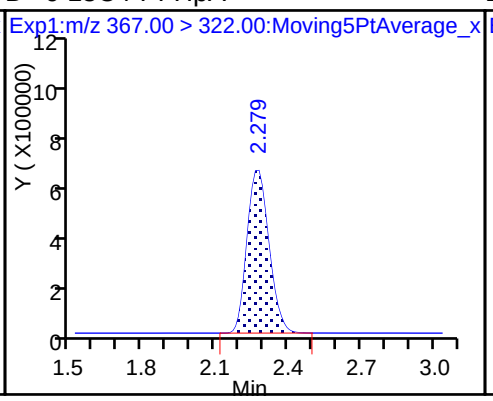
10 Perfluoroheptanoic acid



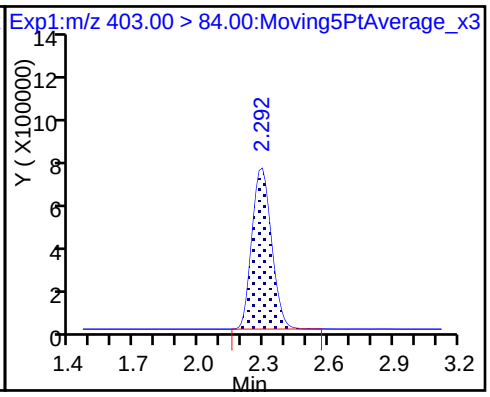
10 Perfluoroheptanoic acid



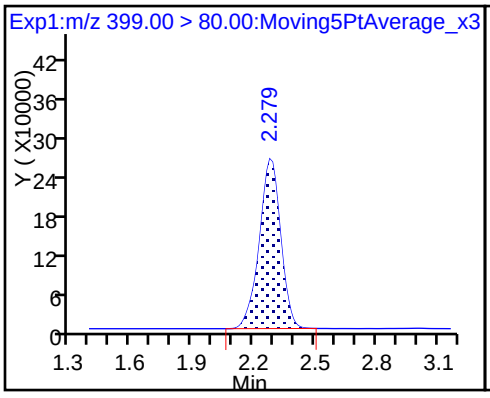
D 9 13C4-PFHpA



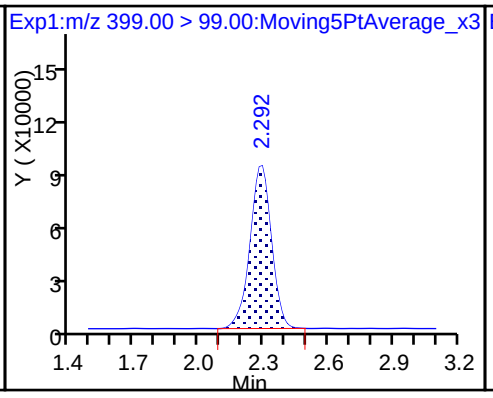
D 11 18O2 PFHxS



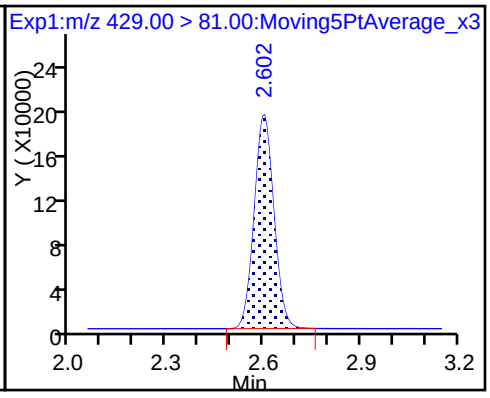
8 Perfluorohexanesulfonic acid



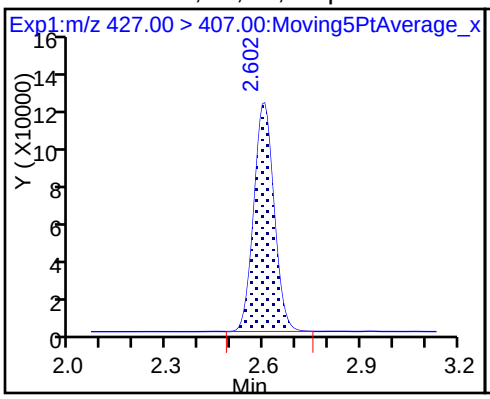
8 Perfluorohexanesulfonic acid



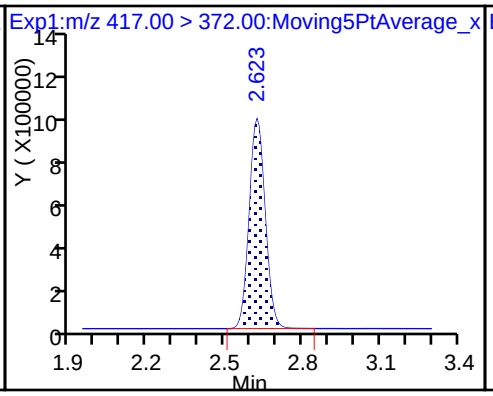
D 12 M2-6:2FTS



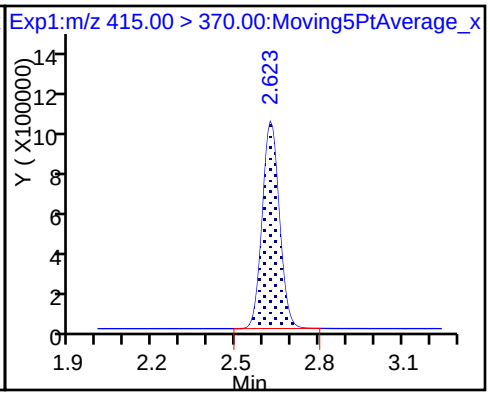
13 Sodium 1H,1H,2H,2H-perfluorooctane



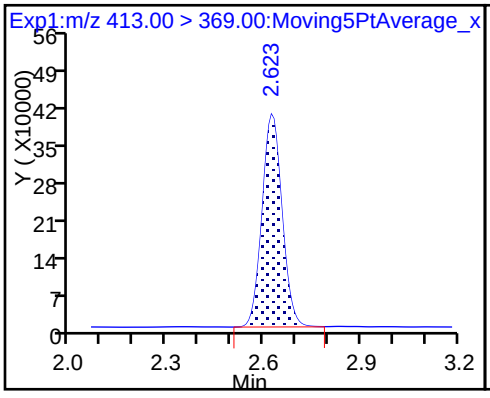
D 14 13C4 PFOA



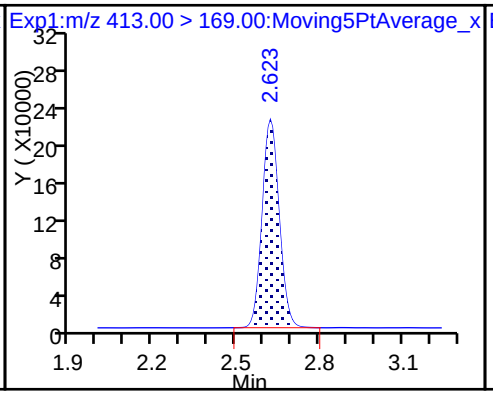
* 62 13C2-PFOA



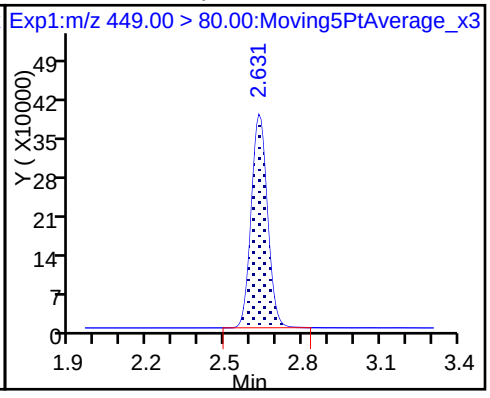
15 Perfluorooctanoic acid



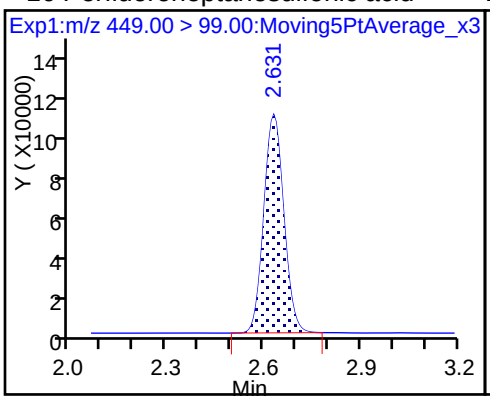
15 Perfluorooctanoic acid



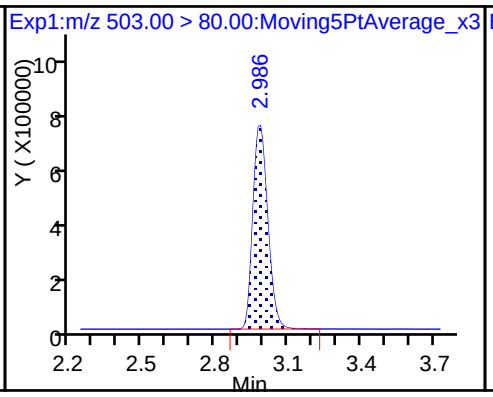
16 Perfluoroheptanesulfonic acid



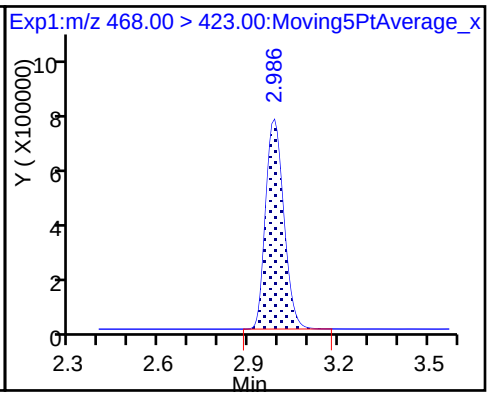
16 Perfluoroheptanesulfonic acid



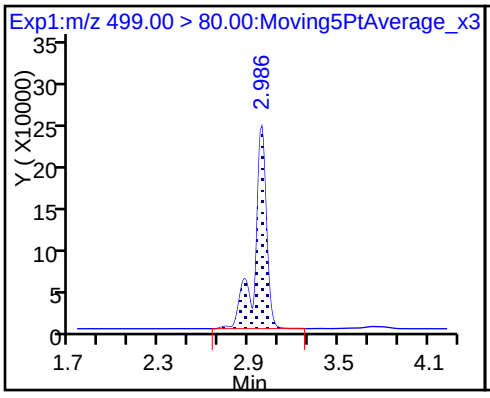
D 18 13C4 PFOS



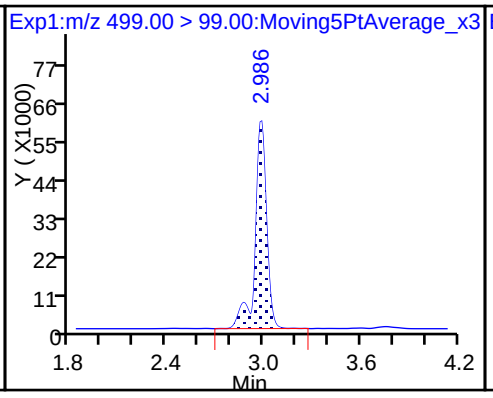
D 19 13C5 PFNA



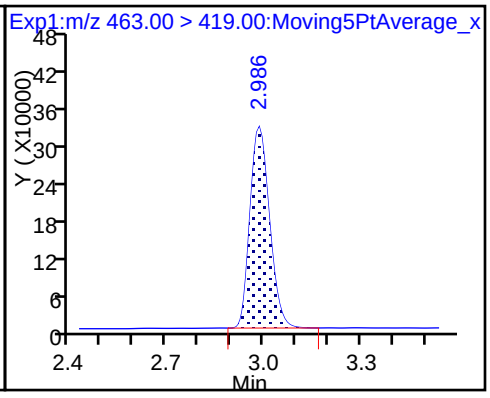
17 Perfluorooctane sulfonic acid



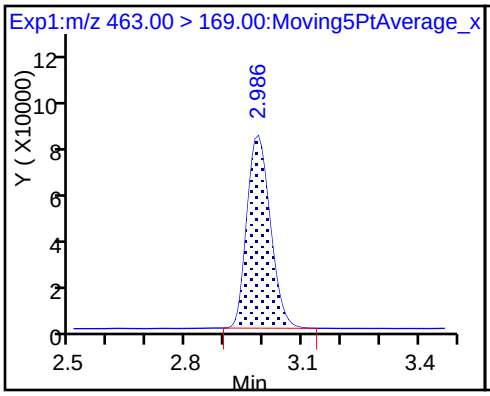
17 Perfluorooctane sulfonic acid



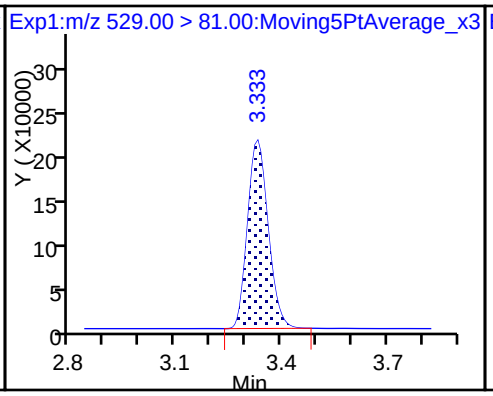
20 Perfluorononanoic acid



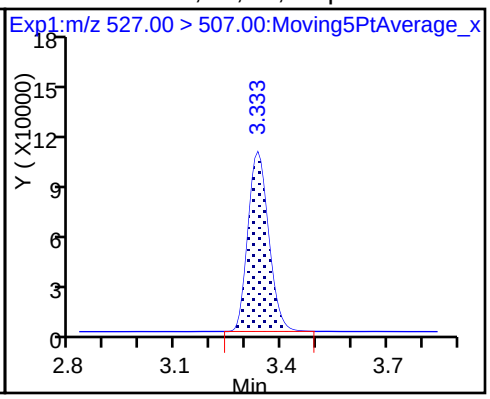
20 Perfluorononanoic acid



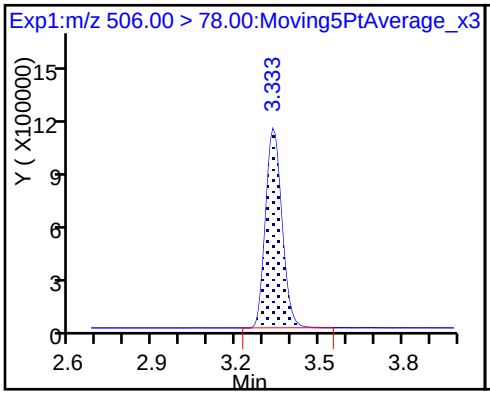
D 26 M2-8:2FTS



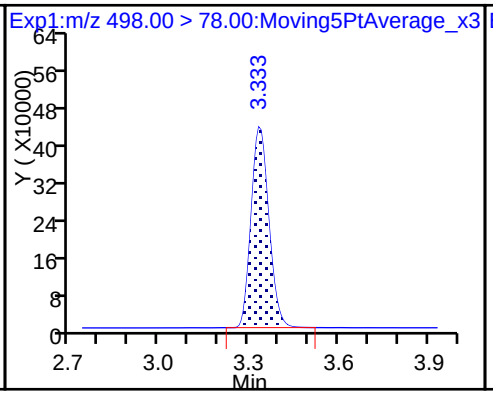
25 Sodium 1H,1H,2H,2H-perfluorodecane



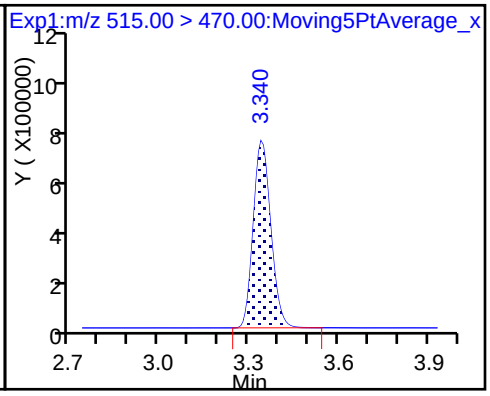
D 21 13C8 FOSA



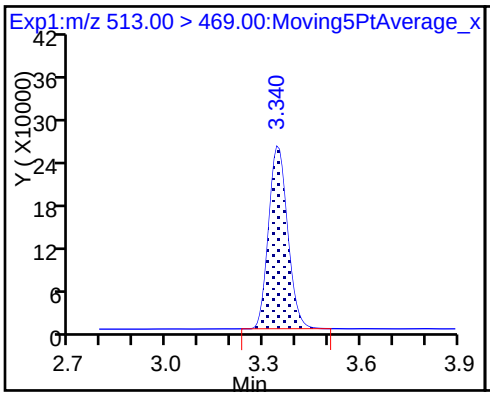
22 Perfluorooctane Sulfonamide



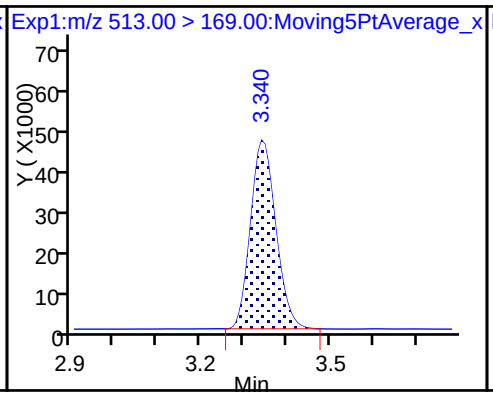
D 23 13C2 PFDA



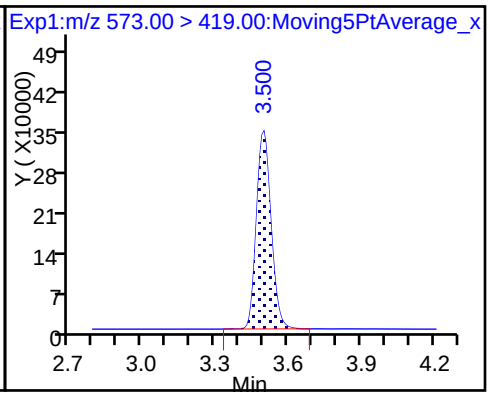
24 Perfluorodecanoic acid



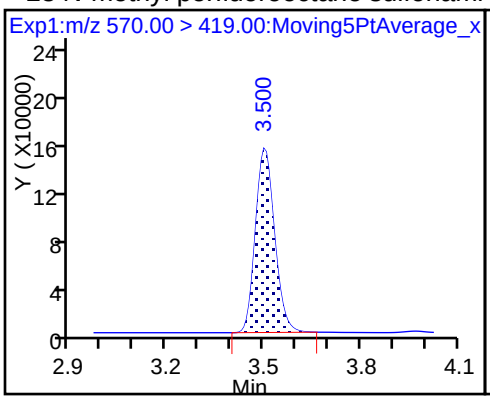
24 Perfluorodecanoic acid



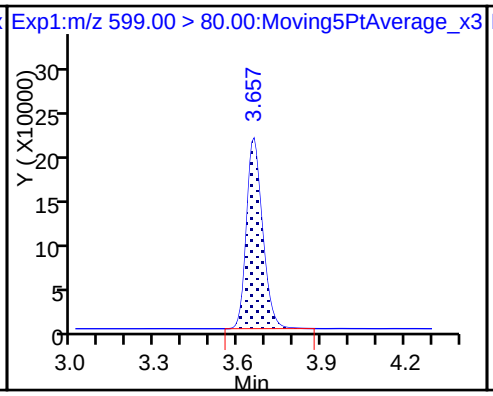
D 27 d3-NMeFOSAA



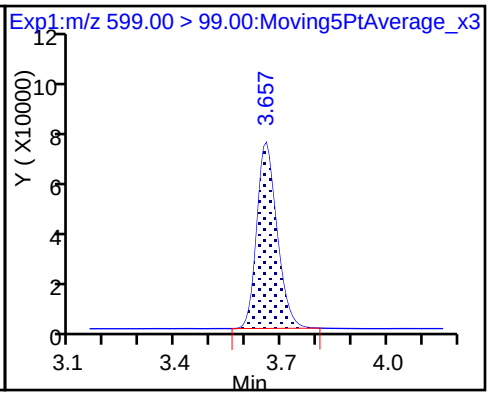
28 N-methyl perfluorooctane sulfonami



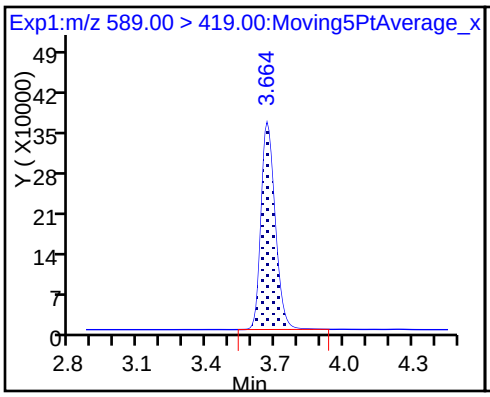
29 Perfluorodecane Sulfonic acid



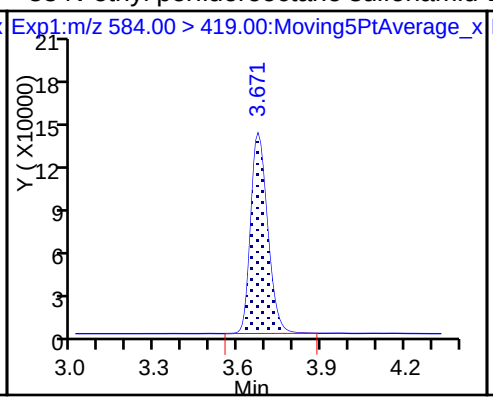
29 Perfluorodecane Sulfonic acid



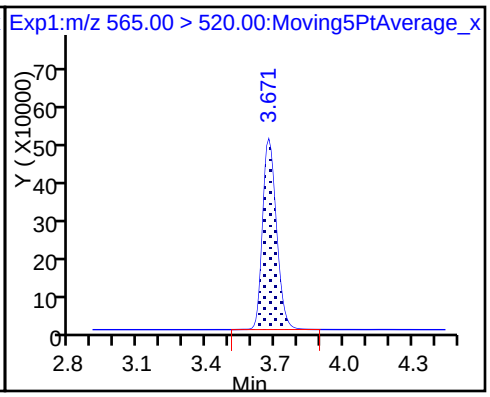
D 32 d5-NEtFOSAA



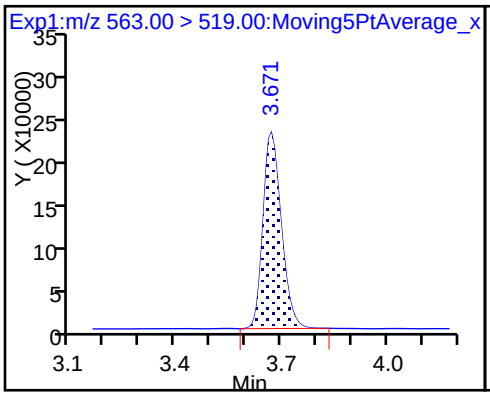
33 N-ethyl perfluorooctane sulfonamid



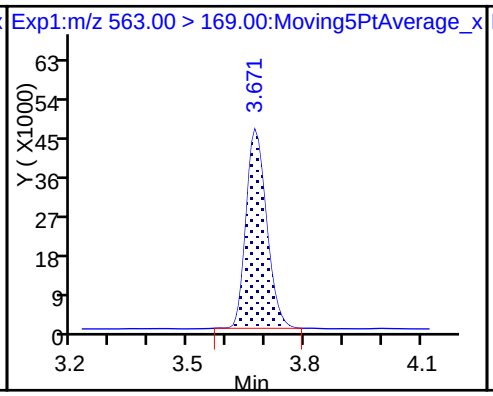
D 30 13C2 PFUnA



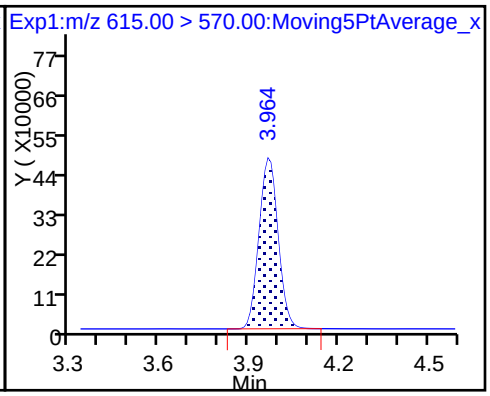
31 Perfluoroundecanoic acid



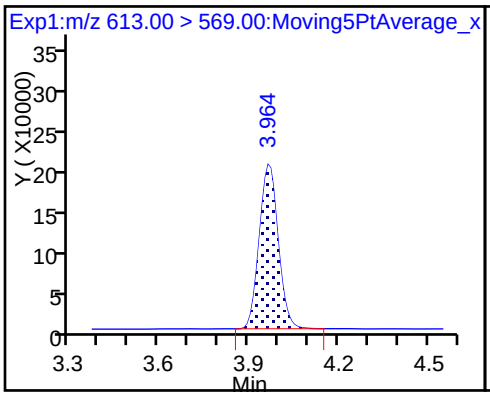
31 Perfluoroundecanoic acid



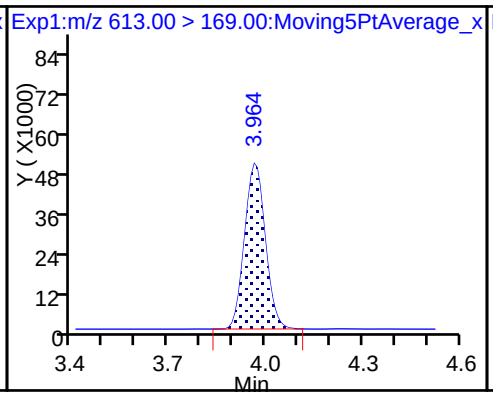
D 36 13C2 PFDoA



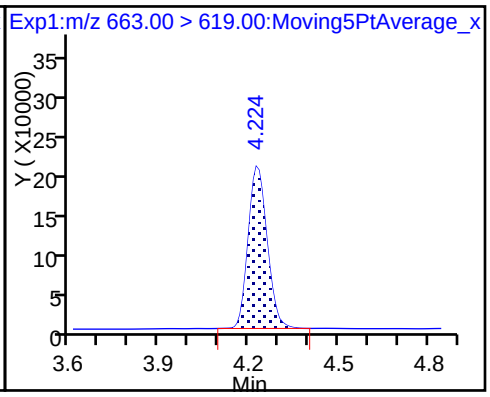
37 Perfluorododecanoic acid



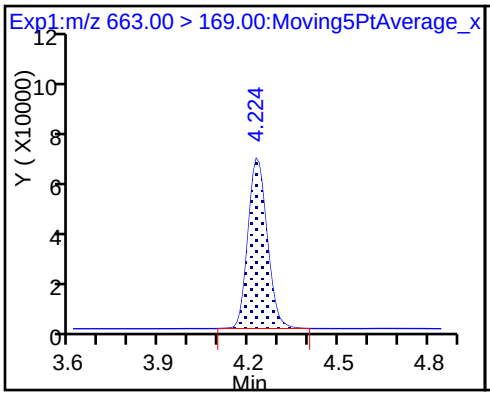
37 Perfluorododecanoic acid



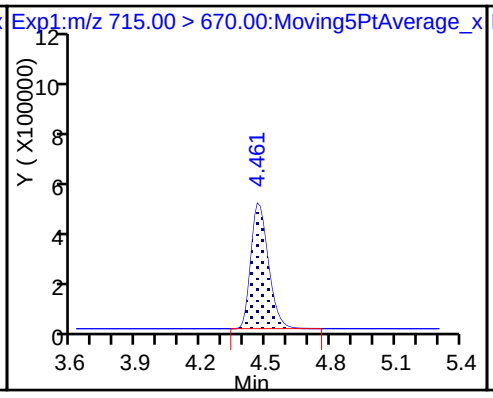
41 Perfluorotridecanoic acid



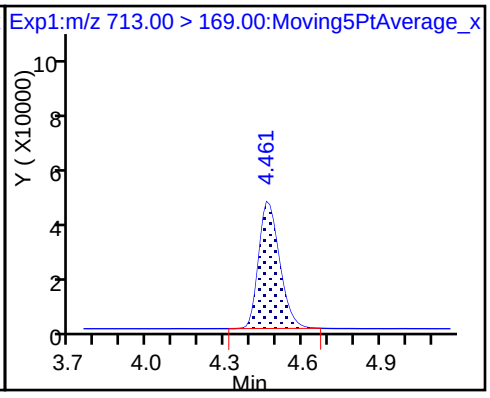
41 Perfluorotridecanoic acid



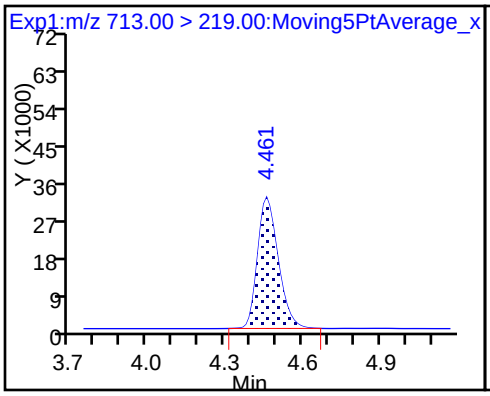
D 43 13C2-PFTeDA



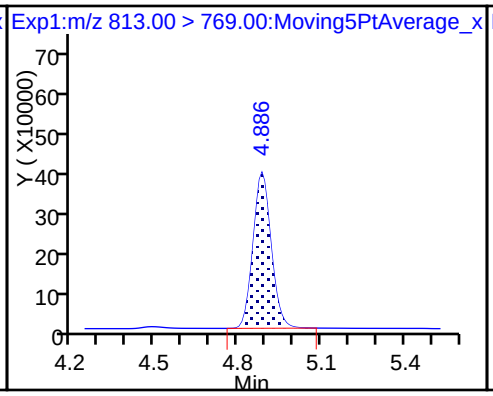
42 Perfluorotetradecanoic acid



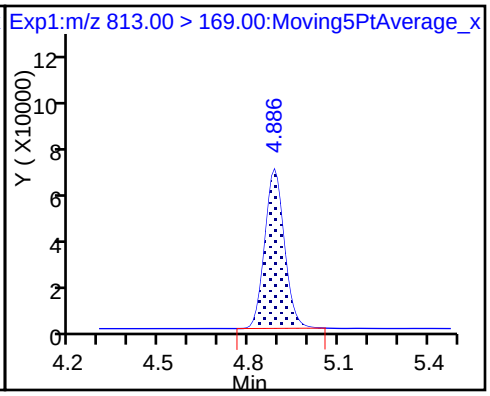
42 Perfluorotetradecanoic acid



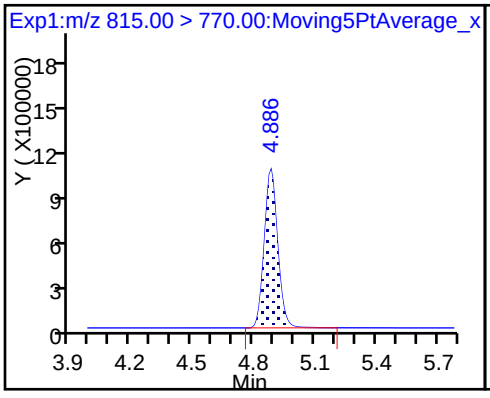
45 Perfluorohexadecanoic acid



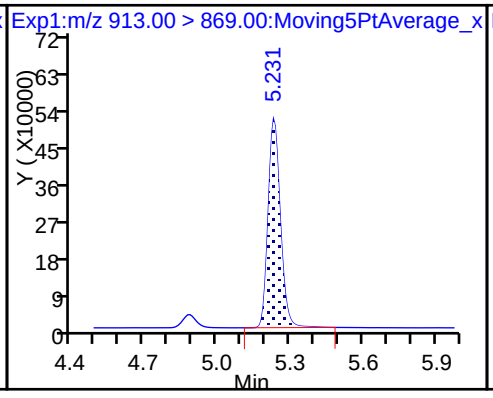
45 Perfluorohexadecanoic acid



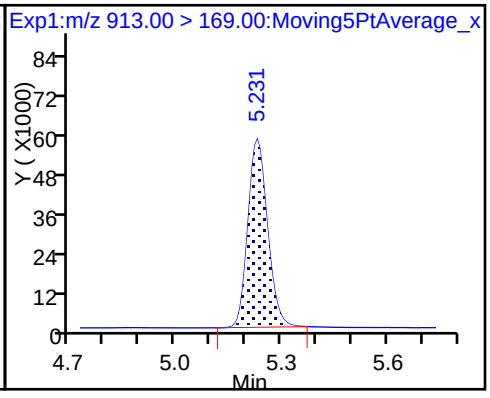
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/11 Calibration Date: 02/07/2018 14:28

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_046.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9488		2.50	2.50	0.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.175		2.47	2.50	-1.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	81.80		2.35	2.21	6.4	25.0
4:2 FTS	AveID	16.11	14.78		2.14	2.34	-8.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.016		2.46	2.50	-1.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.088		2.62	2.50	4.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.083		2.17	2.28	-4.8	25.0
6:2FTS	AveID	1.798	1.593		2.10	2.37	-11.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.146		2.52	2.50	0.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.409		2.46	2.38	3.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.023		2.51	2.50	0.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.120		2.35	2.32	1.5	25.0
8:2FTS	AveID	1.228	1.297		2.53	2.40	5.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9872		2.49	2.50	-0.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9856		2.41	2.50	-3.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.083		2.53	2.50	1.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7030		2.57	2.41	6.5	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9350		2.52	2.50	0.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.011		2.45	2.50	-1.8	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.075		2.56	2.50	2.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.165		2.61	2.50	4.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2432		2.45	2.50	-1.8	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9609		2.49	2.50	-0.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	1.098		2.47	2.50	-1.0	25.0
13C4 PFBA	Ave	1.444	1.482		2.57	2.50	2.6	50.0
13C5 PFPeA	Ave	0.8768	0.8855		2.52	2.50	1.0	50.0
13C3-PFBS	Ave	0.0196	0.0198		2.35	2.33	1.0	50.0
13C2 PFHxA	Ave	0.9470	0.9607		2.54	2.50	1.4	50.0
13C4-PFHpA	Ave	0.9180	0.8862		2.41	2.50	-3.5	50.0
18O2 PFHxS	Ave	1.134	1.137		2.37	2.37	0.3	50.0
M2-6:2FTS	Ave	0.1948	0.1766		2.15	2.38	-9.3	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/11 Calibration Date: 02/07/2018 14:28

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_046.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8976		2.50	2.50	-0.0	50.0
13C4 PFOS	Ave	0.7450	0.7496		2.40	2.39	0.6	50.0
13C5 PFNA	Ave	0.7311	0.7433		2.54	2.50	1.7	50.0
13C8 FOSA	Ave	1.030	1.050		2.55	2.50	1.9	50.0
M2-8:2FTS	Ave	0.2169	0.1956		2.16	2.40	-9.9	50.0
13C2 PFDA	Ave	0.6297	0.6394		2.54	2.50	1.5	50.0
d3-NMeFOSAA	Ave	0.3401	0.3341		2.46	2.50	-1.7	50.0
d5-NEtFOSAA	Ave	0.3488	0.3397		2.43	2.50	-2.6	50.0
13C2 PFUnA	Ave	0.4871	0.4940		2.54	2.50	1.4	50.0
13C2 PFDoA	Ave	0.4977	0.4819		2.42	2.50	-3.2	50.0
13C2-PFTeDA	Ave	0.6138	0.5955		2.43	2.50	-3.0	50.0
13C2-PFHxDA	Ave	1.061	1.021		2.41	2.50	-3.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_046.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 07-Feb-2018 14:28:17 ALS Bottle#: 29 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:43:00 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:13:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.424	1.412	0.012	0.541	6320185	2.57		103	25211	
2 Perfluorobutyric acid										
212.90 > 169.00	1.430	1.412	0.018	1.004	5996691	2.50		100	820	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.677	1.660	0.017	1.000	4436792	2.47		98.8	4272	
D 3 13C5-PFPeA										
267.90 > 223.00	1.677	1.660	0.017	0.637	3776014	2.52		101	45820	
D 47 13C3-PFBS										
301.90 > 83.00	1.713	1.695	0.018	0.650	78545	2.35		101	2346	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.713	1.695	0.018	1.000	6106833	2.35		106	30265	
298.90 > 99.00	1.713	1.695	0.018	1.000	2457160		2.49(1.25-3.74)		19090	
D 60 M2-4:2FTS										
329.00 > 81.00	1.920	1.899	0.021	0.729	512153	NC			6050	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.920	1.899	0.021	1.000	1165782	2.14		91.8	51854	
D 7 13C2 PFHxA										
315.00 > 270.00	1.950	1.930	0.020	0.740	4096784	2.54		101	31641	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.961	1.940	0.021	1.005	4162039	2.46		98.2	9186	
313.00 > 119.00	1.950	1.940	0.010	1.000	396415		10.50(5.03-15.10)		6771	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.288	2.262	0.026	1.006	4113198	2.62		105	5493	
363.00 > 169.00	2.288	2.262	0.026	1.006	1622817		2.53(1.13-3.40)		8422	
D 9 13C4-PFHpA										
367.00 > 322.00	2.275	2.262	0.013	0.863	3779177	2.41		96.5	25296	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.301	2.275	0.026	0.873	4587439	2.37		100	22319	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.288	2.275	0.013	0.994	4777992	2.17		95.2	11728	
399.00 > 99.00	2.288	2.275	0.013	0.994	1559283		3.06(1.50-4.49)		7064	
D 12 M2-6:2FTS										
429.00 > 81.00	2.606	2.588	0.018	0.989	715233	2.15		90.7	14139	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.606	2.588	0.018	1.000	1136849	2.10		88.6	17939	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.606	0.029	1.000	3827544	2.50		99.9	23196	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.606	0.029		4264263	2.50			30506	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.635	2.606	0.029	1.000	4386910	2.52		101	2203	
413.00 > 169.00	2.635	2.606	0.029	1.000	2295936		1.91(0.84-2.52)		13909	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.642	2.613	0.029	1.000	4287709	2.46		103	27402	
449.00 > 99.00	2.642	2.613	0.029	1.000	1179695		3.63(1.94-5.82)		12673	
D 18 13C4 PFOS										
503.00 > 80.00	2.999	2.976	0.023	1.138	3055936	2.40		101	16843	
D 19 13C5 PFNA										
468.00 > 423.00	2.999	2.976	0.023	1.138	3169461	2.54		102	21524	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.999	2.976	0.023	1.000	3322721	2.35		101	4643	
499.00 > 99.00	2.999	2.976	0.023	1.000	734788		4.52(2.31-6.93)		4632	
20 Perfluorononanoic acid										
463.00 > 419.00	2.999	2.976	0.023	1.000	3241566	2.51		100	5510	
463.00 > 169.00	2.999	2.976	0.023	1.000	812218		3.99(1.90-5.69)		12020	
D 26 M2-8:2FTS										
529.00 > 81.00	3.346	3.316	0.030	1.270	798895	2.16		90.1	14111	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.346	3.323	0.023	1.000	1036164	2.53		106	18344	
D 21 13C8 FOSA										
506.00 > 78.00	3.346	3.331	0.015	1.270	4475759	2.55		102	14570	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.346	3.331	0.015	1.000	4418231	2.49		99.7	13076	
D 23 13C2 PFDA										
515.00 > 470.00	3.354	3.331	0.023	1.273	2726618	2.54		102	26020	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.354	3.331	0.023	1.000	2687286	2.41		96.5	8748	
513.00 > 169.00	3.354	3.331	0.023	1.000	467012		5.75(2.36-7.09)		1655	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.506	3.483	0.023	1.331	1424844	2.46		98.3	8298	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.513	3.491	0.022	1.002	1543540	2.53		101	7738	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.662	3.641	0.021	1.000	2166289	2.57		106	22633	
599.00 > 99.00	3.662	3.641	0.021	1.000	706044		3.07(1.39-4.16)		16079	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.670	3.648	0.022	1.393	1448641	2.43		97.4	6555	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.677	3.655	0.022	1.002	1354408	2.52		101	13809	
D 30 13C2 PFUnA										
565.00 > 520.00	3.677	3.655	0.022	1.396	2106447	2.54		101	23254	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.677	3.655	0.022	1.000	2129629	2.45		98.2	8801	
563.00 > 169.00	3.677	3.655	0.022	1.000	432088		4.93(0.00-0.00)		8478	
D 36 13C2 PFDoA										
615.00 > 570.00	3.970	3.952	0.018	1.507	2054956	2.42		96.8	21500	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.970	3.952	0.018	1.000	2209947	2.56		102	7789	
613.00 > 169.00	3.970	3.952	0.018	1.000	557447		3.96(2.13-6.40)		11633	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.231	4.204	0.027	1.000	2393500	2.61		104	8257	
663.00 > 169.00	4.231	4.204	0.027	1.000	735145		3.26(1.25-3.76)		16798	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.466	4.443	0.023	1.695	2539316	2.43		97.0	16186	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.466	4.443	0.023	1.000	617521	2.45		98.2	10883	
713.00 > 219.00	4.466	4.443	0.023	1.000	424163		1.46(0.71-2.13)		12848	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.889	4.862	0.027	1.000	4184170	2.49		99.5	5124	
813.00 > 169.00	4.889	4.862	0.027	1.000	747241		5.60(2.86-8.58)		5802	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.862	0.027	1.856	4354299	2.41		96.2	9877	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.235	5.199	0.036	1.000	4780095	2.47		99.0	1307	
913.00 > 169.00	5.235	5.199	0.036	1.000	564680		8.47(0.00-0.00)		2041	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL5_00003 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 16:43:01 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_046.d

Injection Date: 07-Feb-2018 14:28:17 Instrument ID: A8_N

Lims ID: CCV L5

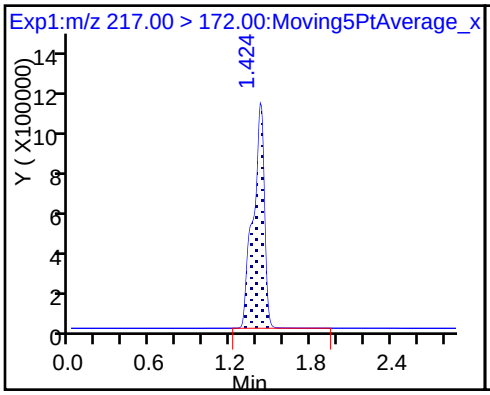
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 11

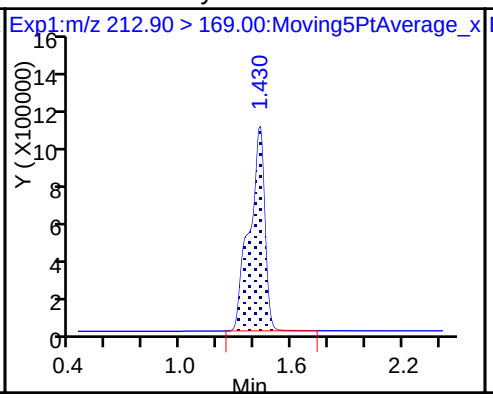
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

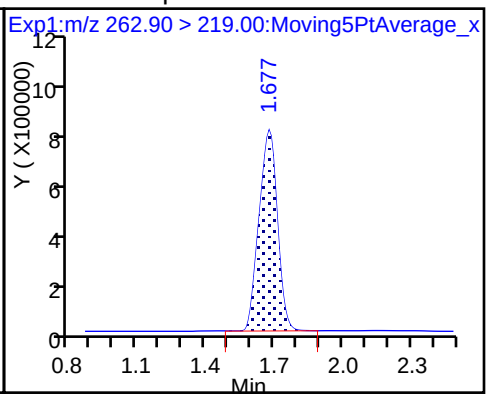
D 1 13C4 PFBA



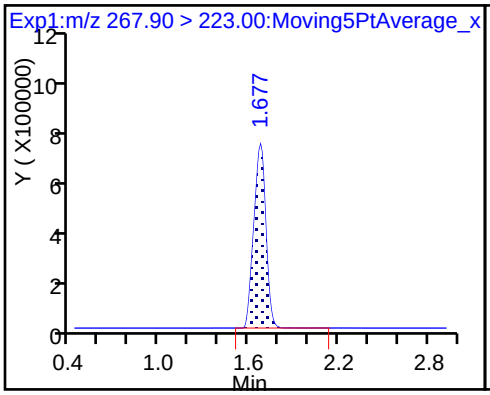
2 Perfluorobutyric acid



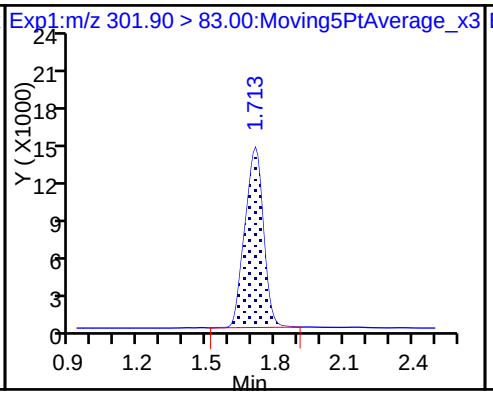
4 Perfluoropentanoic acid



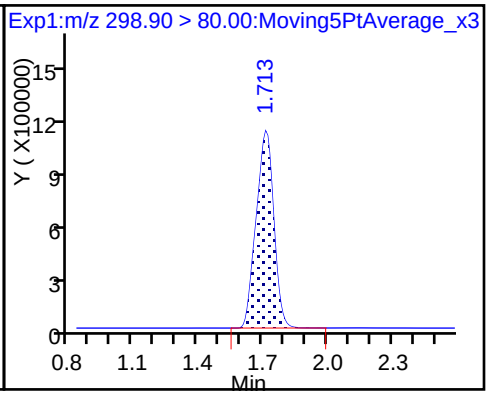
D 3 13C5-PFPeA



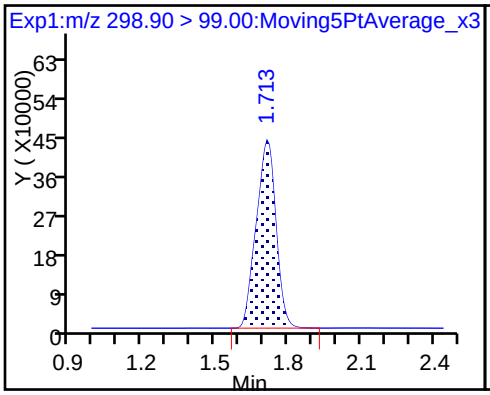
D 47 13C3-PFBS



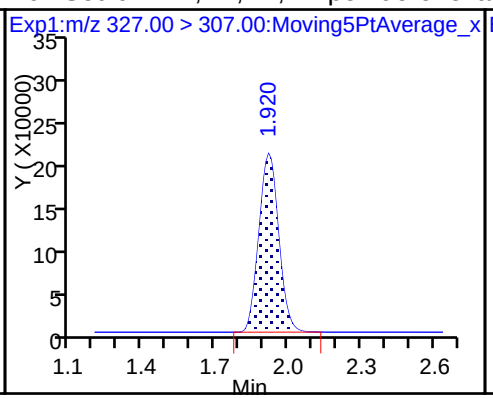
5 Perfluorobutanesulfonic acid



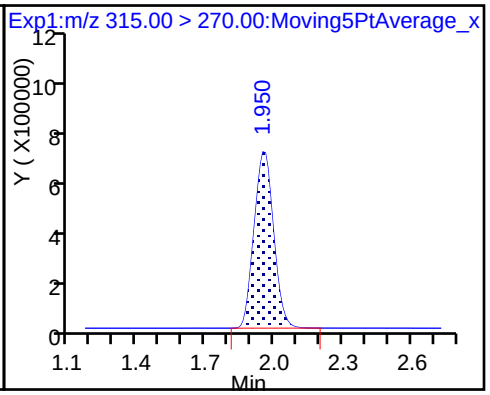
5 Perfluorobutanesulfonic acid



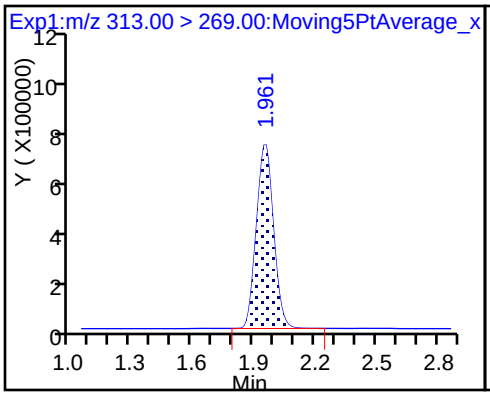
61 Sodium 1H,1H,2H,2H-perfluorohexa



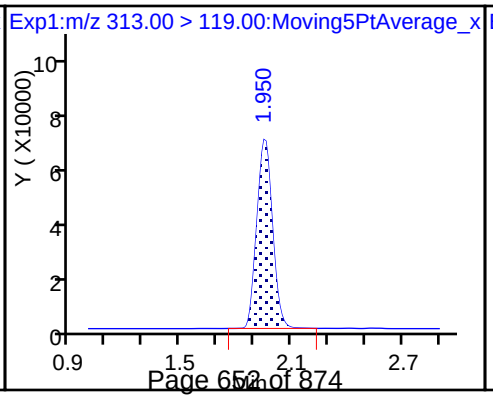
De 7 13C2 PFHxA



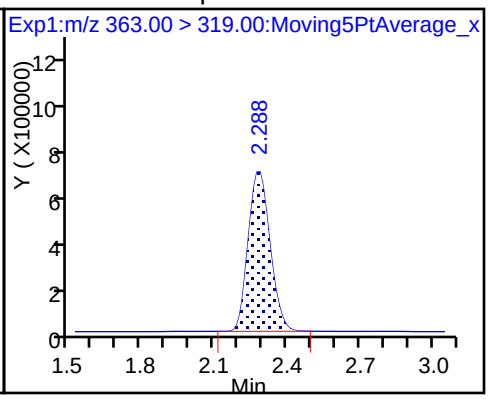
6 Perfluorohexanoic acid



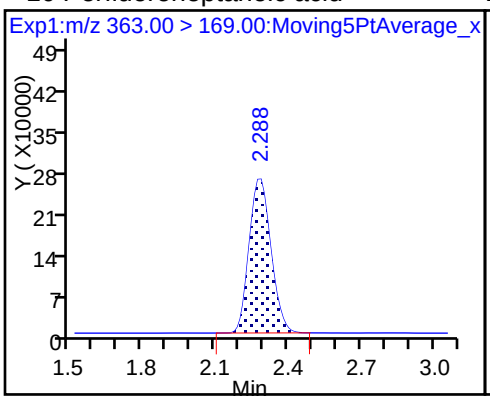
6 Perfluorohexanoic acid



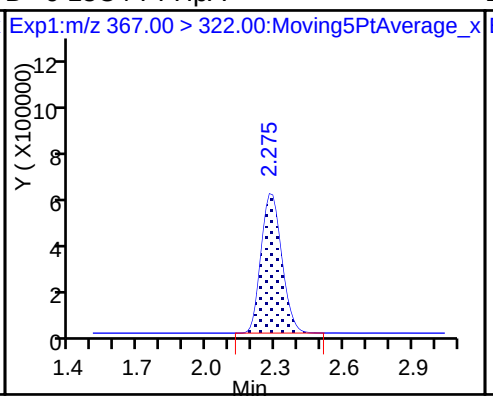
10 Perfluoroheptanoic acid



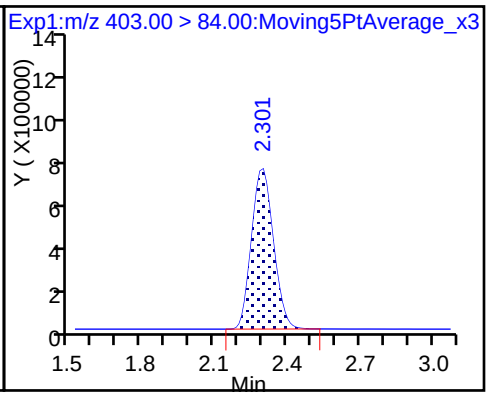
10 Perfluoroheptanoic acid



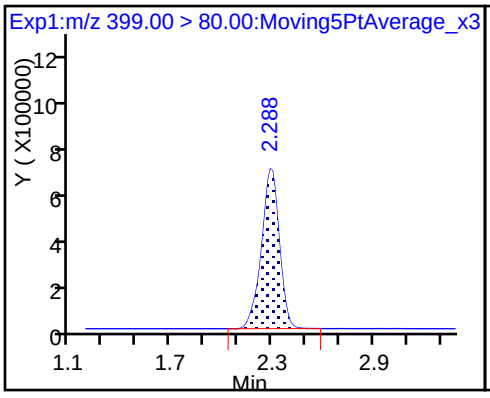
D 9 13C4-PFHpA



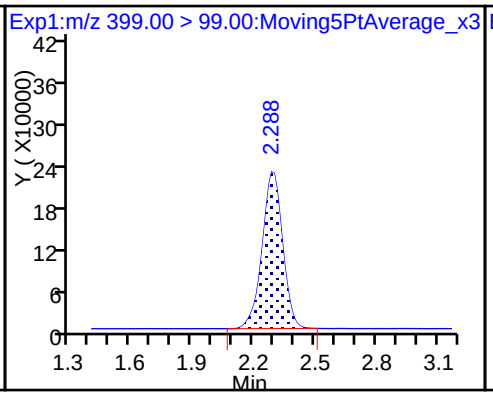
D 11 18O2 PFHxS



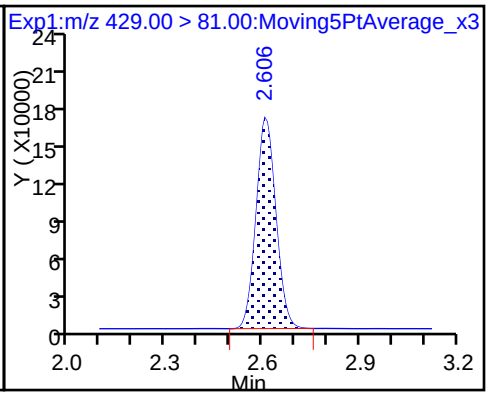
8 Perfluorohexanesulfonic acid



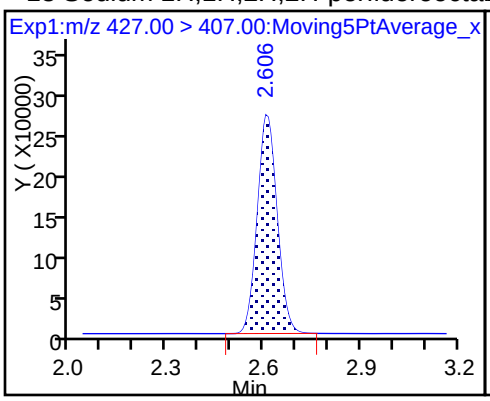
8 Perfluorohexanesulfonic acid



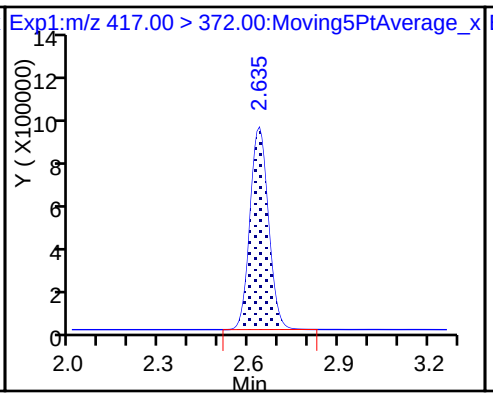
D 12 M2-6:2FTS



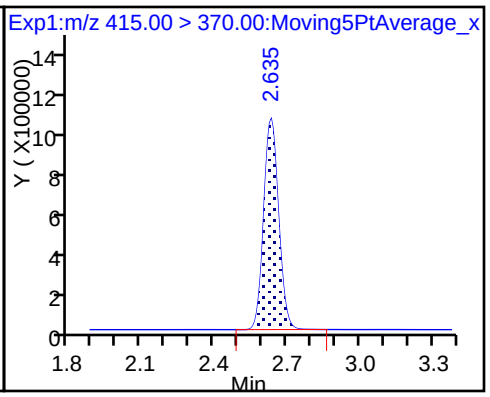
13 Sodium 1H,1H,2H,2H-perfluorooctane



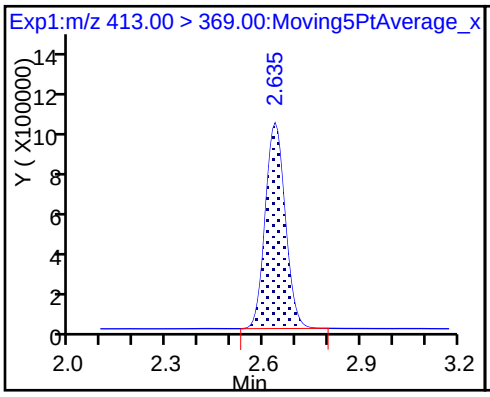
D 14 13C4 PFOA



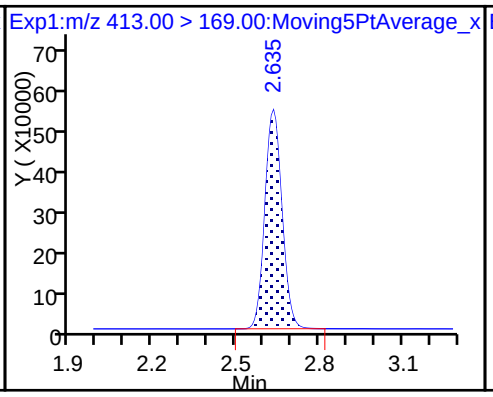
* 62 13C2-PFOA



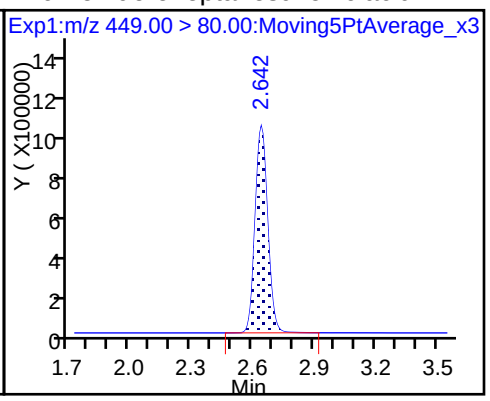
15 Perfluorooctanoic acid



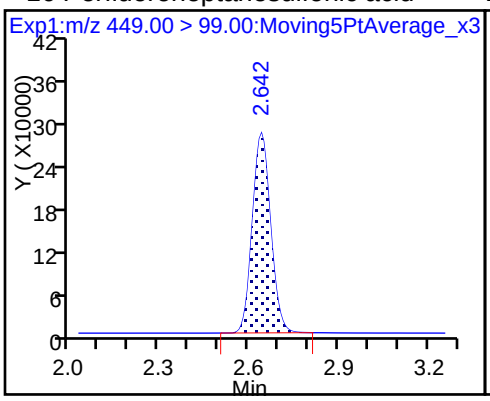
15 Perfluorooctanoic acid



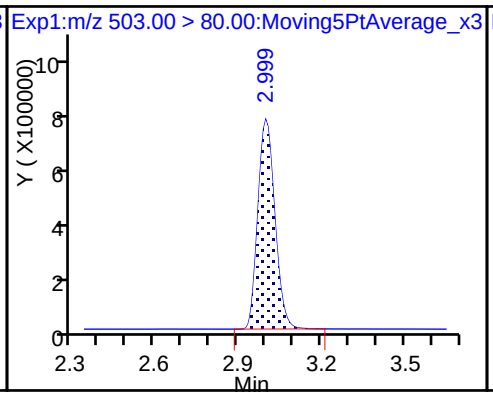
16 Perfluoroheptanesulfonic acid



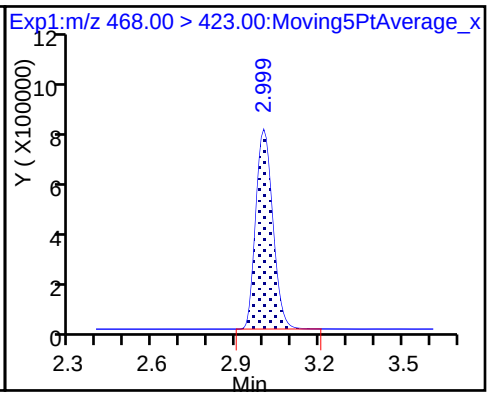
16 Perfluoroheptanesulfonic acid



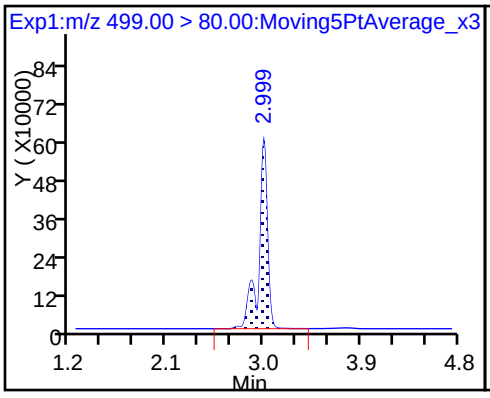
D 18 13C4 PFOS



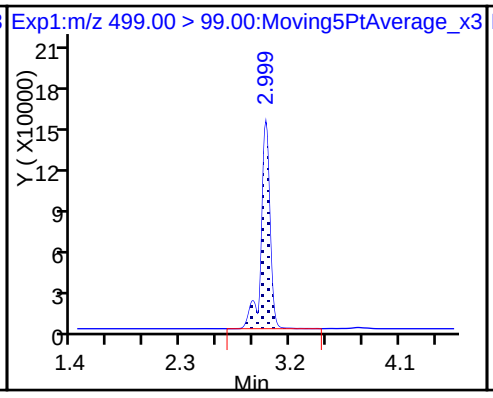
D 19 13C5 PFNA



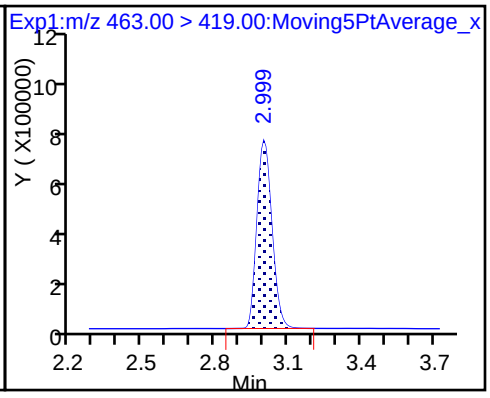
17 Perfluorooctane sulfonic acid



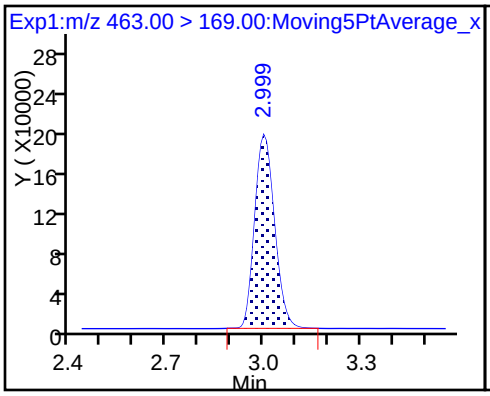
17 Perfluorooctane sulfonic acid



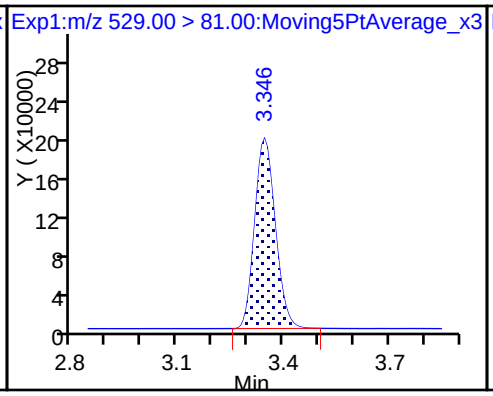
20 Perfluorononanoic acid



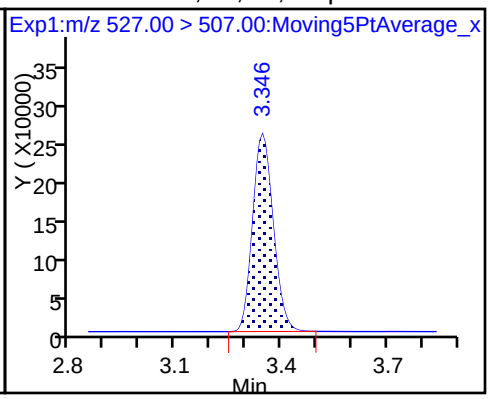
20 Perfluorononanoic acid



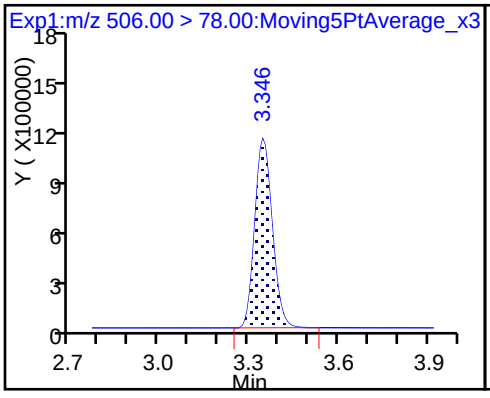
D 26 M2-8:2FTS



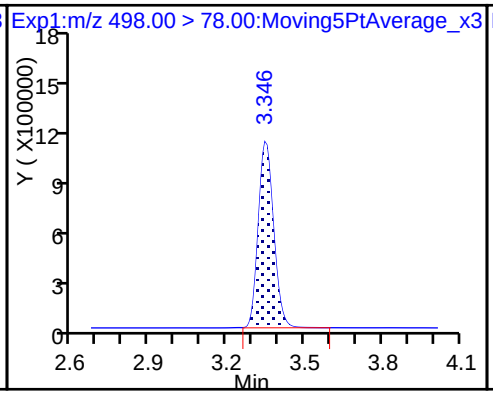
25 Sodium 1H,1H,2H,2H-perfluorodecane



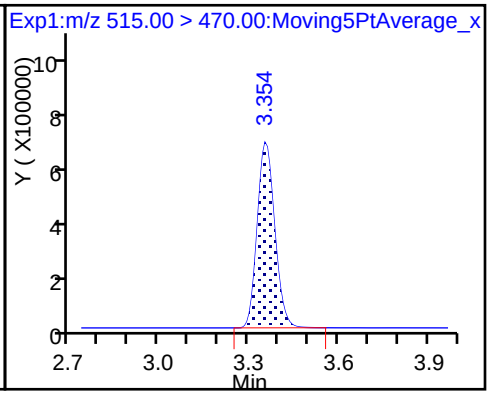
D 21 13C8 FOSA



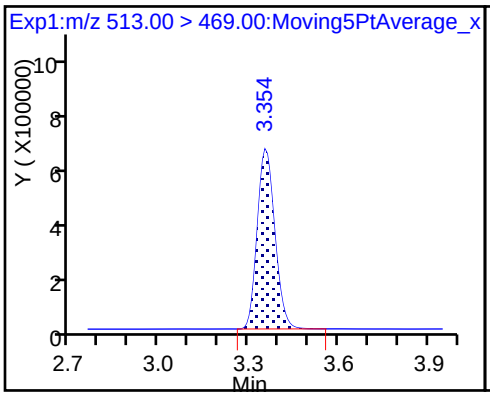
22 Perfluorooctane Sulfonamide



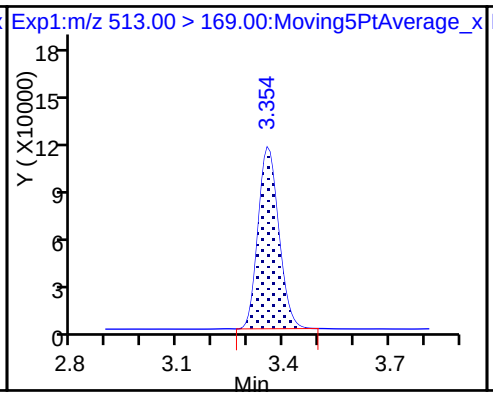
D 23 13C2 PFDA



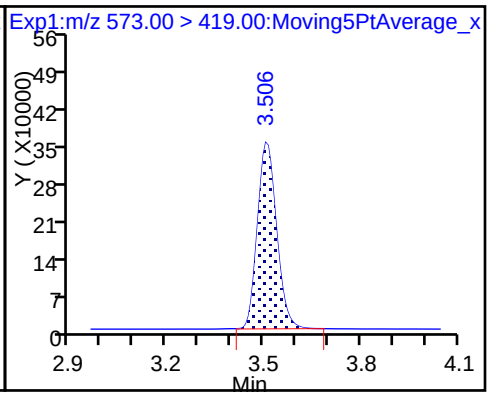
24 Perfluorodecanoic acid



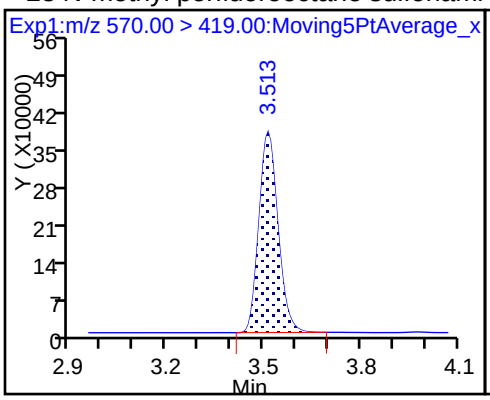
24 Perfluorodecanoic acid



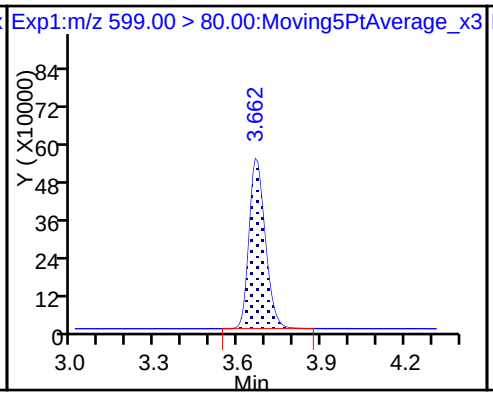
D 27 d3-NMeFOSAA



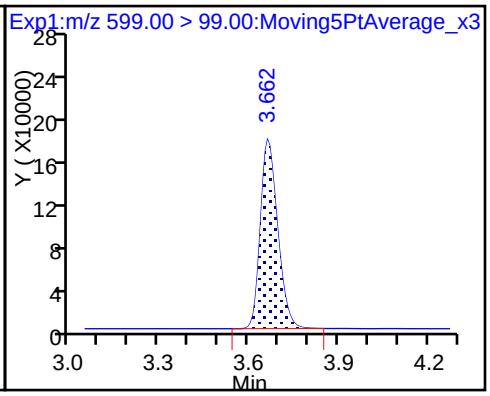
28 N-methyl perfluorooctane sulfonami



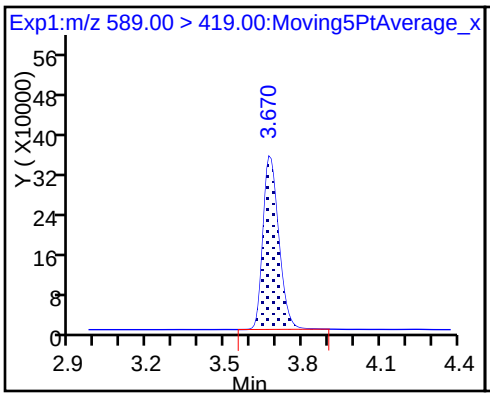
29 Perfluorodecane Sulfonic acid



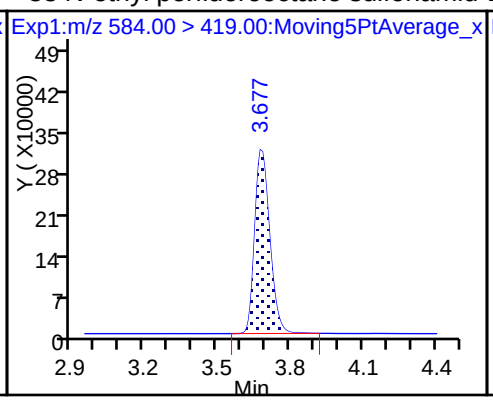
29 Perfluorodecane Sulfonic acid



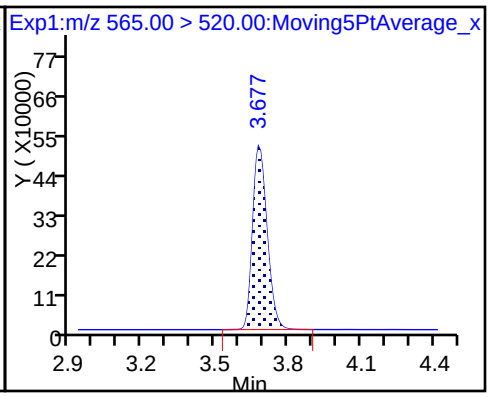
D 32 d5-NEtFOSAA



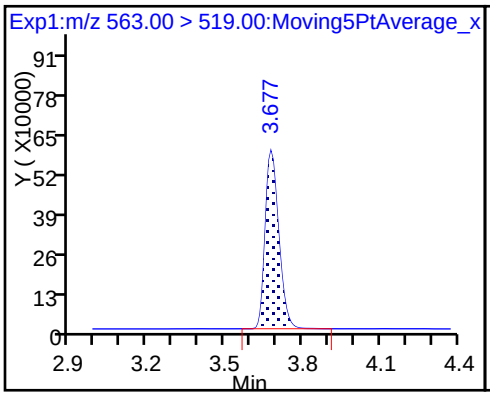
33 N-ethyl perfluorooctane sulfonamid



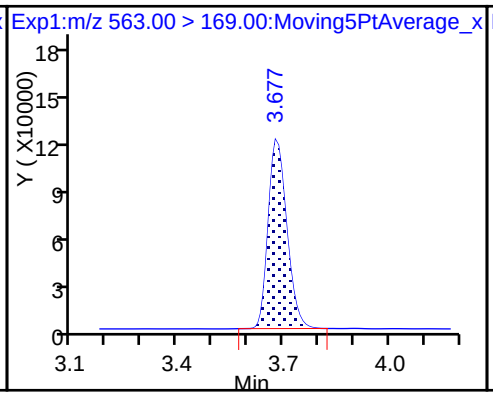
D 30 13C2 PFUnA



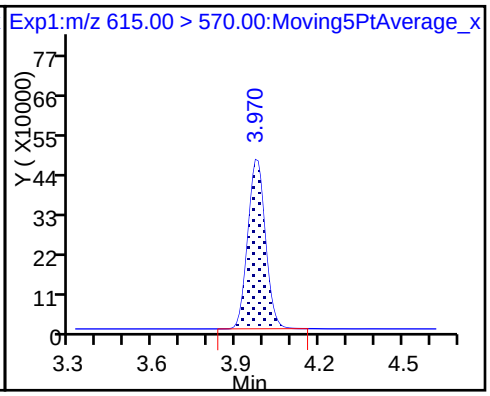
31 Perfluoroundecanoic acid



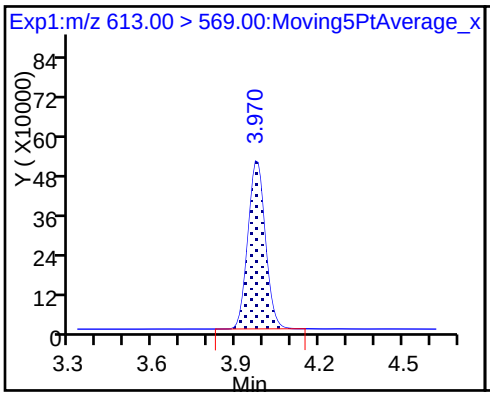
31 Perfluoroundecanoic acid



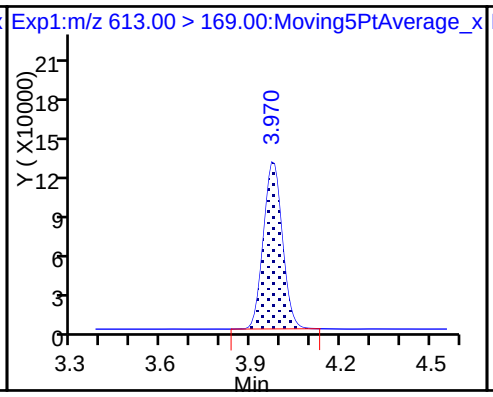
D 36 13C2 PFDoA



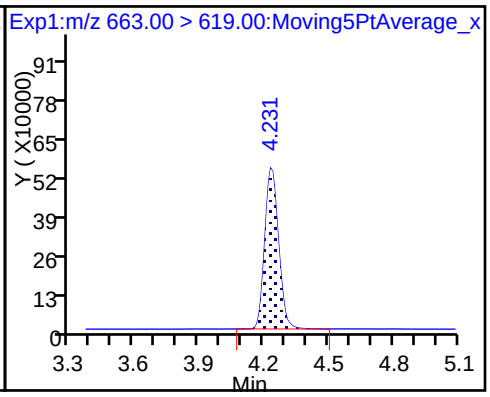
37 Perfluorododecanoic acid



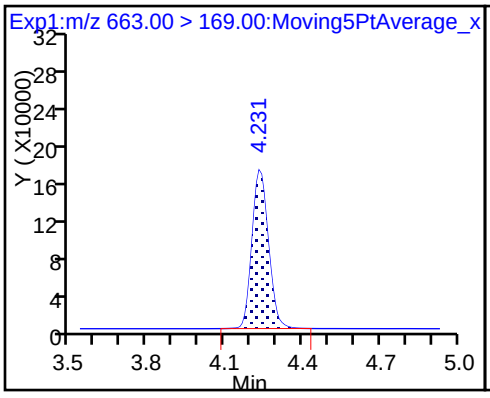
37 Perfluorododecanoic acid



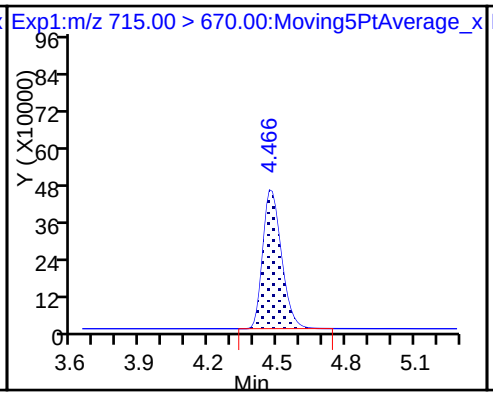
41 Perfluorotridecanoic acid



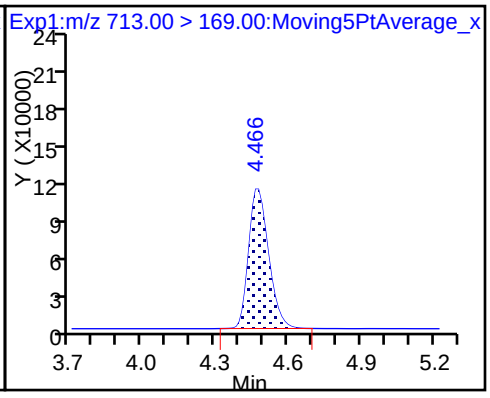
41 Perfluorotridecanoic acid



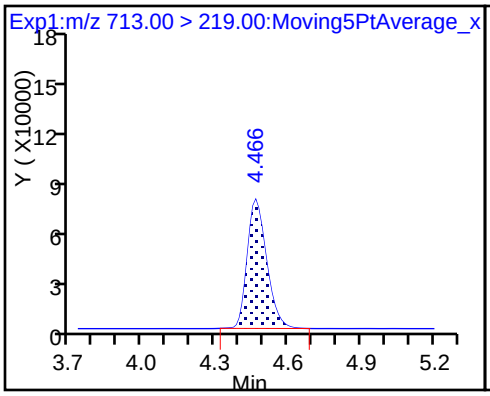
D 43 13C2-PFTeDA



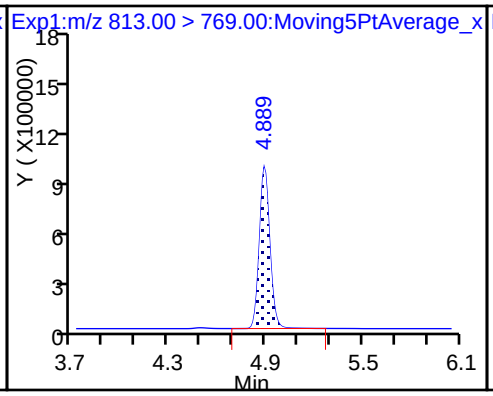
42 Perfluorotetradecanoic acid



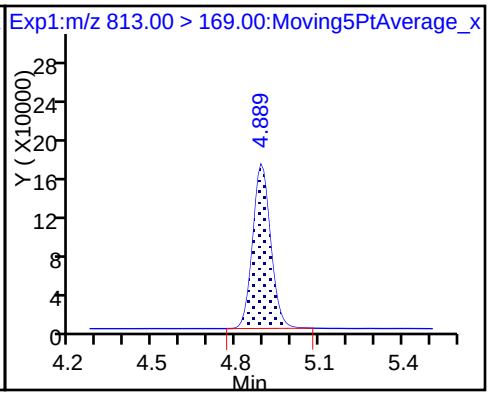
42 Perfluorotetradecanoic acid



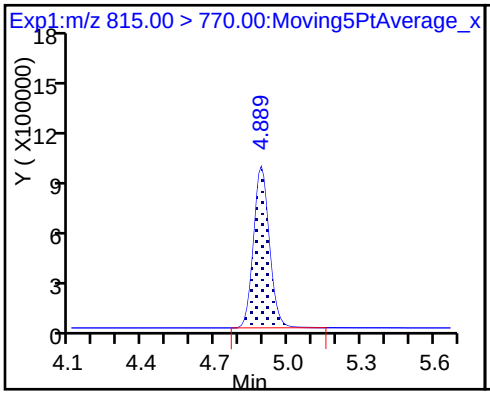
45 Perfluorohexadecanoic acid



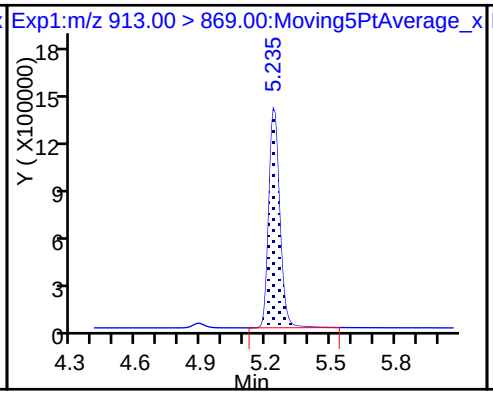
45 Perfluorohexadecanoic acid



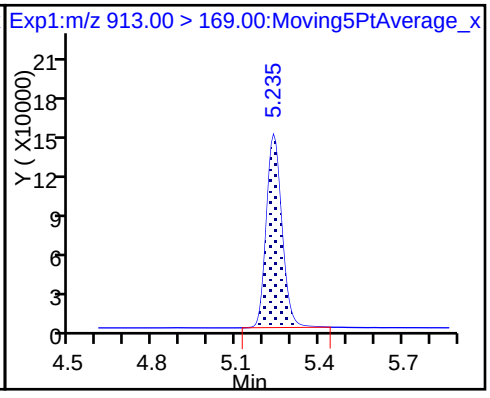
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/19 Calibration Date: 02/07/2018 15:30

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9197		0.971	1.00	-2.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.177		0.990	1.00	-1.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.32		0.889	0.884	0.6	25.0
4:2 FTS	AveID	16.11	15.35		0.890	0.934	-4.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9421		0.911	1.00	-8.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.003		0.964	1.00	-3.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.055		0.845	0.910	-7.2	25.0
6:2FTS	AveID	1.798	1.673		0.882	0.948	-6.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.128		0.990	1.00	-1.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.375		0.961	0.952	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	0.9933		0.976	1.00	-2.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.095		0.920	0.928	-0.8	25.0
8:2FTS	AveID	1.228	1.264		0.986	0.958	2.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9638		0.973	1.00	-2.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	1.029		1.01	1.00	0.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.032		0.963	1.00	-3.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.6825		0.997	0.964	3.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9186		0.989	1.00	-1.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9762		0.948	1.00	-5.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.005		0.957	1.00	-4.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.045		0.937	1.00	-6.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2331		0.941	1.00	-5.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9513		0.976	1.00	-2.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9797		0.883	1.00	-11.7	25.0
13C4 PFBA	Ave	1.444	1.446		2.50	2.50	0.1	50.0
13C5 PFPeA	Ave	0.8768	0.8366		2.39	2.50	-4.6	50.0
13C3-PFBS	Ave	0.0196	0.0193		2.29	2.33	-1.6	50.0
13C2 PFHxA	Ave	0.9470	0.9888		2.61	2.50	4.4	50.0
13C4-PFHpA	Ave	0.9180	0.9353		2.55	2.50	1.9	50.0
18O2 PFHxS	Ave	1.134	1.105		2.30	2.37	-2.6	50.0
M2-6:2FTS	Ave	0.1948	0.1880		2.29	2.38	-3.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/19 Calibration Date: 02/07/2018 15:30

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8878		2.47	2.50	-1.2	50.0
13C4 PFOS	Ave	0.7450	0.7207		2.31	2.39	-3.3	50.0
13C5 PFNA	Ave	0.7311	0.7410		2.53	2.50	1.4	50.0
13C8 FOSA	Ave	1.030	1.011		2.45	2.50	-1.8	50.0
M2-8:2FTS	Ave	0.2169	0.2065		2.28	2.40	-4.8	50.0
13C2 PFDA	Ave	0.6297	0.6009		2.39	2.50	-4.6	50.0
d3-NMeFOSAA	Ave	0.3401	0.3361		2.47	2.50	-1.2	50.0
d5-NEtFOSAA	Ave	0.3488	0.3471		2.49	2.50	-0.5	50.0
13C2 PFUnA	Ave	0.4871	0.4768		2.45	2.50	-2.1	50.0
13C2 PFDoA	Ave	0.4977	0.4939		2.48	2.50	-0.8	50.0
13C2-PFTeDA	Ave	0.6138	0.6164		2.51	2.50	0.4	50.0
13C2-PFHxDA	Ave	1.061	1.051		2.48	2.50	-0.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_054.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 07-Feb-2018 15:30:53 ALS Bottle#: 28 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:43:12 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:13:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.424	1.412	0.012	0.541	6484458	2.50		100	20232	
2 Perfluorobutyric acid										
212.90 > 169.00	1.424	1.412	0.012	1.000	2385558	0.9706		97.1	387	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.676	1.660	0.016	1.000	1766458	0.9900		99.0	1443	
D 3 13C5-PFPeA										
267.90 > 223.00	1.676	1.660	0.016	0.637	3751270	2.39		95.4	35661	
D 47 13C3-PFBS										
301.90 > 83.00	1.712	1.695	0.017	0.650	80464	2.29		98.4	2386	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.712	1.695	0.017	1.000	2365348	0.8892		101	11361	
298.90 > 99.00	1.712	1.695	0.017	1.000	961255		2.46(1.25-3.74)		8457	
D 60 M2-4:2FTS										
329.00 > 81.00	1.918	1.899	0.019	0.729	580627	NC			6878	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.918	1.899	0.019	1.000	496107	0.8900		95.3	21832	
D 7 13C2 PFHxA										
315.00 > 270.00	1.949	1.930	0.019	0.740	4433579	2.61		104	34729	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.960	1.940	0.020	1.005	1670696	0.9108		91.1	3711	
313.00 > 119.00	1.960	1.940	0.020	1.005	155807		10.72(5.03-15.10)		2985	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.286	2.262	0.024	1.000	1682003	0.9640		96.4	2297	
363.00 > 169.00	2.286	2.262	0.024	1.000	644516		2.61(1.13-3.40)		3969	
D 9 13C4-PFHpA										
367.00 > 322.00	2.286	2.262	0.024	0.868	4193627	2.55		102	22637	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.275	0.024	0.873	4684897	2.30		97.4	19281	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.275	0.024	1.000	1902173	0.8446		92.8	6137	
399.00 > 99.00	2.299	2.275	0.024	1.000	643151		2.96(1.50-4.49)		3573	
D 12 M2-6:2FTS										
429.00 > 81.00	2.611	2.588	0.023	0.992	800685	2.29		96.5	15678	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.611	2.588	0.023	1.000	534714	0.8823		93.1	11494	
D 14 13C4 PFOA										
417.00 > 372.00	2.633	2.606	0.027	1.000	3980643	2.47		98.8	28752	
* 62 13C2-PFOA										
415.00 > 370.00	2.633	2.606	0.027		4483755	2.50			28341	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.640	2.606	0.034	1.003	1795607	0.99		99.0	790	
413.00 > 169.00	2.640	2.606	0.034	1.003	898463		2.00(0.84-2.52)		6587	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.647	2.613	0.034	1.000	1691781	0.9611		101	13068	
449.00 > 99.00	2.640	2.613	0.027	0.997	459395		3.68(1.94-5.82)		7107	
D 18 13C4 PFOS										
503.00 > 80.00	3.004	2.976	0.028	1.141	3089204	2.31		96.7	20825	
D 19 13C5 PFNA										
468.00 > 423.00	3.004	2.976	0.028	1.141	3322537	2.53		101	20593	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.004	2.976	0.028	1.000	1312838	0.9202		99.2	1834	
499.00 > 99.00	3.004	2.976	0.028	1.000	279461		4.70(2.31-6.93)		1797	
20 Perfluorononanoic acid										
463.00 > 419.00	3.004	2.976	0.028	1.000	1320091	0.9758		97.6	1776	
463.00 > 169.00	3.004	2.976	0.028	1.000	333769		3.96(1.90-5.69)		4414	
D 26 M2-8:2FTS										
529.00 > 81.00	3.350	3.316	0.034	1.273	886852	2.28		95.2	15311	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.350	3.323	0.027	1.000	448405	0.9859		103	8546	
D 21 13C8 FOSA										
506.00 > 78.00	3.350	3.331	0.019	1.273	4534441	2.45		98.2	20598	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.350	3.331	0.019	1.000	1748141	0.9732		97.3	9368	
D 23 13C2 PFDA										
515.00 > 470.00	3.358	3.331	0.027	1.275	2694192	2.39		95.4	32802	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.358	3.331	0.027	1.000	1109302	1.01		101	3850	
513.00 > 169.00	3.358	3.331	0.027	1.000	192566		5.76(2.36-7.09)		1746	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.510	3.483	0.027	1.333	1506967	2.47		98.8	10379	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.518	3.491	0.027	1.002	621916	0.9625		96.3	3937	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.666	3.641	0.025	1.000	850396	1.00		103	13323	
599.00 > 99.00	3.666	3.641	0.025	1.000	281424		3.02(1.39-4.16)		7081	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.673	3.648	0.025	1.395	1556113	2.49		99.5	8552	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.682	3.655	0.027	1.002	571776	0.9895		98.9	7014	
D 30 13C2 PFUnA										
565.00 > 520.00	3.682	3.655	0.027	1.398	2137981	2.45		97.9	22543	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.682	3.655	0.027	1.000	834805	0.9480		94.8	4120	
563.00 > 169.00	3.682	3.655	0.027	1.000	175319		4.76(0.00-0.00)		6017	
D 36 13C2 PFDoA										
615.00 > 570.00	3.974	3.952	0.022	1.510	2214567	2.48		99.2	21555	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.974	3.952	0.022	1.000	890650	0.9569		95.7	3812	
613.00 > 169.00	3.974	3.952	0.022	1.000	231465		3.85(2.13-6.40)		5999	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.235	4.204	0.031	1.000	926080	0.9369		93.7	3135	
663.00 > 169.00	4.235	4.204	0.031	1.000	297983		3.11(1.25-3.76)		9823	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.443	0.030	1.699	2763905	2.51		100	20534	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.443	0.030	1.000	257715	0.9410		94.1	6575	
713.00 > 219.00	4.462	4.443	0.019	0.997	166938		1.54(0.71-2.13)		5977	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.887	4.862	0.025	1.000	1793944	0.9764		97.6	1638	
813.00 > 169.00	4.887	4.862	0.025	1.000	318244		5.64(2.86-8.58)		4726	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.887	4.862	0.025	1.856	4714512	2.48		99.1	10273	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.232	5.199	0.033	1.000	1847520	0.8834		88.3	575	
913.00 > 169.00	5.232	5.199	0.033	1.000	221168		8.35(0.00-0.00)		1434	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL4_00003 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 16:43:13 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_054.d

Injection Date: 07-Feb-2018 15:30:53 Instrument ID: A8_N

Lims ID: CCV L4

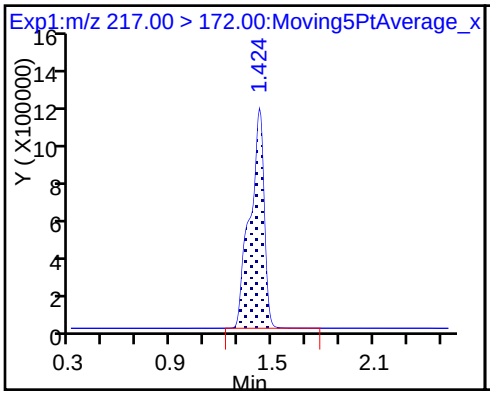
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 19

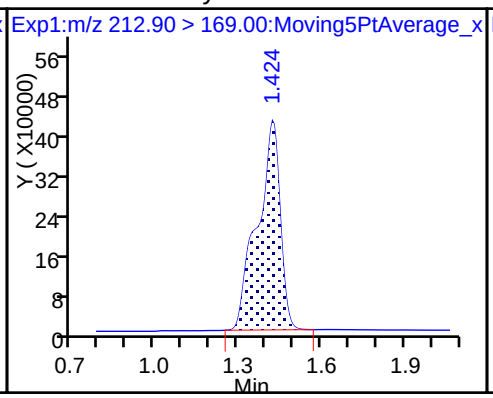
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

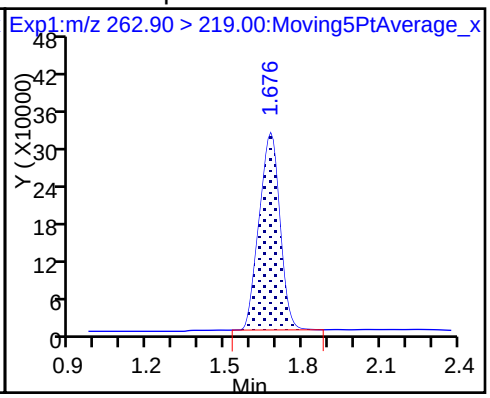
D 1 13C4 PFBA



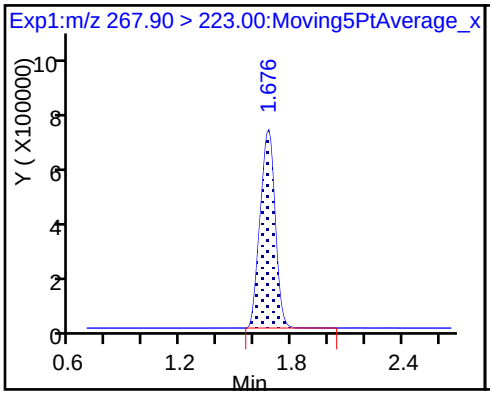
2 Perfluorobutyric acid



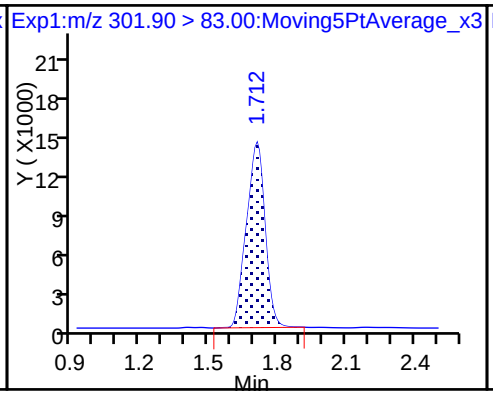
4 Perfluoropentanoic acid



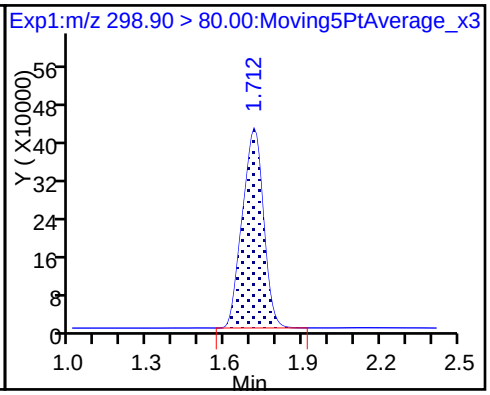
D 3 13C5-PFPeA



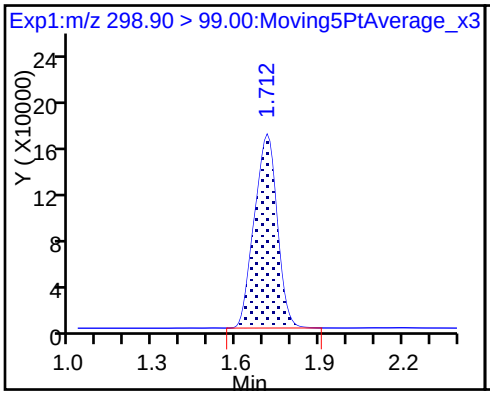
D 47 13C3-PFBS



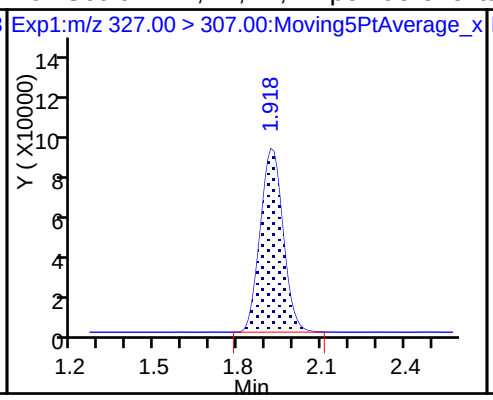
5 Perfluorobutanesulfonic acid



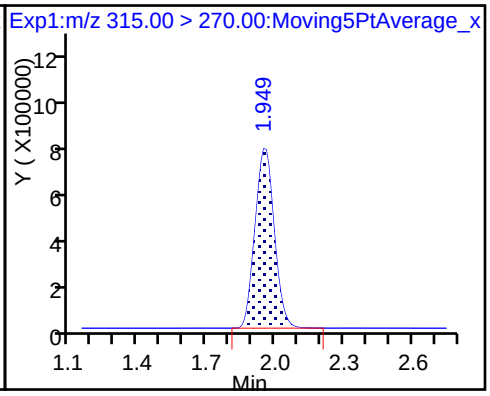
5 Perfluorobutanesulfonic acid



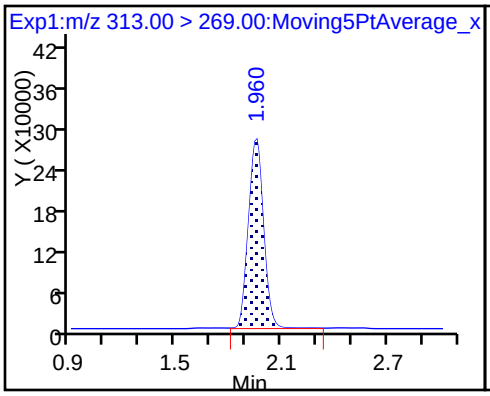
61 Sodium 1H,1H,2H,2H-perfluorohexa



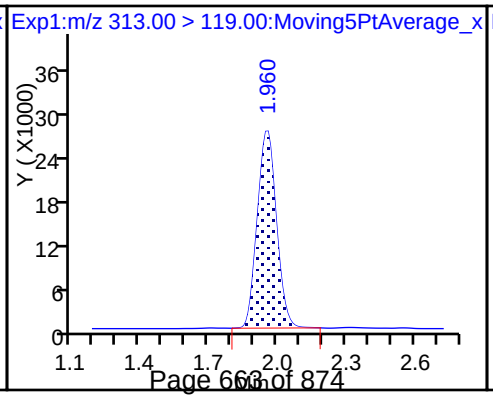
D 7 13C2 PFHxA



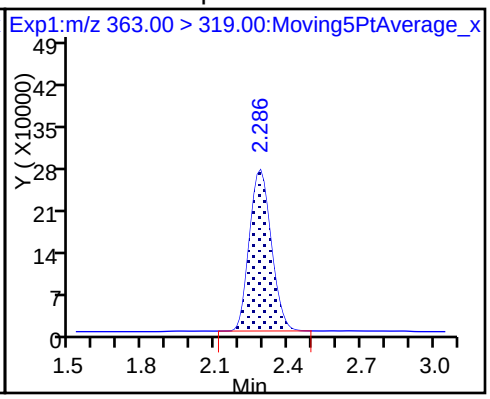
6 Perfluorohexanoic acid



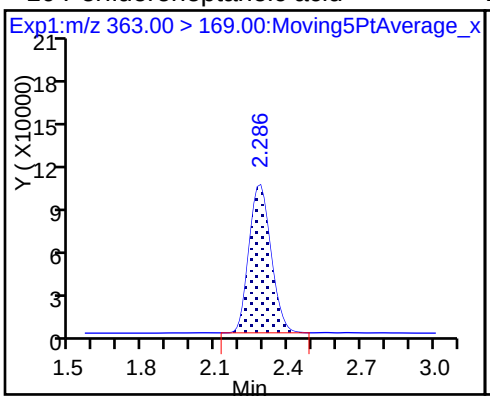
6 Perfluorohexanoic acid



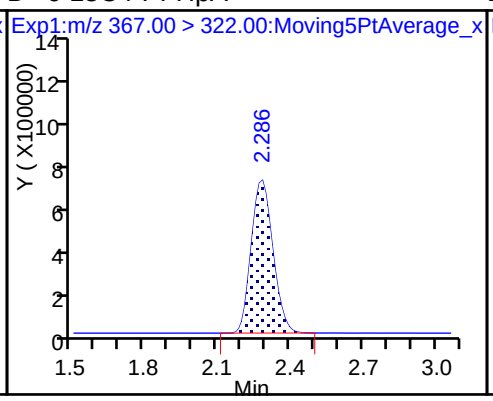
10 Perfluoroheptanoic acid



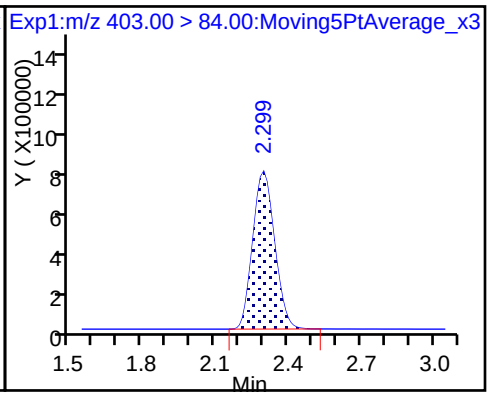
10 Perfluoroheptanoic acid



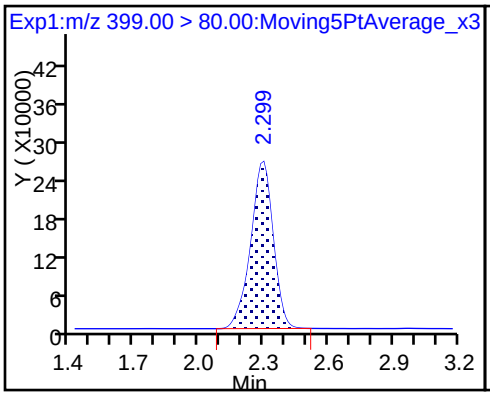
D 9 13C4-PFHpA



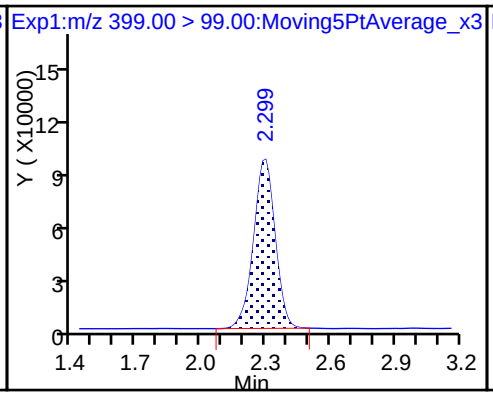
D 11 18O2 PFHxS



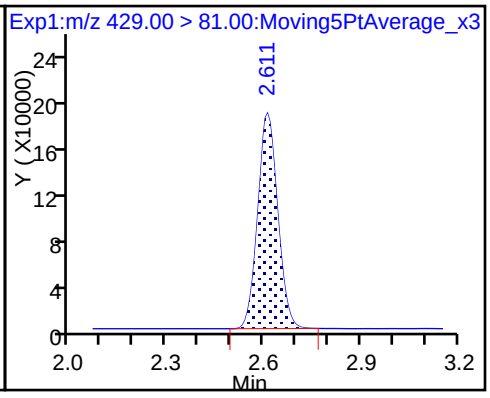
8 Perfluorohexanesulfonic acid



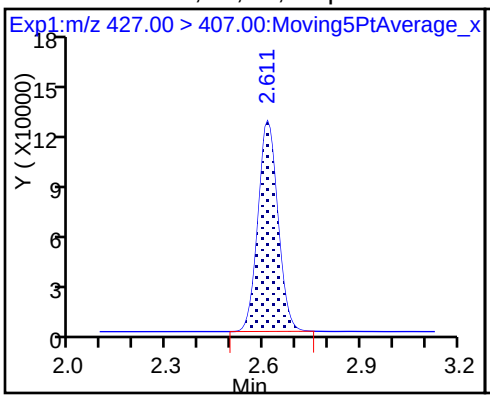
8 Perfluorohexanesulfonic acid



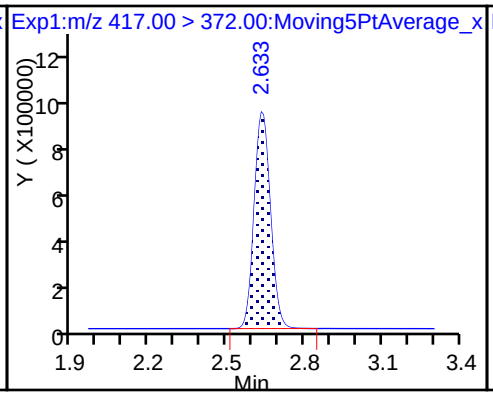
D 12 M2-6:2FTS



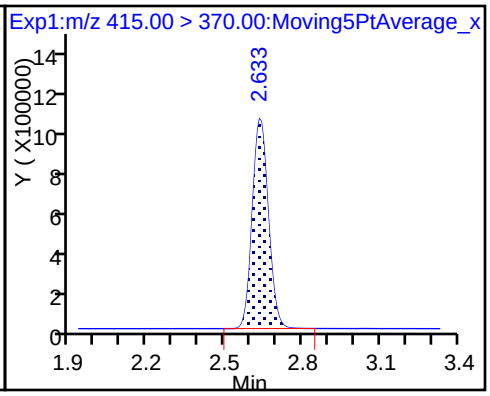
13 Sodium 1H,1H,2H,2H-perfluorooctane



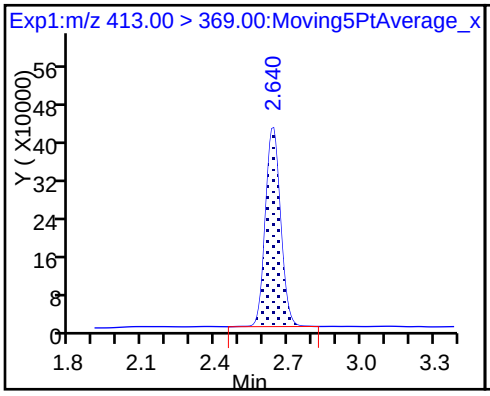
D 14 13C4 PFOA



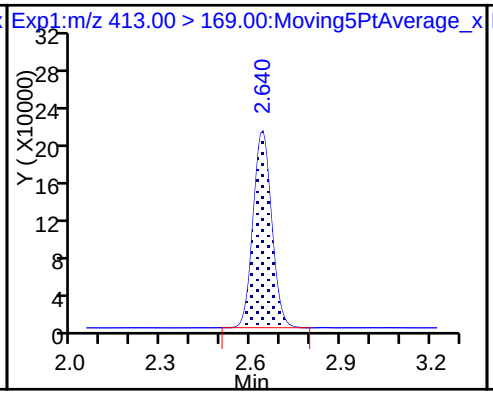
* 62 13C2-PFOA



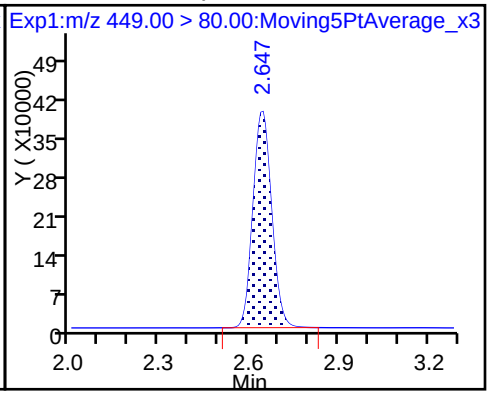
15 Perfluorooctanoic acid



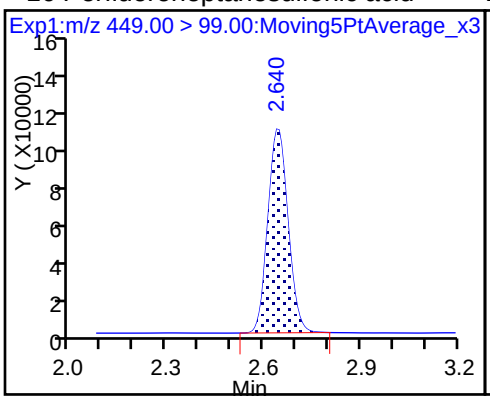
15 Perfluorooctanoic acid



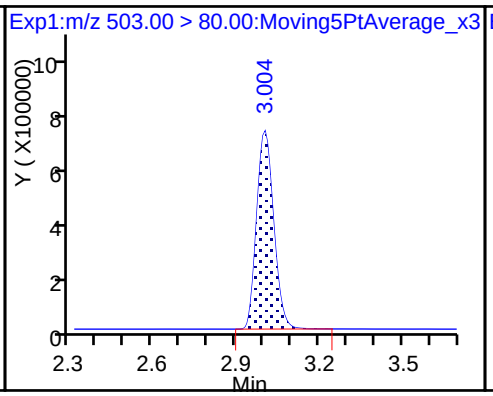
16 Perfluoroheptanesulfonic acid



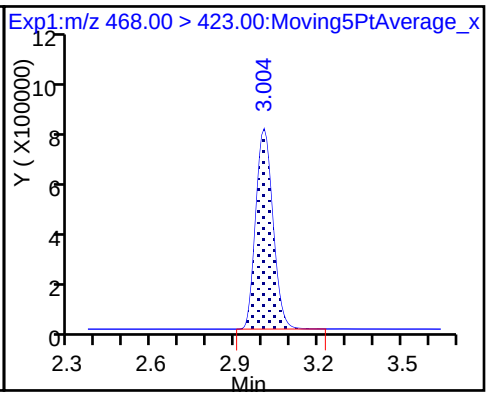
16 Perfluoroheptanesulfonic acid



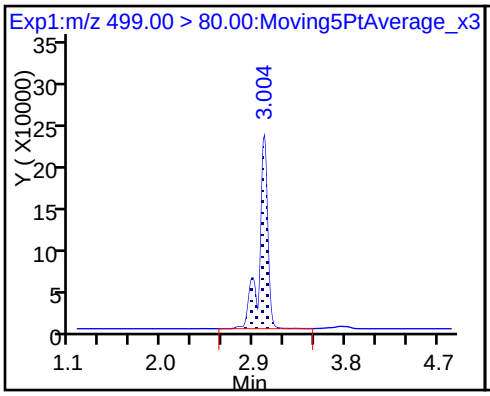
D 18 13C4 PFOS



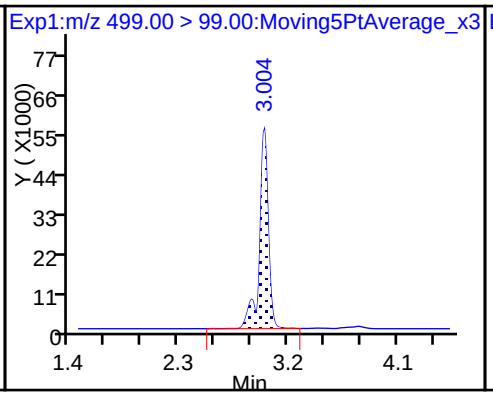
D 19 13C5 PFNA



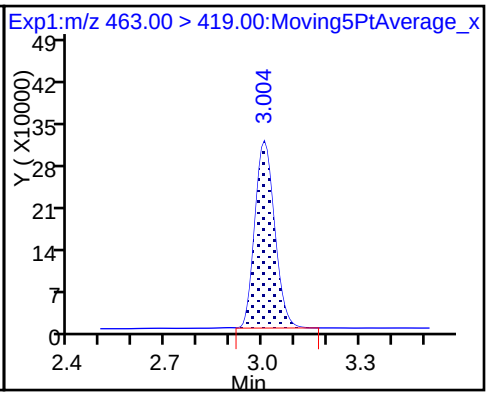
17 Perfluorooctane sulfonic acid



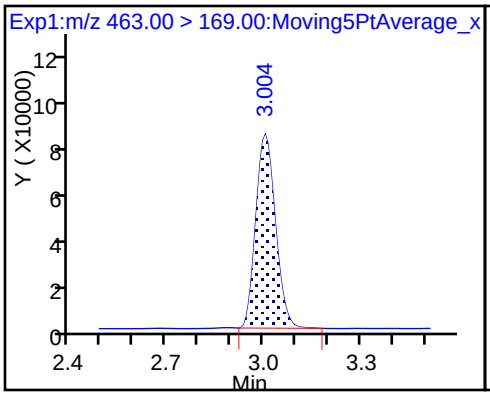
17 Perfluorooctane sulfonic acid



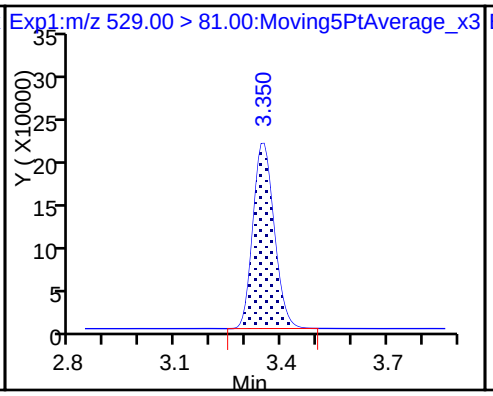
20 Perfluorononanoic acid



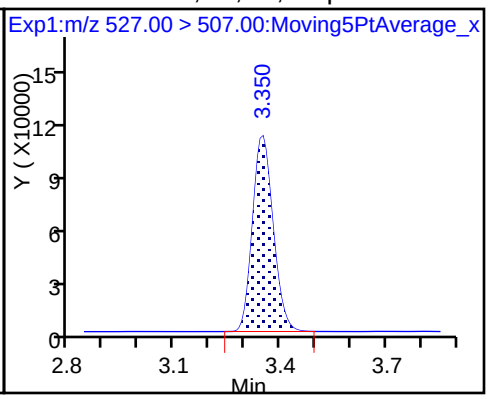
20 Perfluorononanoic acid



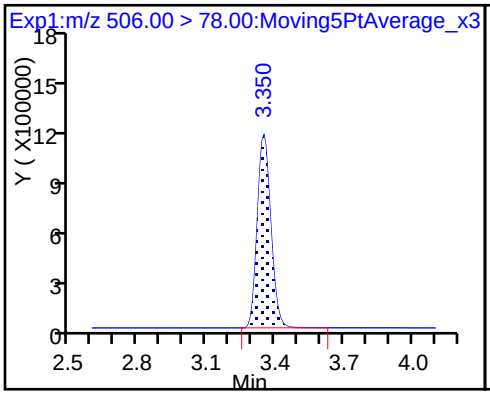
D 26 M2-8:2FTS



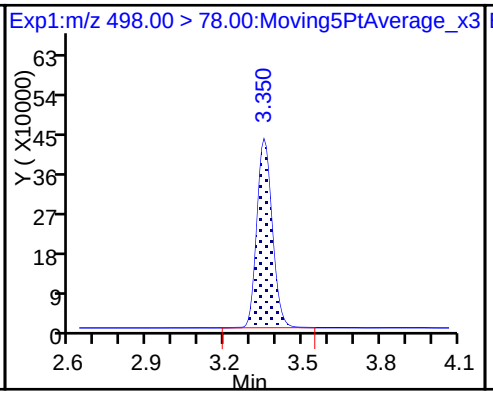
25 Sodium 1H,1H,2H,2H-perfluorodecane



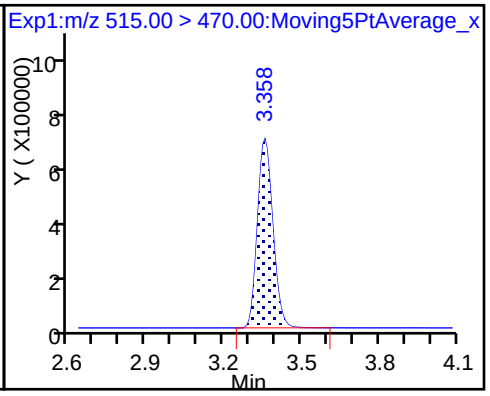
D 21 13C8 FOSA



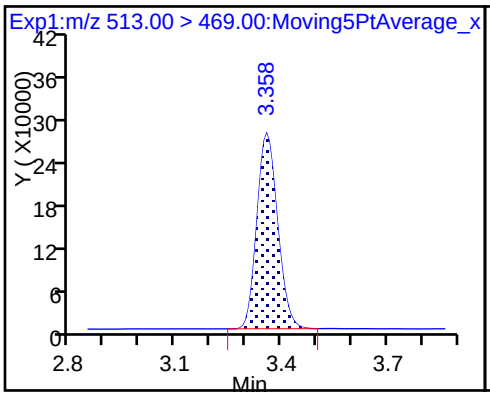
22 Perfluorooctane Sulfonamide



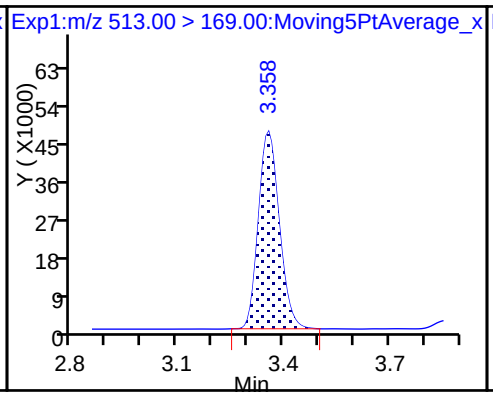
D 23 13C2 PFDA



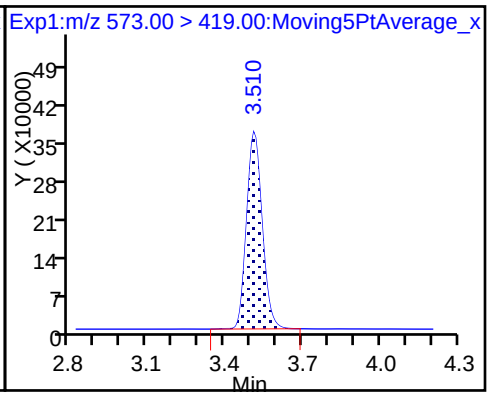
24 Perfluorodecanoic acid



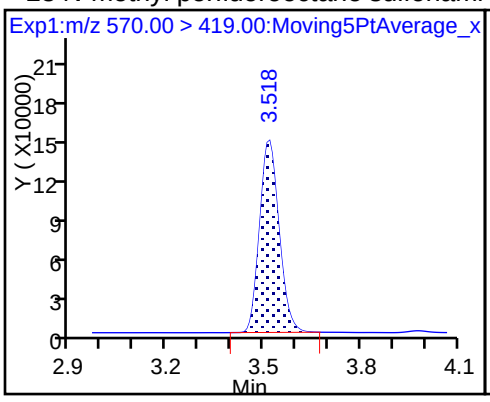
24 Perfluorodecanoic acid



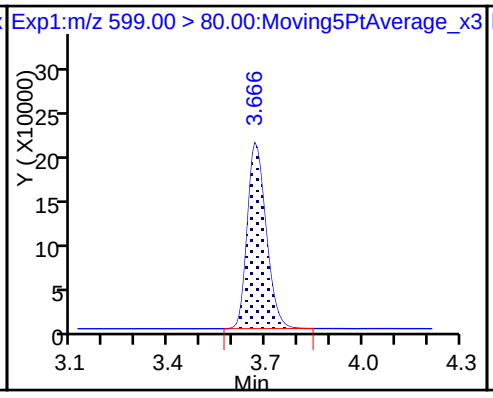
D 27 d3-NMeFOSAA



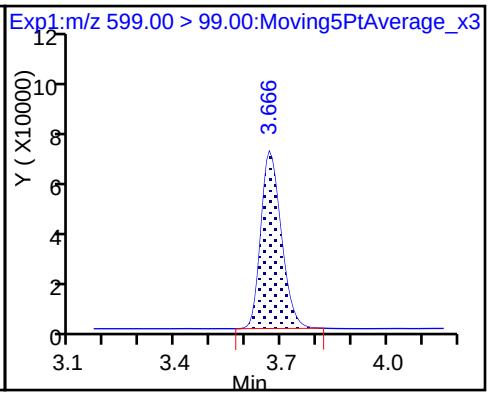
28 N-methyl perfluorooctane sulfonami



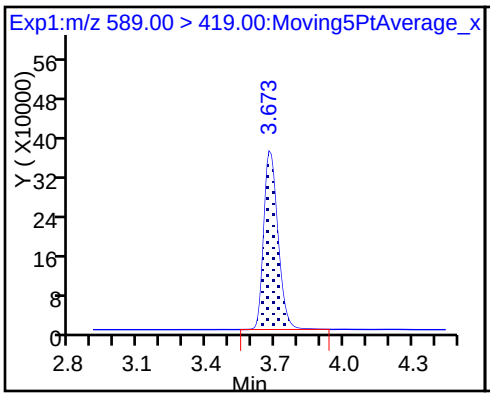
29 Perfluorodecane Sulfonic acid



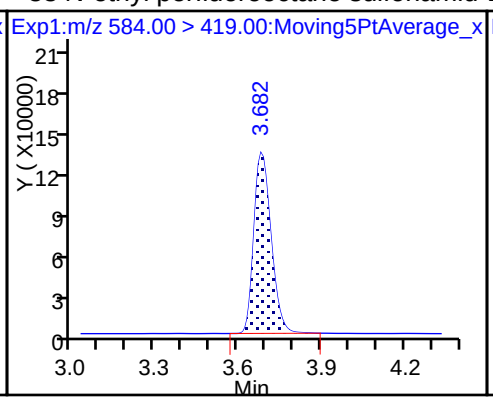
29 Perfluorodecane Sulfonic acid



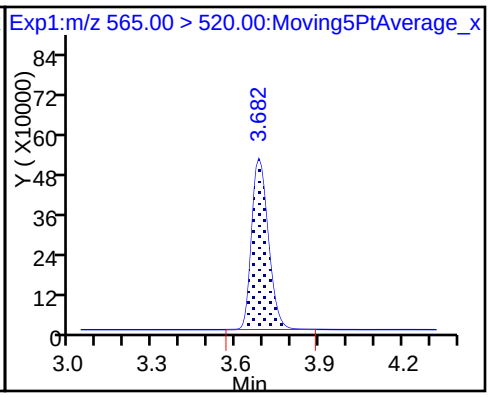
D 32 d5-NEtFOSAA



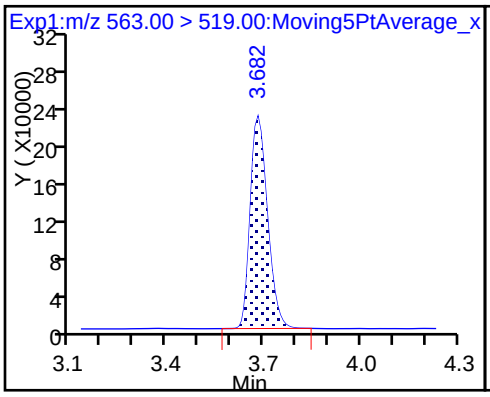
33 N-ethyl perfluorooctane sulfonamid



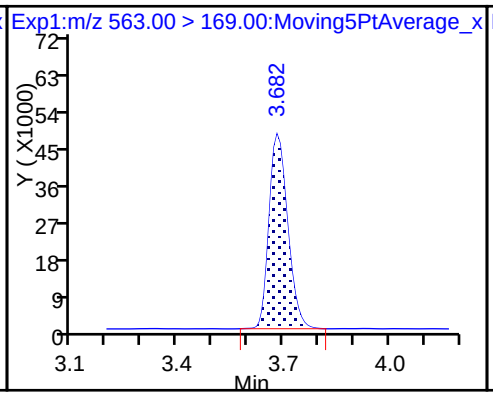
D 30 13C2 PFUnA



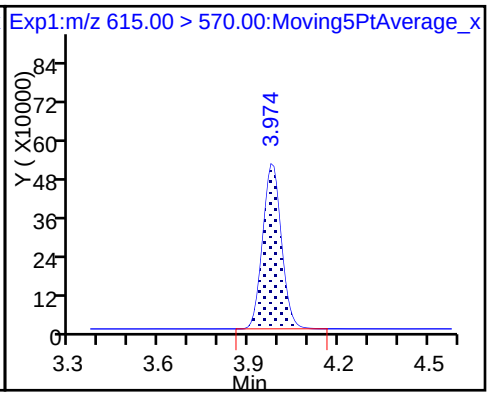
31 Perfluoroundecanoic acid



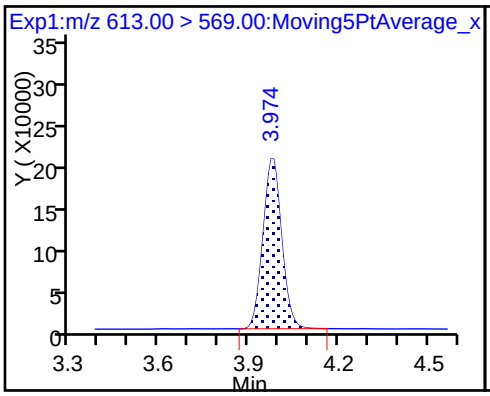
31 Perfluoroundecanoic acid



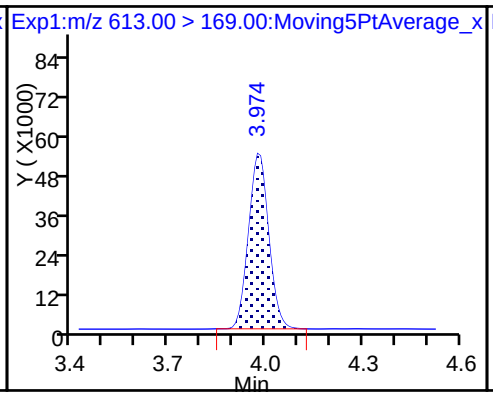
D 36 13C2 PFDoA



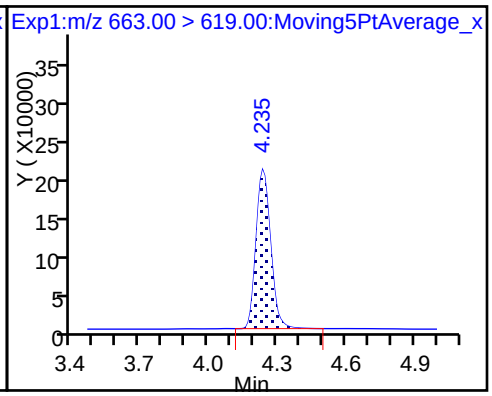
37 Perfluorododecanoic acid



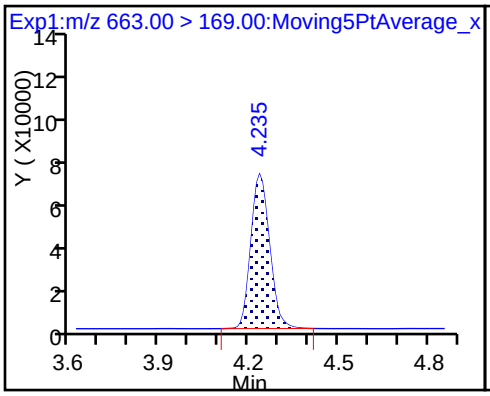
37 Perfluorododecanoic acid



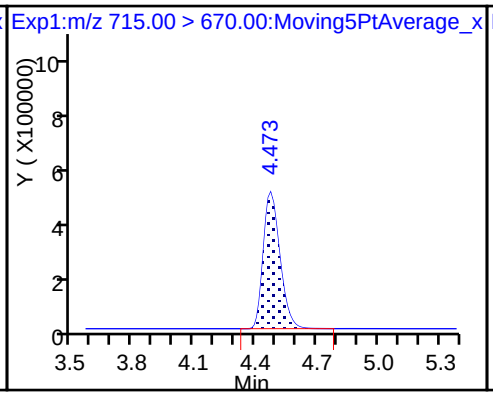
41 Perfluorotridecanoic acid



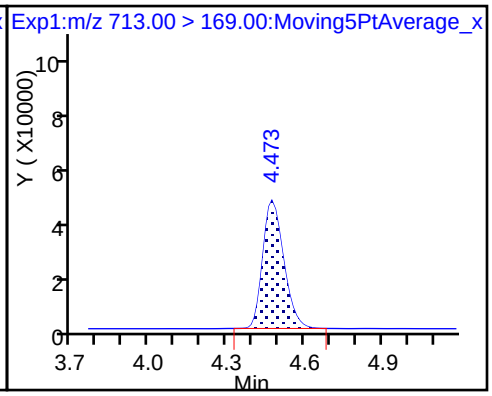
41 Perfluorotridecanoic acid



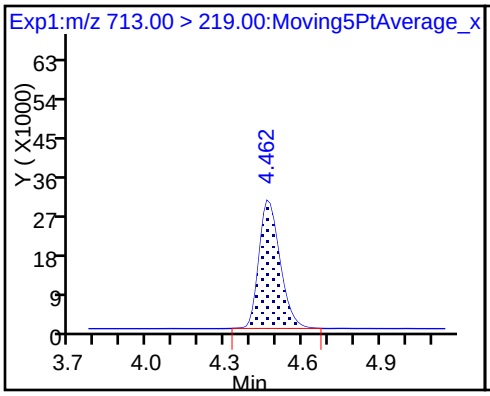
D 43 13C2-PFTeDA



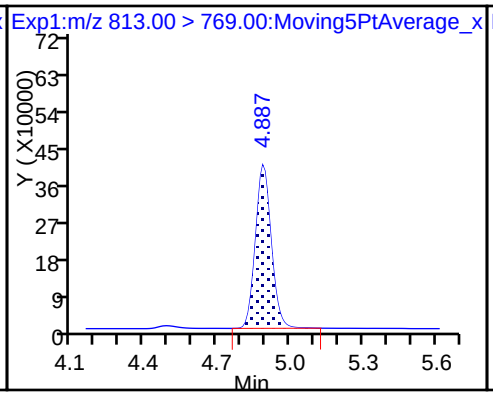
42 Perfluorotetradecanoic acid



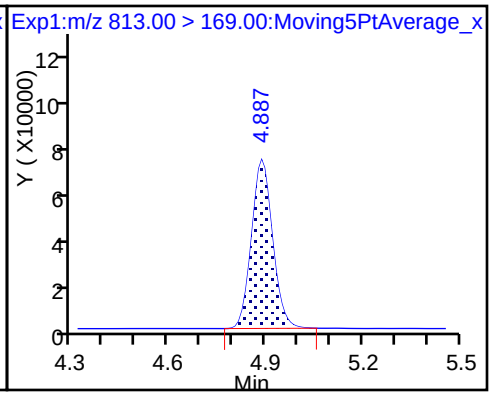
42 Perfluorotetradecanoic acid



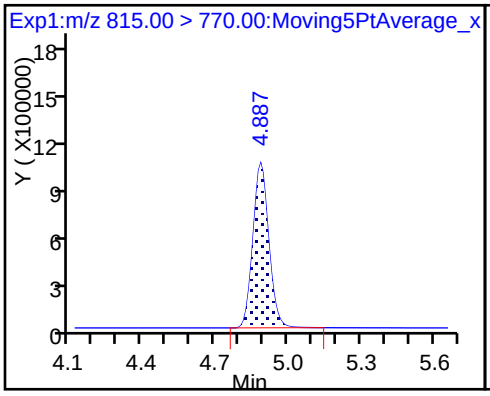
45 Perfluorohexadecanoic acid



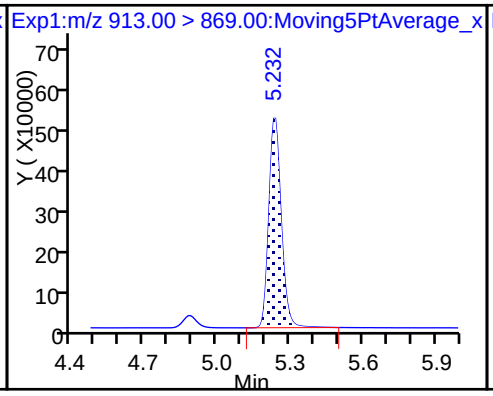
45 Perfluorohexadecanoic acid



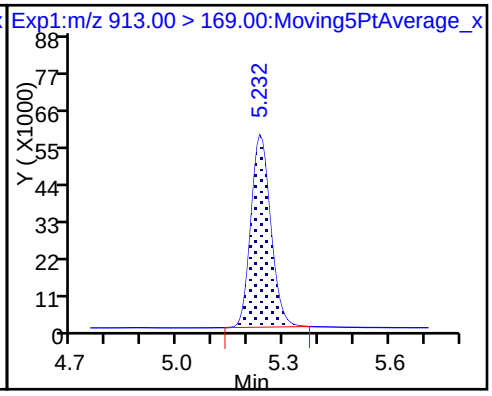
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207668/1 Calibration Date: 02/08/2018 16:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.8775		0.0463	0.0500	-7.4	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.180		0.0496	0.0500	-0.8	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.47		0.0445	0.0442	0.8	50.0
4:2 FTS	AveID	16.11	14.77		0.428	0.467	-8.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.001		0.0484	0.0500	-3.2	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.051		0.0505	0.0500	1.0	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.116		0.0447	0.0455	-1.8	50.0
6:2FTS	AveID	1.798	1.435		0.378	0.474	-20.2	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.099		0.0483	0.0500	-3.5	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.280		0.0447	0.0476	-6.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.099		0.0540	0.0500	8.0	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.037		0.0436	0.0464	-6.0	50.0
8:2FTS	AveID	1.228	1.174		0.458	0.479	-4.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	1.028		0.0503	0.0500	0.6	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9041		0.0456	0.0500	-8.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	0.9877		0.461	0.500	-7.9	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.5922		0.0432	0.0482	-10.3	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.8394		0.452	0.500	-9.6	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.162		0.0564	0.0500	12.9	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.034		0.0492	0.0500	-1.6	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.113		0.0499	0.0500	-0.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2579		0.0520	0.0500	4.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.260		0.0515	0.0500	3.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9363		0.0422	0.0500	-15.6	50.0
13C4 PFBA	Ave	1.444	1.477		2.56	2.50	2.3	50.0
13C5 PFPeA	Ave	0.8768	0.8985		2.56	2.50	2.5	50.0
13C3-PFBS	Ave	0.0196	0.0187		2.22	2.33	-4.5	50.0
13C2 PFHxA	Ave	0.9470	0.9429		2.49	2.50	-0.4	50.0
13C4-PFHpA	Ave	0.9180	0.8927		2.43	2.50	-2.8	50.0
18O2 PFHxS	Ave	1.134	1.149		2.40	2.37	1.3	50.0
M2-6:2FTS	Ave	0.1948	0.2035		2.48	2.38	4.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207668/1 Calibration Date: 02/08/2018 16:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8924		2.48	2.50	-0.6	50.0
13C4 PFOS	Ave	0.7450	0.7483		2.40	2.39	0.4	50.0
13C5 PFNA	Ave	0.7311	0.7260		2.48	2.50	-0.7	50.0
M2-8:2FTS	Ave	0.2169	0.2003		2.21	2.40	-7.7	50.0
13C2 PFDA	Ave	0.6297	0.6377		2.53	2.50	1.3	50.0
13C8 FOSA	Ave	1.030	1.075		2.61	2.50	4.4	50.0
d3-NMeFOSAA	Ave	0.3401	0.3213		2.36	2.50	-5.5	50.0
d5-NEtFOSAA	Ave	0.3488	0.3577		2.56	2.50	2.5	50.0
13C2 PFUnA	Ave	0.4871	0.5097		2.62	2.50	4.6	50.0
13C2 PFDoA	Ave	0.4977	0.4611		2.32	2.50	-7.4	50.0
13C2-PFTeDA	Ave	0.6138	0.6313		2.57	2.50	2.8	50.0
13C2-PFHxDA	Ave	1.061	0.9544		2.25	2.50	-10.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b\2018.02.08LLAA_005.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 08-Feb-2018 16:40:40 ALS Bottle#: 21 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 09-Feb-2018 10:49:35 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: roycea Date: 08-Feb-2018 18:38:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.421	1.412	0.009	0.543	7039804	2.56		102	25541	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.421	1.412	0.009	1.000	123550	0.0463		92.6	20.2	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.672	1.660	0.012	1.005	101020	0.0496		99.2	62.1	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.664	1.660	0.004	0.636	4281325	2.56		102	55957	
D 47 13C3-PFBS										
301.90 > 83.00	1.699	1.695	0.004	0.649	82948	2.22		95.5	2558	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.708	1.695	0.013	1.005	122167	0.0445		101	957	
298.90 > 99.00	1.708	1.695	0.013	1.005	50342		2.43(1.25-3.74)		696	
D 60 M2-4:2FTS										
329.00 > 81.00	1.904	1.899	0.005	0.728	612478	NC			9102	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.904	1.899	0.005	1.000	246025	0.4281		91.7	15069	
D 7 13C2 PFHxA										
315.00 > 270.00	1.945	1.930	0.015	0.744	4492437	2.49		99.6	39226	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.945	1.940	0.005	1.000	89926	0.0484		96.8	186	
313.00 > 119.00	1.935	1.940	-0.005	0.995	8975		10.02(5.03-15.10)		108	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.267	2.262	0.005	1.000	89372	0.0505		101	109	
363.00 > 169.00	2.267	2.262	0.005	1.000	33386		2.68(1.13-3.40)		172	
D 9 13C4-PFHpA										
367.00 > 322.00	2.267	2.262	0.005	0.867	4253350	2.43		97.2	21783	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.280	2.275	0.005	0.872	5179026	2.40		101	20070	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.280	2.275	0.005	1.000	111203	0.0447		98.2	879	
399.00 > 99.00	2.280	2.275	0.005	1.000	41606		2.67(1.50-4.49)		389	
D 12 M2-6:2FTS										
429.00 > 81.00	2.590	2.588	0.002	0.990	921291	2.48		105	18574	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.590	2.588	0.002	1.000	263889	0.3784		79.8	4618	
D 14 13C4 PFOA										
417.00 > 372.00	2.616	2.606	0.010	1.000	4251934	2.48		99.4	29574	
* 62 13C2-PFOA										
415.00 > 370.00	2.616	2.606	0.010		4764733	2.50			32299	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.616	2.606	0.010	1.000	93480	0.0483		96.5	37.7	
413.00 > 169.00	2.616	2.606	0.010	1.000	51956		1.80(0.84-2.52)		520	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.623	2.613	0.010	1.000	86905	0.0447		94.0	2077	
449.00 > 99.00	2.623	2.613	0.010	1.000	25697		3.38(1.94-5.82)		895	
D 18 13C4 PFOS										
503.00 > 80.00	2.978	2.976	0.002	1.138	3408746	2.40		100	21717	
D 19 13C5 PFNA										
468.00 > 423.00	2.978	2.976	0.002	1.138	3459241	2.48		99.3	20903	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.978	2.976	0.002	1.000	68634	0.0436		94.0	174	
499.00 > 99.00	2.986	2.976	0.010	1.003	16265		4.22(2.31-6.93)		167	
20 Perfluorononanoic acid										
463.00 > 419.00	2.978	2.976	0.002	1.000	76057	0.0540		108	89.8	
463.00 > 169.00	2.978	2.976	0.002	1.000	15757		4.83(1.90-5.69)		283	
D 26 M2-8:2FTS										
529.00 > 81.00	3.325	3.316	0.009	1.271	914414	2.21		92.3	11875	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.325	3.323	0.002	1.000	214715	0.4579		95.6	4827	
D 21 13C8 FOSA										
506.00 > 78.00	3.333	3.331	0.002	1.274	5122919	2.61		104	29198	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.340	3.331	0.009	1.002	92630	0.0456		91.3	1186	
D 23 13C2 PFDA										
515.00 > 470.00	3.333	3.331	0.002	1.274	3038257	2.53		101	22273	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.340	3.331	0.009	1.002	62461	0.0503		101	288	
513.00 > 169.00	3.333	3.331	0.002	1.000	11128		5.61(2.36-7.09)		565	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.484	3.483	0.001	1.332	1530770	2.36		94.5	10988	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.492	3.491	0.001	1.002	302392	0.4607		92.1	2836	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.643	3.641	0.002	1.000	40709	0.0432		89.7	1516	
599.00 > 99.00	3.643	3.641	0.002	1.000	15704		2.59(1.39-4.16)		809	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.650	3.648	0.002	1.395	1704211	2.56		103	7683	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.657	3.655	0.002	1.002	286096	0.4521		90.4	4423	
D 30 13C2 PFUnA										
565.00 > 520.00	3.657	3.655	0.002	1.398	2428798	2.62		105	24501	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.657	3.655	0.002	1.000	56451	0.0564		113	225	
563.00 > 169.00	3.657	3.655	0.002	1.000	10718		5.27(0.00-0.00)		618	
D 36 13C2 PFDoA										
615.00 > 570.00	3.945	3.952	-0.007	1.508	2196926	2.32		92.6	17992	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.945	3.952	-0.007	1.000	45424	0.0492		98.4	149	
613.00 > 169.00	3.945	3.952	-0.007	1.000	10794		4.21(2.13-6.40)		503	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.206	4.204	0.002	1.000	48916	0.0499		99.8	131	
663.00 > 169.00	4.206	4.204	0.002	1.000	14629		3.34(1.25-3.76)		865	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.449	4.443	0.006	1.701	3007872	2.57		103	18504	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.449	4.443	0.006	1.000	15512	0.0520		104	573	
713.00 > 219.00	4.438	4.443	-0.005	0.997	9564		1.62(0.71-2.13)		452	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.857	4.862	-0.005	1.000	114616	0.0515		103	187	
813.00 > 169.00	4.857	4.862	-0.005	1.000	20692		5.54(2.86-8.58)		631	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.857	4.862	-0.005	1.857	4547486	2.25		89.9	9868	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.189	5.199	-0.010	1.000	85152	0.0422		84.4	29.0	
913.00 > 169.00	5.189	5.199	-0.010	1.000	10827		7.86(0.00-0.00)		210	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_CCVL_00002 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 10:49:36 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b\2018.02.08LLAA_005.d

Injection Date: 08-Feb-2018 16:40:40 Instrument ID: A8_N

Lims ID: CCVL

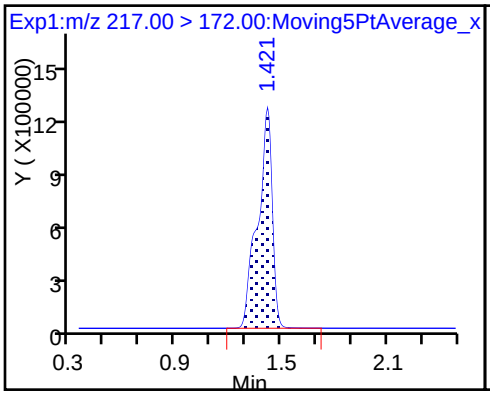
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 1

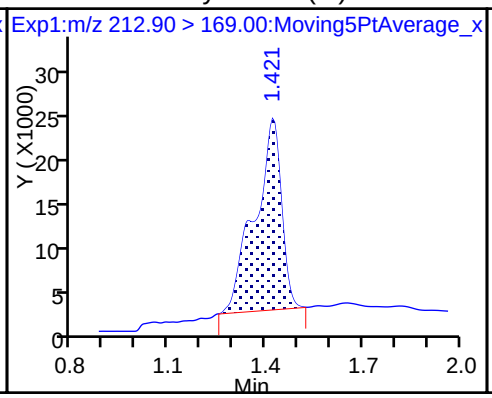
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

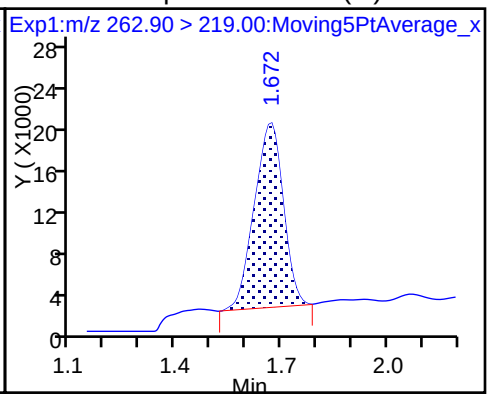
D 1 13C4 PFBA



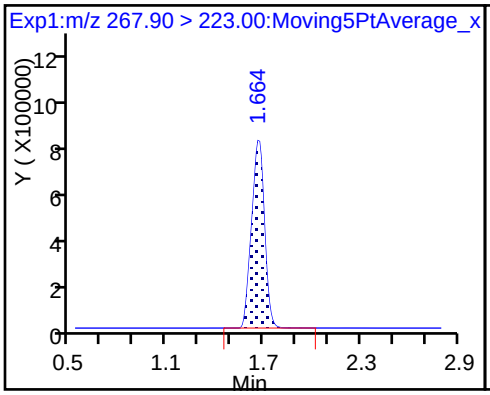
2 Perfluorobutyric acid (M)



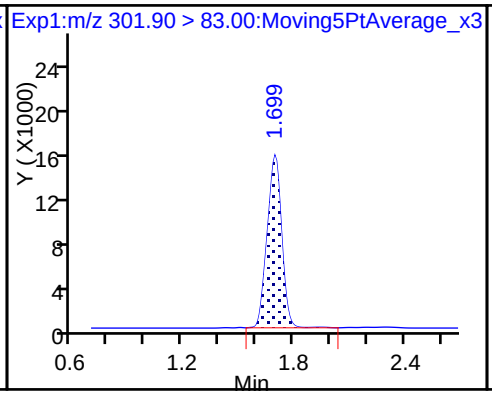
4 Perfluoropentanoic acid (M)



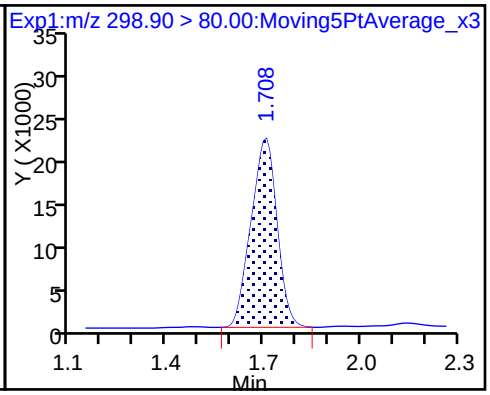
D 3 13C5-PFPeA



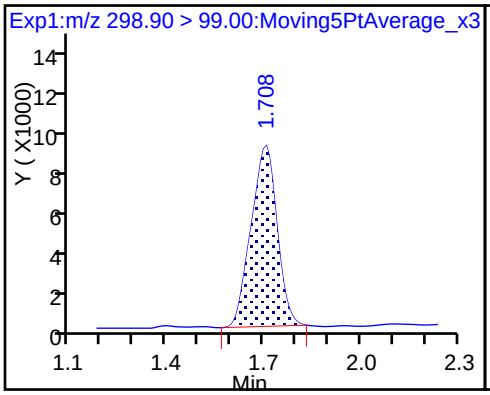
D 47 13C3-PFBS



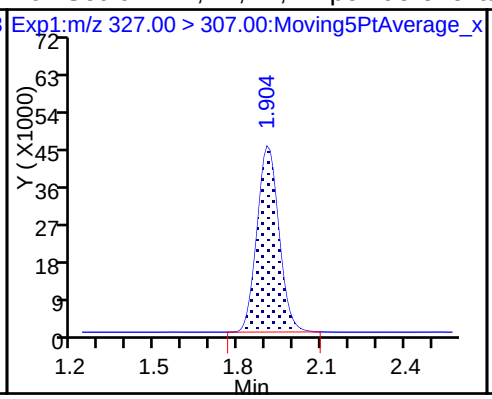
5 Perfluorobutanesulfonic acid



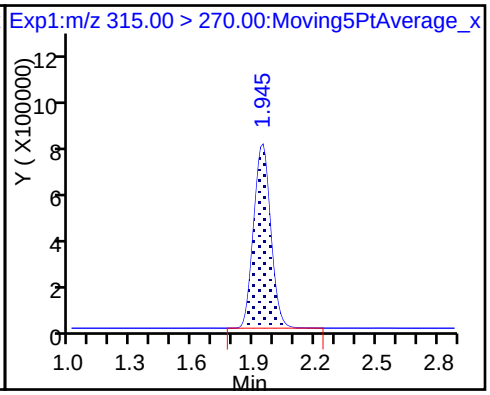
5 Perfluorobutanesulfonic acid



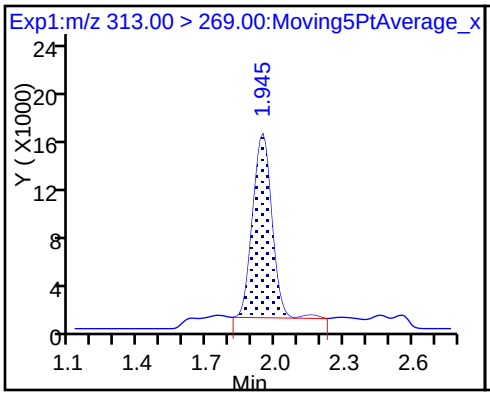
61 Sodium 1H,1H,2H,2H-perfluorohexa



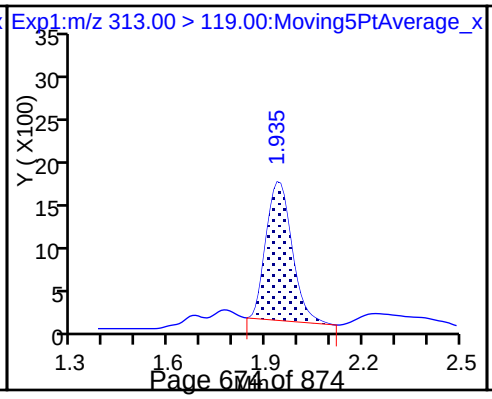
D 7 13C2 PFHxA



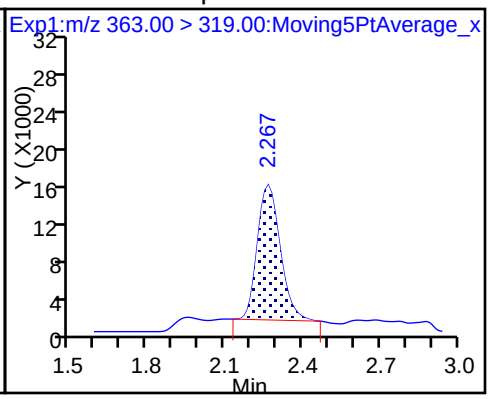
6 Perfluorohexanoic acid



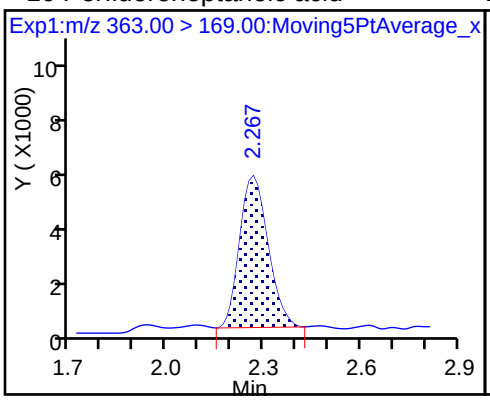
6 Perfluorohexanoic acid



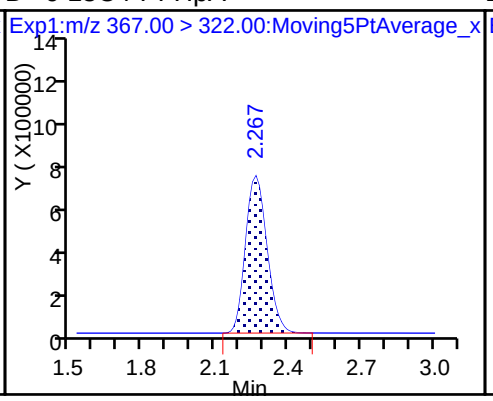
10 Perfluoroheptanoic acid



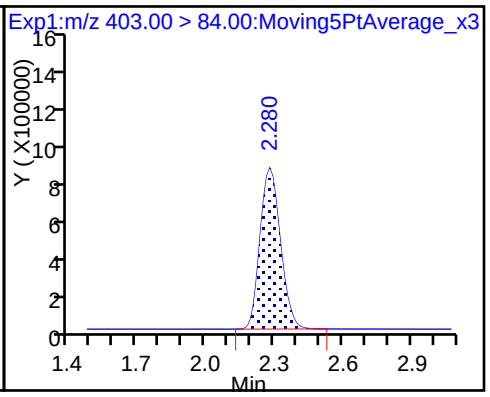
10 Perfluoroheptanoic acid



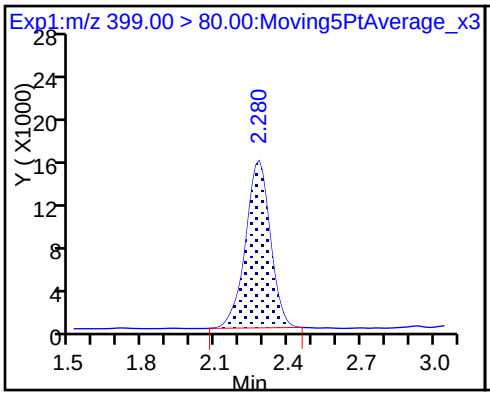
D 9 13C4-PFHpA



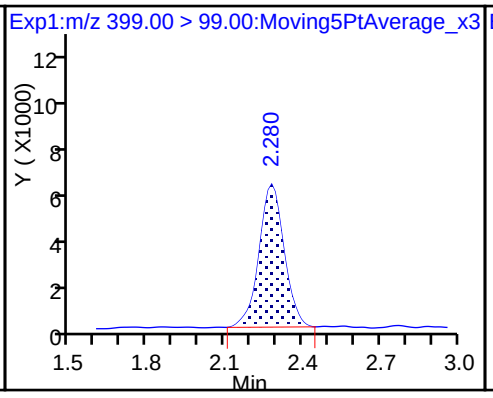
D 11 18O2 PFHxS



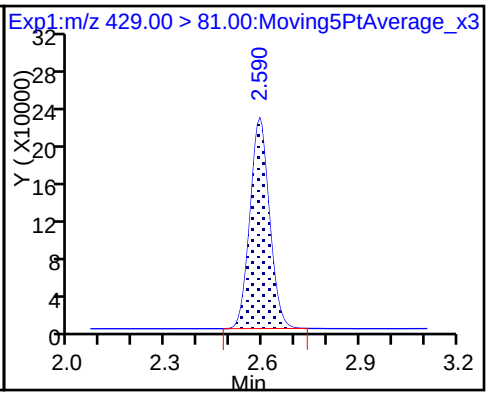
8 Perfluorohexanesulfonic acid



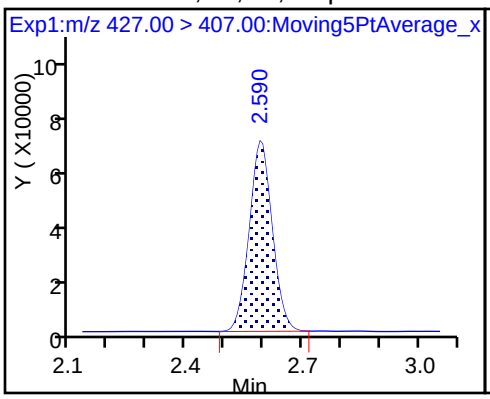
8 Perfluorohexanesulfonic acid



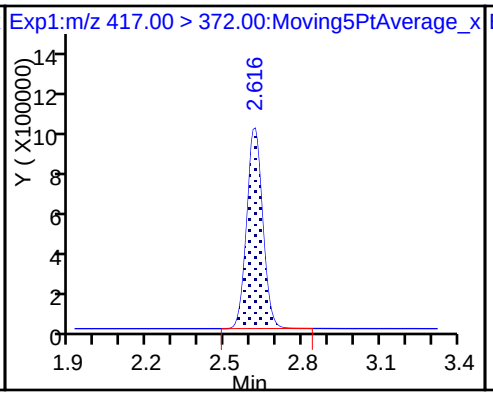
D 12 M2-6:2FTS



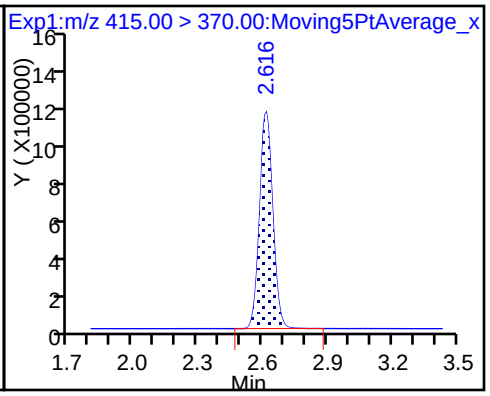
13 Sodium 1H,1H,2H,2H-perfluorooctane



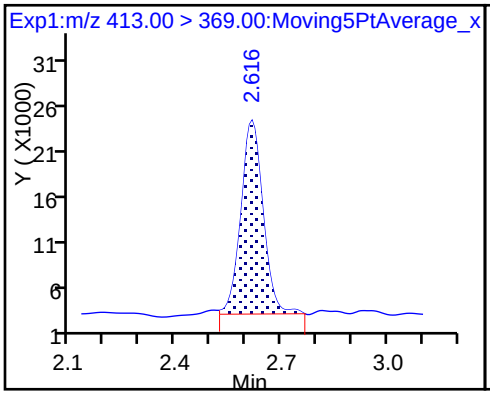
D 14 13C4 PFOA



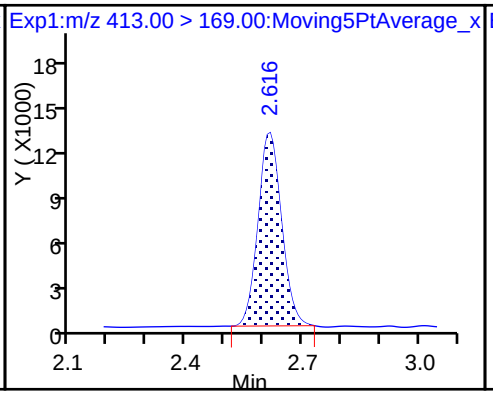
* 62 13C2-PFOA



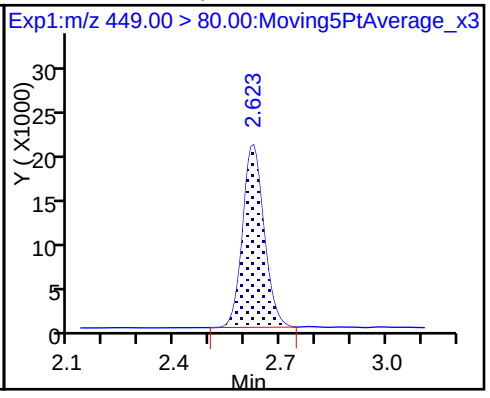
15 Perfluorooctanoic acid



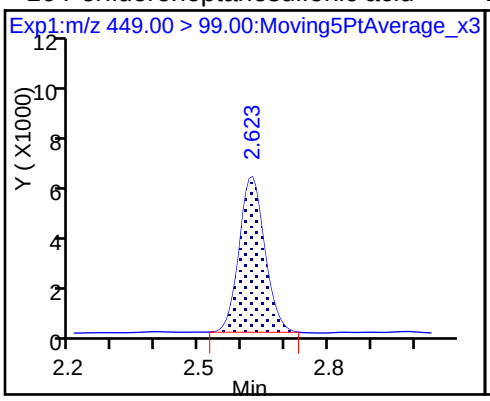
15 Perfluorooctanoic acid



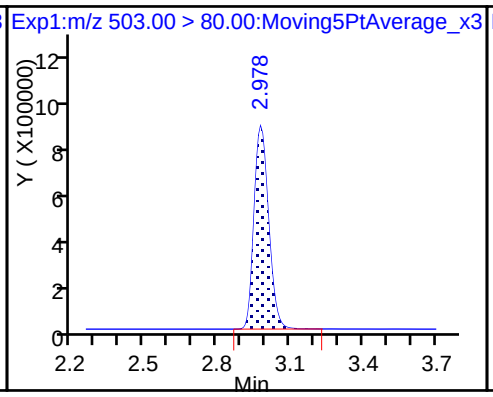
16 Perfluoroheptanesulfonic acid



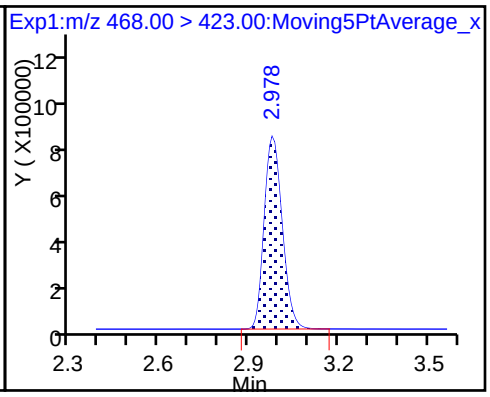
16 Perfluoroheptanesulfonic acid



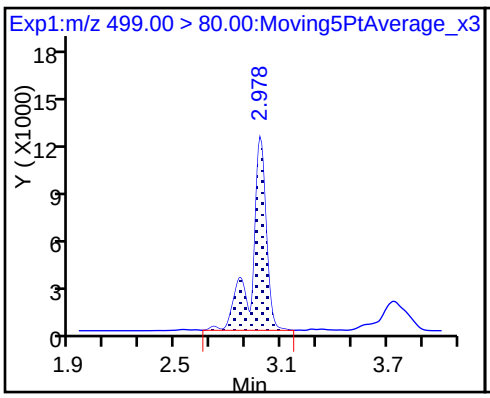
D 18 13C4 PFOS



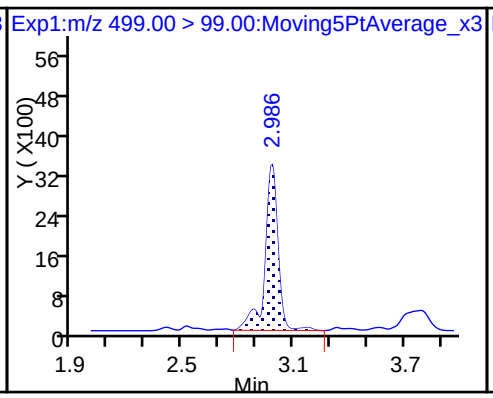
D 19 13C5 PFNA



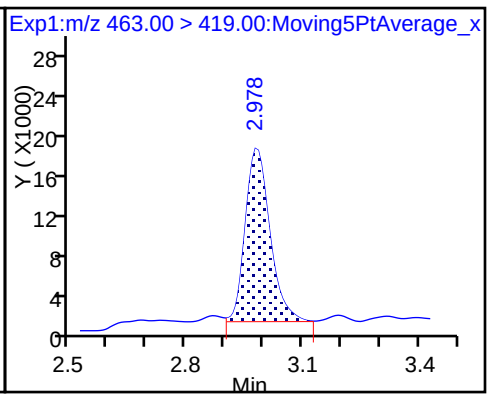
17 Perfluorooctane sulfonic acid



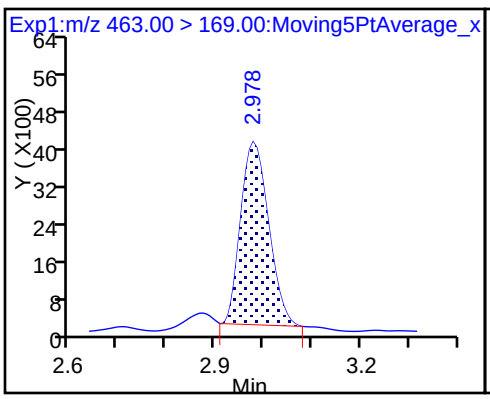
17 Perfluorooctane sulfonic acid



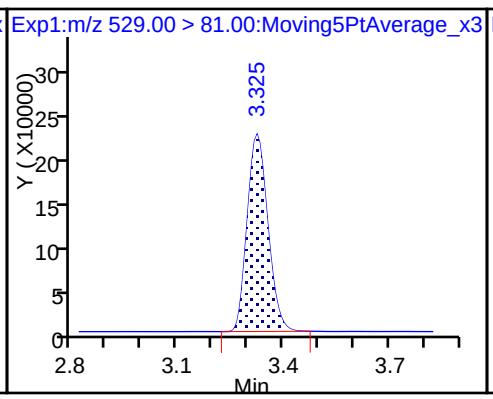
20 Perfluorononanoic acid



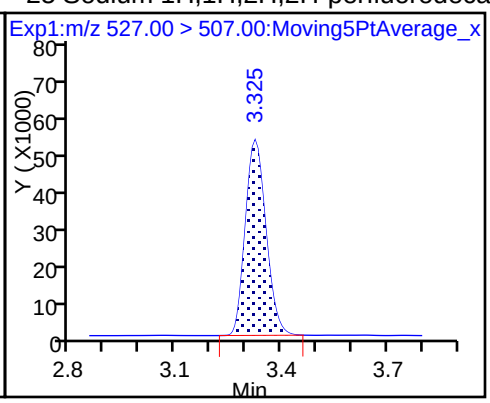
20 Perfluorononanoic acid



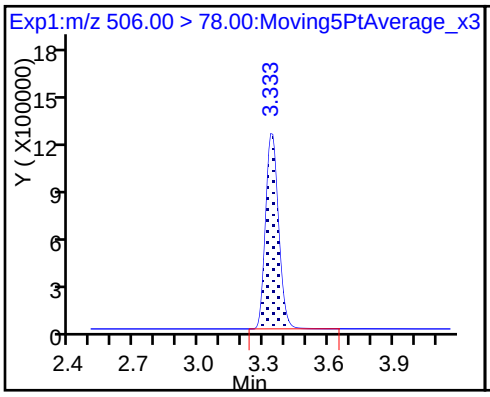
D 26 M2-8:2FTS



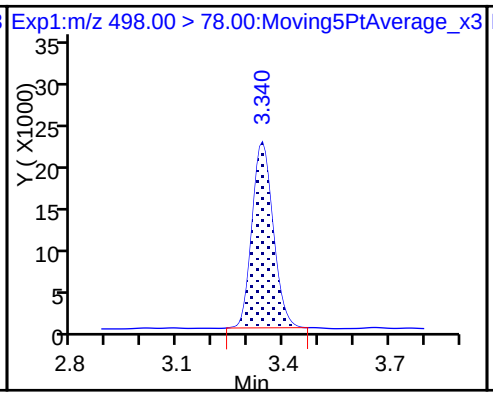
25 Sodium 1H,1H,2H,2H-perfluorodecane



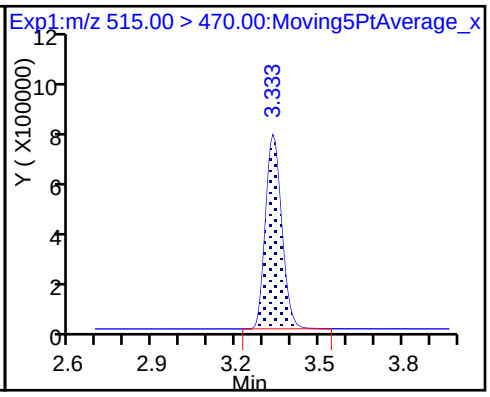
D 21 13C8 FOSA



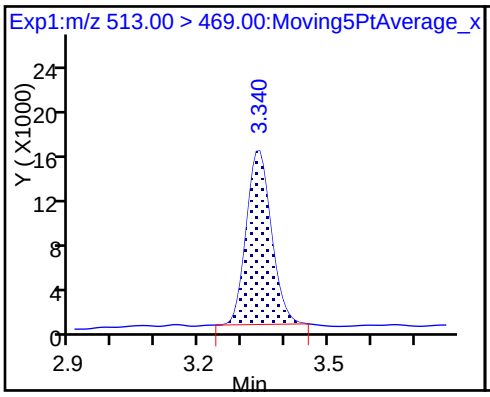
22 Perfluorooctane Sulfonamide



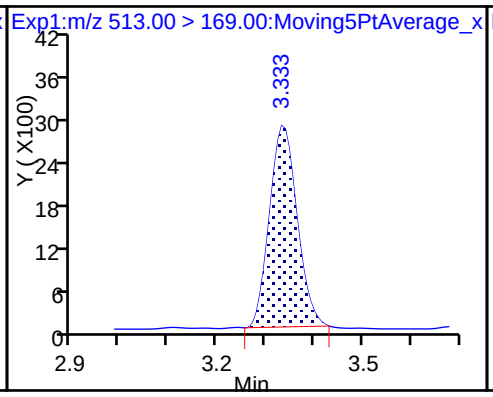
D 23 13C2 PFDA



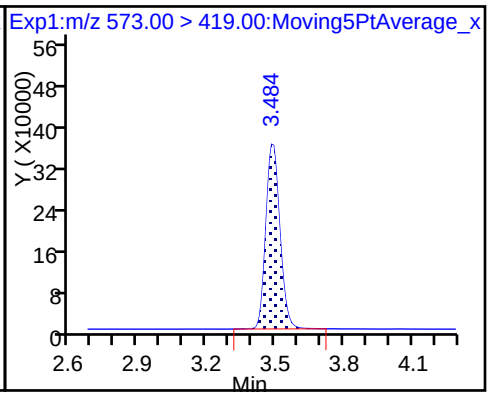
24 Perfluorodecanoic acid



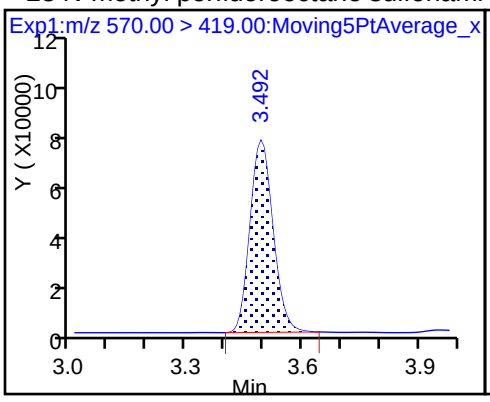
24 Perfluorodecanoic acid



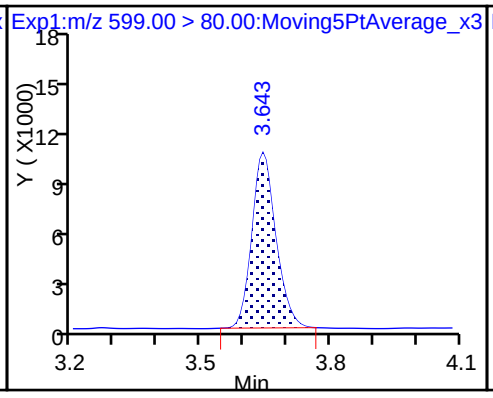
D 27 d3-NMeFOSAA



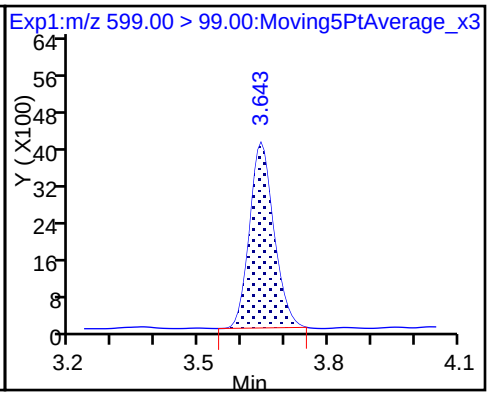
28 N-methyl perfluorooctane sulfonami



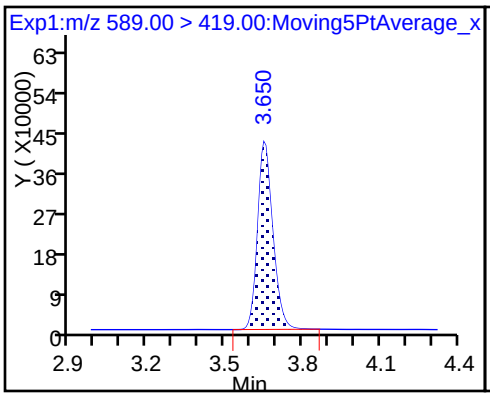
29 Perfluorodecane Sulfonic acid



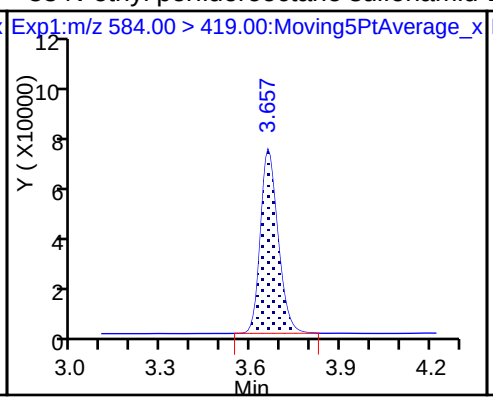
29 Perfluorodecane Sulfonic acid



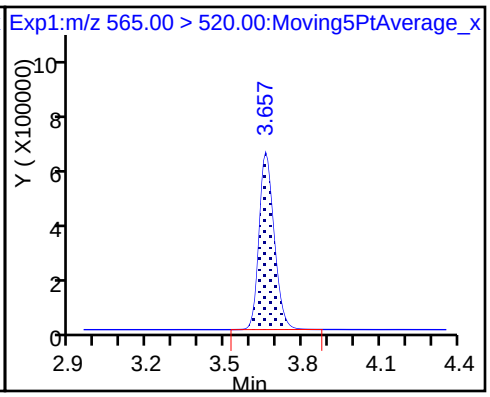
D 32 d5-NEtFOSAA



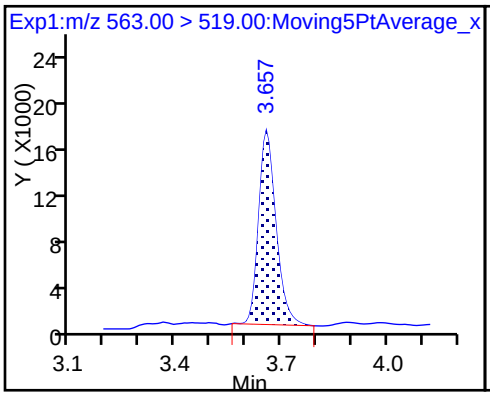
33 N-ethyl perfluorooctane sulfonamid



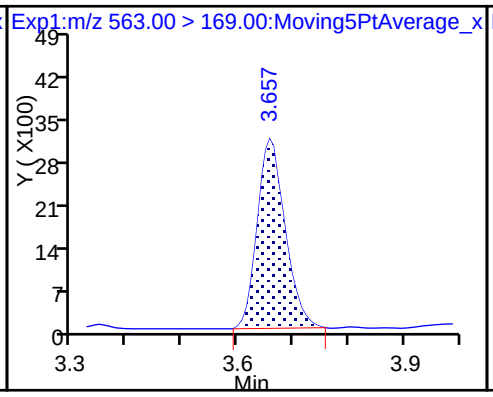
D 30 13C2 PFUnA



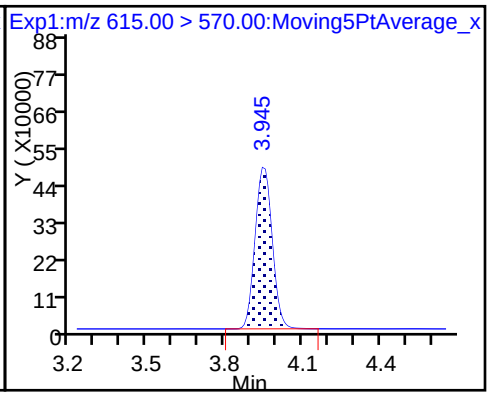
31 Perfluoroundecanoic acid



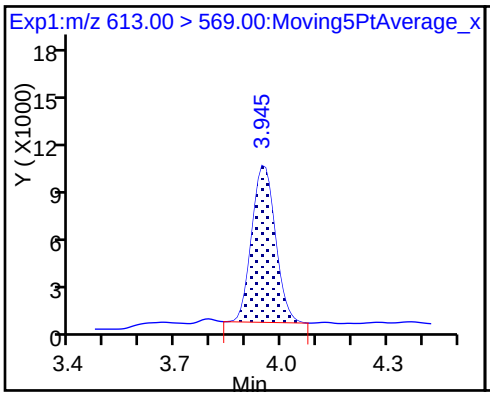
31 Perfluoroundecanoic acid



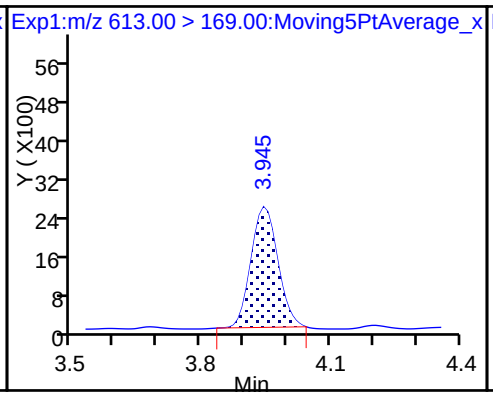
D 36 13C2 PFDoA



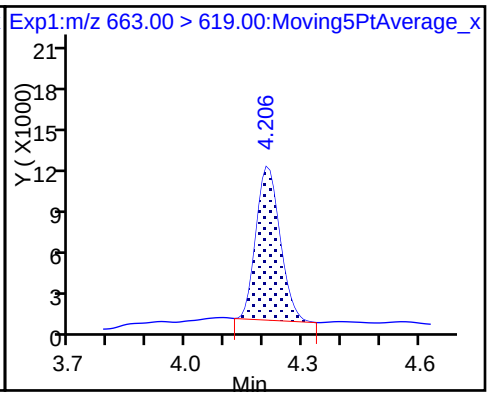
37 Perfluorododecanoic acid



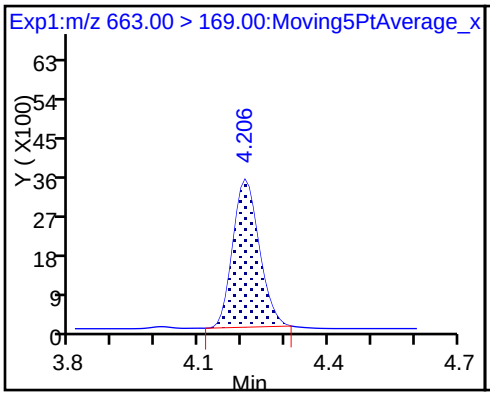
37 Perfluorododecanoic acid



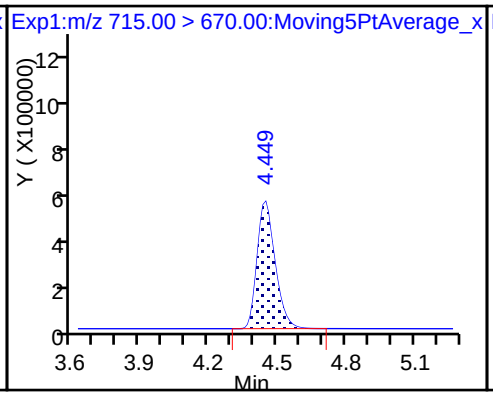
41 Perfluorotridecanoic acid



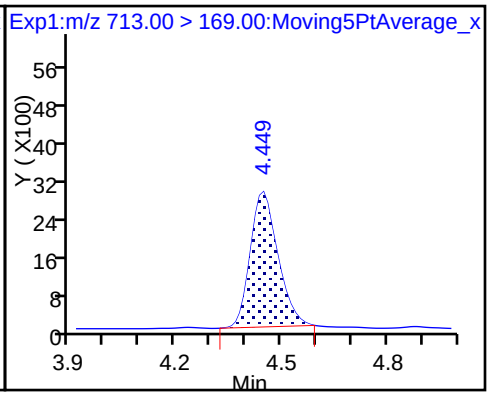
41 Perfluorotridecanoic acid



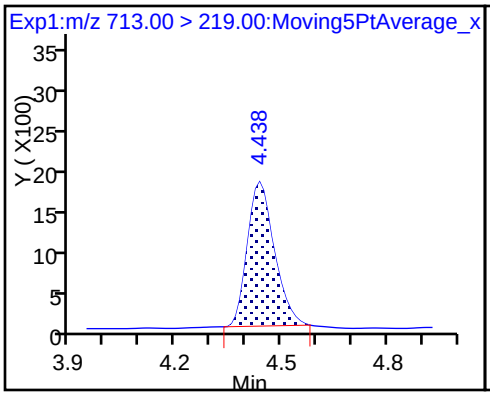
D 43 13C2-PFTeDA



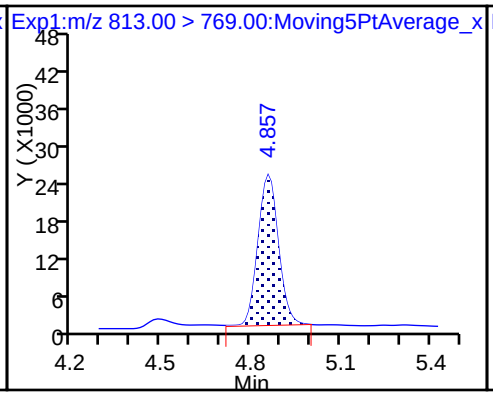
42 Perfluorotetradecanoic acid



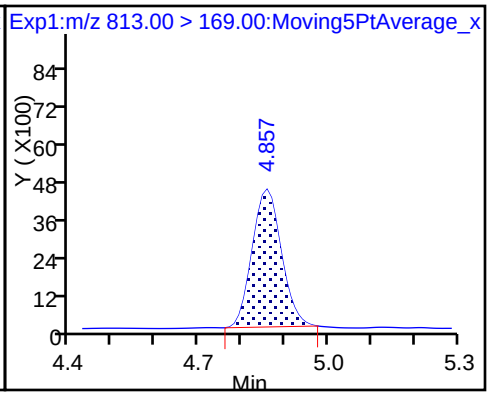
42 Perfluorotetradecanoic acid



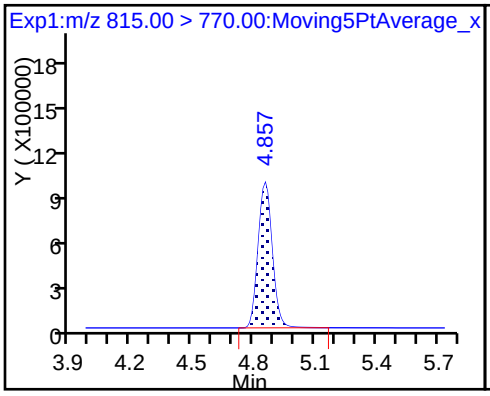
45 Perfluorohexadecanoic acid



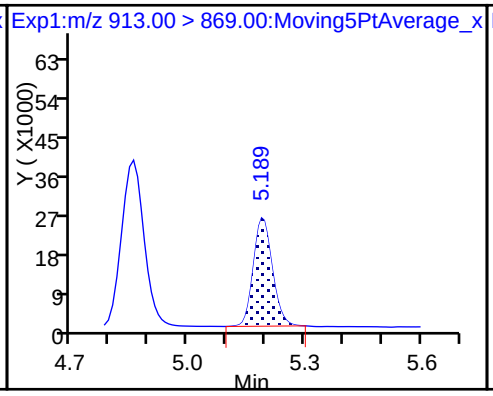
45 Perfluorohexadecanoic acid



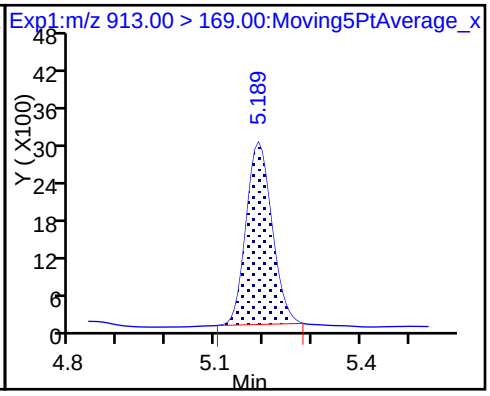
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

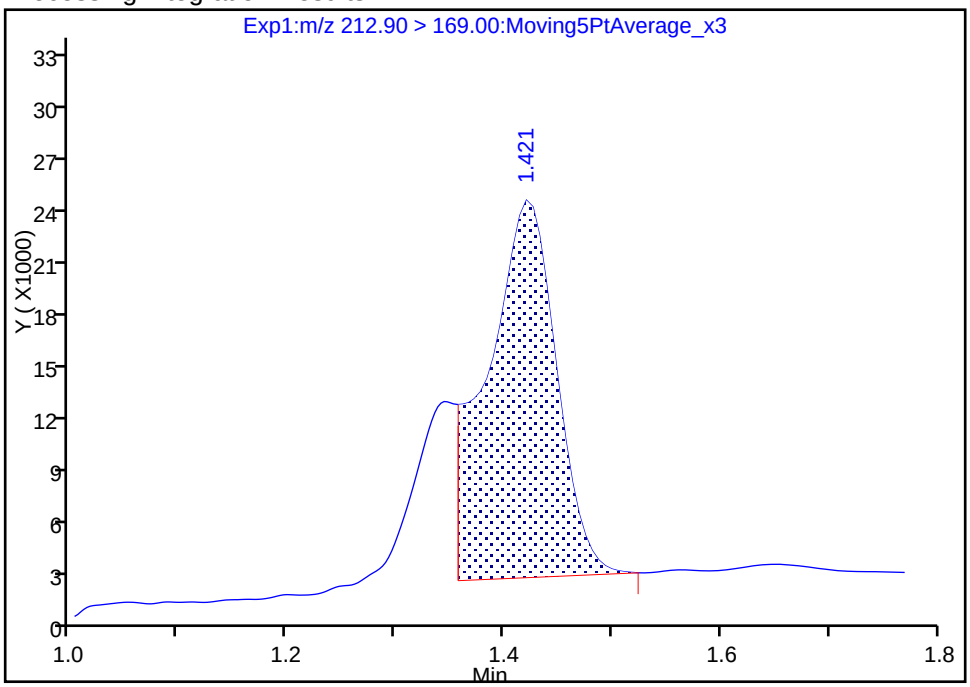
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b\2018.02.08LLAA_005.d
Injection Date: 08-Feb-2018 16:40:40 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

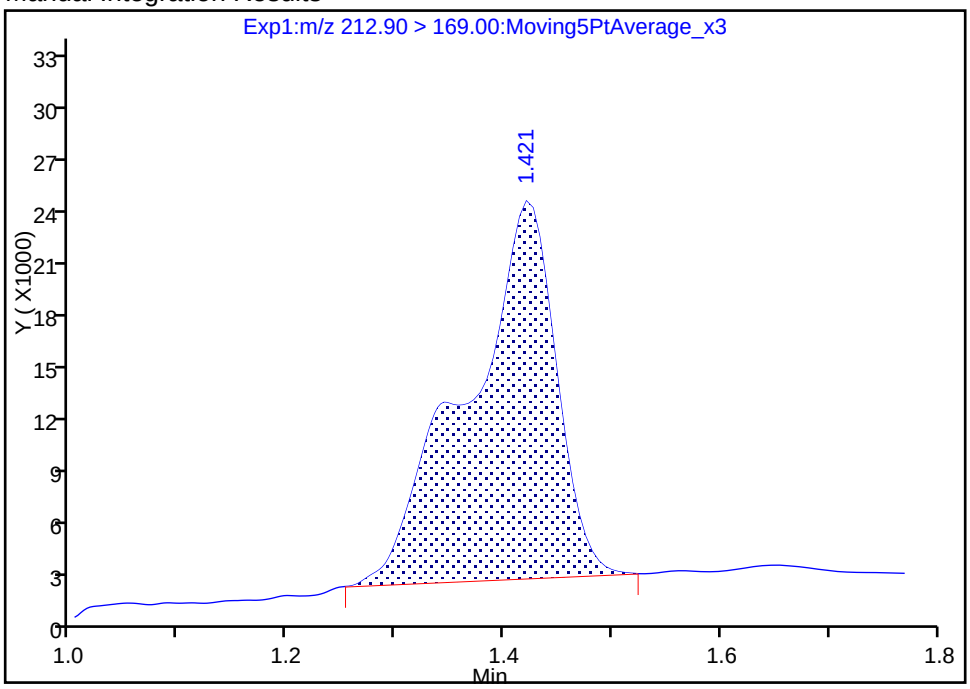
Processing Integration Results

RT: 1.42
Area: 95075
Amount: 0.035632
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 123550
Amount: 0.046304
Amount Units: ng/ml



Reviewer: roycea, 08-Feb-2018 18:37:27
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

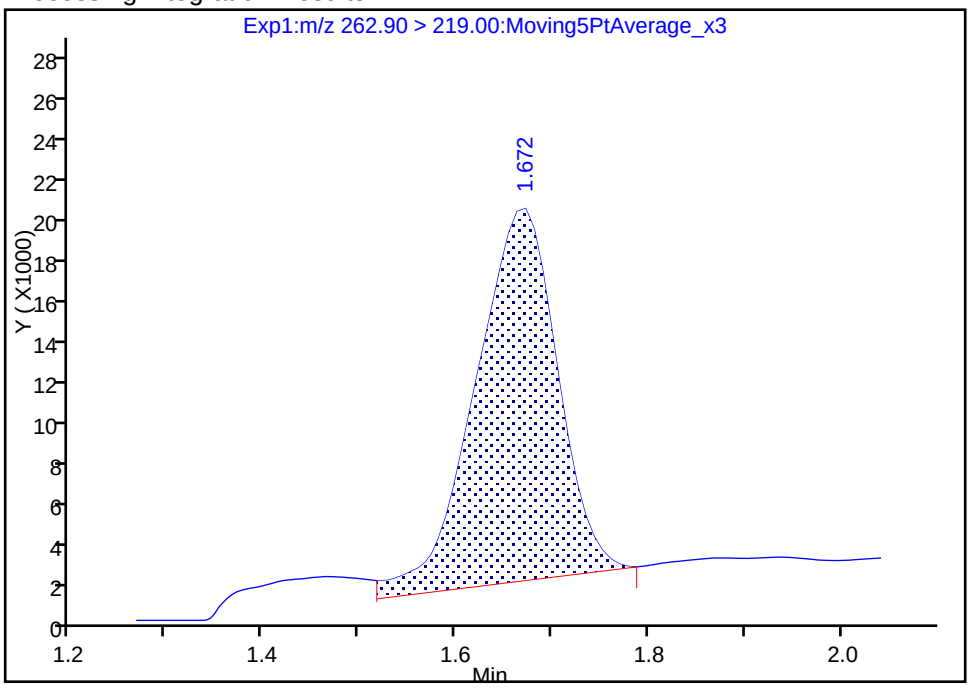
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b\2018.02.08LLAA_005.d
Injection Date: 08-Feb-2018 16:40:40 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

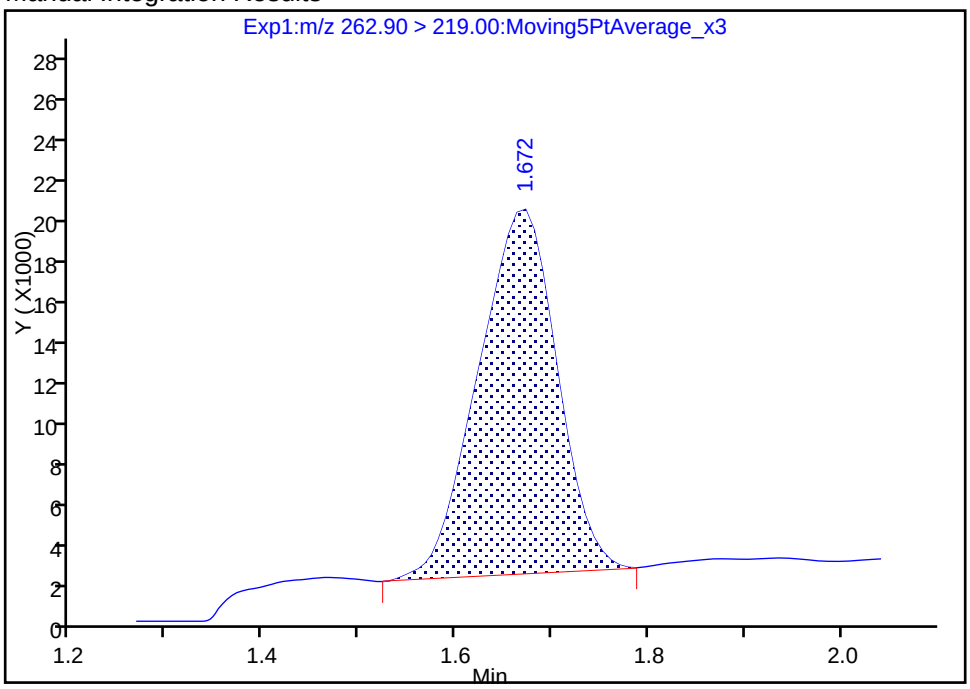
Processing Integration Results

RT: 1.67
Area: 108114
Amount: 0.053090
Amount Units: ng/ml



Manual Integration Results

RT: 1.67
Area: 101020
Amount: 0.049606
Amount Units: ng/ml



Reviewer: roycea, 08-Feb-2018 18:37:37
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/1 Calibration Date: 02/08/2018 23:04

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9229		0.974	1.00	-2.6	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.090		0.916	1.00	-8.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	78.45		0.902	0.884	2.1	25.0
4:2 FTS	AveID	16.11	15.63		0.907	0.934	-2.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9471		0.916	1.00	-8.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.056		1.01	1.00	1.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.035		0.828	0.910	-9.0	25.0
6:2FTS	AveID	1.798	1.637		0.864	0.948	-8.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.114		0.978	1.00	-2.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.388		0.970	0.952	1.9	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.024		1.01	1.00	0.6	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.062		0.893	0.928	-3.8	25.0
8:2FTS	AveID	1.228	1.269		0.990	0.958	3.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9595		0.969	1.00	-3.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9835		0.963	1.00	-3.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.070		0.998	1.00	-0.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.6640		0.969	0.964	0.6	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.8848		0.953	1.00	-4.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9692		0.941	1.00	-5.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.002		0.954	1.00	-4.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.140		1.02	1.00	2.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2468		0.996	1.00	-0.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8935		0.916	1.00	-8.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9879		0.891	1.00	-10.9	25.0
13C4 PFBA	Ave	1.444	1.445		2.50	2.50	0.0	50.0
13C5 PFPeA	Ave	0.8768	0.8700		2.48	2.50	-0.8	50.0
13C3-PFBS	Ave	0.0196	0.0192		2.27	2.33	-2.2	50.0
13C2 PFHxA	Ave	0.9470	0.9529		2.52	2.50	0.6	50.0
13C4-PFHpA	Ave	0.9180	0.8844		2.41	2.50	-3.7	50.0
18O2 PFHxS	Ave	1.134	1.110		2.32	2.37	-2.1	50.0
M2-6:2FTS	Ave	0.1948	0.1945		2.37	2.38	-0.1	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/1 Calibration Date: 02/08/2018 23:04

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8796		2.45	2.50	-2.1	50.0
13C4 PFOS	Ave	0.7450	0.7341		2.35	2.39	-1.5	50.0
13C5 PFNA	Ave	0.7311	0.7394		2.53	2.50	1.1	50.0
13C8 FOSA	Ave	1.030	1.040		2.52	2.50	0.9	50.0
M2-8:2FTS	Ave	0.2169	0.1935		2.14	2.40	-10.8	50.0
13C2 PFDA	Ave	0.6297	0.6277		2.49	2.50	-0.3	50.0
d3-NMeFOSAA	Ave	0.3401	0.3367		2.47	2.50	-1.0	50.0
d5-NEtFOSAA	Ave	0.3488	0.3671		2.63	2.50	5.2	50.0
13C2 PFUnA	Ave	0.4871	0.5132		2.63	2.50	5.3	50.0
13C2 PFDoA	Ave	0.4977	0.4675		2.35	2.50	-6.1	50.0
13C2-PFTeDA	Ave	0.6138	0.6127		2.50	2.50	-0.2	50.0
13C2-PFHxDA	Ave	1.061	0.9486		2.23	2.50	-10.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_054.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 08-Feb-2018 23:04:17 ALS Bottle#: 13 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 09-Feb-2018 16:13:38 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 16:06:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.419	1.412	0.007	0.543	6541396	2.50		100	29794	
2 Perfluorobutyric acid										
212.90 > 169.00	1.419	1.412	0.007	1.000	2414874	0.9740		97.4	556	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.670	1.660	0.010	1.000	1716806	0.9163		91.6	1205	
D 3 13C5-PFPeA										
267.90 > 223.00	1.670	1.660	0.010	0.638	3939120	2.48		99.2	79342	
D 47 13C3-PFBS										
301.90 > 83.00	1.705	1.695	0.010	0.652	80720	2.27		97.8	2433	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.705	1.695	0.010	1.000	2407561	0.9022		102	15506	
298.90 > 99.00	1.705	1.695	0.010	1.000	999895		2.41(1.25-3.74)		10753	
D 60 M2-4:2FTS										
329.00 > 81.00	1.912	1.899	0.013	0.731	605878	NC			6855	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.912	1.899	0.013	1.000	506941	0.9065		97.1	22632	
D 7 13C2 PFHxA										
315.00 > 270.00	1.943	1.930	0.013	0.743	4314600	2.52		101	37992	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.943	1.940	0.003	1.000	1634559	0.9157		91.6	3361	
313.00 > 119.00	1.943	1.940	0.003	1.000	161302		10.13(5.03-15.10)		3102	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.265	2.262	0.002	1.000	1690540	1.01		101	2495	
363.00 > 169.00	2.265	2.262	0.002	1.000	685983		2.46(1.13-3.40)		4160	
D 9 13C4-PFHpA										
367.00 > 322.00	2.265	2.262	0.002	0.866	4004069	2.41		96.3	25171	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.278	2.275	0.003	0.871	4754365	2.32		97.9	17747	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.278	2.275	0.003	1.000	1893062	0.8283		91.0	7509	
399.00 > 99.00	2.278	2.275	0.003	1.000	666804		2.84(1.50-4.49)		4271	
D 12 M2-6:2FTS										
429.00 > 81.00	2.589	2.588	0.001	0.990	836615	2.37		99.9	17944	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.596	2.588	0.008	1.003	546785	0.8635		91.1	9895	
D 14 13C4 PFOA										
417.00 > 372.00	2.616	2.606	0.010	1.000	3982743	2.45		97.9	24507	
* 62 13C2-PFOA										
415.00 > 370.00	2.616	2.606	0.010		4527695	2.50			27869	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.616	2.606	0.010	1.000	1775425	0.9784		97.8	671	
413.00 > 169.00	2.616	2.606	0.010	1.000	954469		1.86(0.84-2.52)		8493	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.623	2.613	0.010	1.000	1756434	0.9702		102	12906	
449.00 > 99.00	2.623	2.613	0.010	1.000	468377		3.75(1.94-5.82)		7363	
D 18 13C4 PFOS										
503.00 > 80.00	2.985	2.976	0.009	1.141	3177317	2.35		98.5	17523	
D 19 13C5 PFNA										
468.00 > 423.00	2.985	2.976	0.009	1.141	3347775	2.53		101	25666	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.985	2.976	0.009	1.000	1309865	0.8926		96.2	3281	M
499.00 > 99.00	2.985	2.976	0.009	1.000	297108		4.41(2.31-6.93)		2878	
20 Perfluorononanoic acid										
463.00 > 419.00	2.985	2.976	0.009	1.000	1371553	1.01		101	1917	
463.00 > 169.00	2.985	2.976	0.009	1.000	330900		4.14(1.90-5.69)		6040	
D 26 M2-8:2FTS										
529.00 > 81.00	3.332	3.316	0.016	1.274	839254	2.14		89.2	12864	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.332	3.323	0.009	1.000	426013	0.9898		103	8747	
D 21 13C8 FOSA										
506.00 > 78.00	3.332	3.331	0.001	1.274	4706681	2.52		101	21361	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.332	3.331	0.001	1.000	1806357	0.9688		96.9	10759	
D 23 13C2 PFDA										
515.00 > 470.00	3.340	3.331	0.009	1.277	2842106	2.49		99.7	19557	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.340	3.331	0.009	1.000	1118058	0.9628		96.3	4412	
513.00 > 169.00	3.340	3.331	0.009	1.000	189474		5.90(2.36-7.09)		1526	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.492	3.483	0.009	1.335	1524249	2.47		99.0	8365	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.499	3.491	0.008	1.002	652268	1.00		99.8	4499	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.650	3.641	0.009	1.000	850927	0.9695		101	15401	
599.00 > 99.00	3.650	3.641	0.009	1.000	289863		2.94(1.39-4.16)		8101	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.656	3.648	0.008	1.398	1662010	2.63		105	8544	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.663	3.655	0.008	1.002	588242	0.9531		95.3	6338	
D 30 13C2 PFUnA										
565.00 > 520.00	3.663	3.655	0.008	1.400	2323469	2.63		105	21523	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.663	3.655	0.008	1.000	900791	0.9413		94.1	3911	
563.00 > 169.00	3.663	3.655	0.008	1.000	182821		4.93(0.00-0.00)		7197	
D 36 13C2 PFDoA										
615.00 > 570.00	3.954	3.952	0.002	1.512	2116464	2.35		93.9	20660	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.954	3.952	0.002	1.000	848554	0.9540		95.4	3572	
613.00 > 169.00	3.954	3.952	0.002	1.000	216704		3.92(2.13-6.40)		5401	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.215	4.204	0.011	1.000	964737	1.02		102	2510	
663.00 > 169.00	4.215	4.204	0.011	1.000	305395		3.16(1.25-3.76)		9815	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.461	4.443	0.018	1.705	2774181	2.50		99.8	22639	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.461	4.443	0.018	1.000	273862	1.00		99.6	7024	
713.00 > 219.00	4.449	4.443	0.006	0.997	200470		1.37(0.71-2.13)		6132	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.877	4.862	0.015	1.000	1534887	0.9162		91.6	1704	
813.00 > 169.00	4.877	4.862	0.015	1.000	295121		5.20(2.86-8.58)		4969	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.877	4.862	0.015	1.864	4294755	2.23		89.4	11875	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.217	5.199	0.018	1.000	1697047	0.8907		89.1	475	
913.00 > 169.00	5.217	5.199	0.018	1.000	216615		7.83(0.00-0.00)		1306	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL4_00003 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 16:13:39 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_054.d

Injection Date: 08-Feb-2018 23:04:17 Instrument ID: A8_N

Lims ID: CCV L4

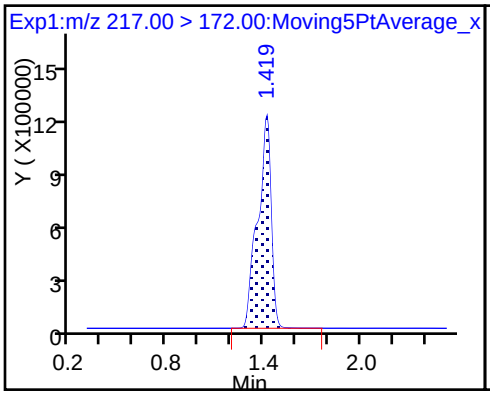
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 1

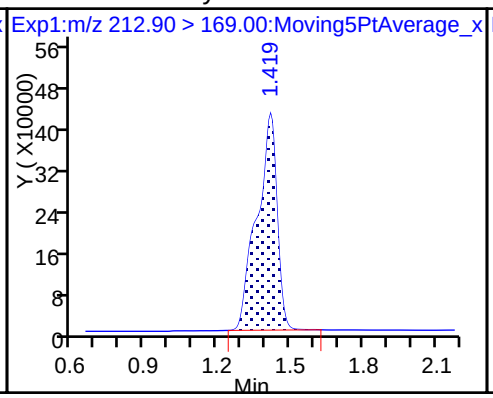
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

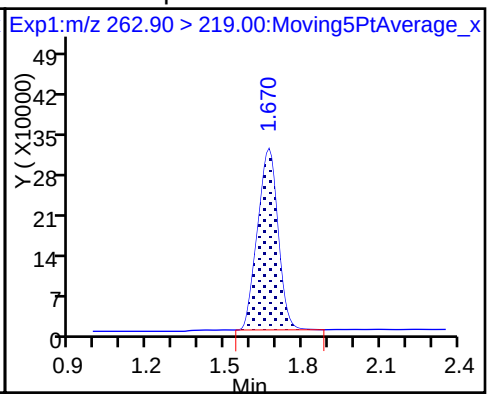
D 1 13C4 PFBA



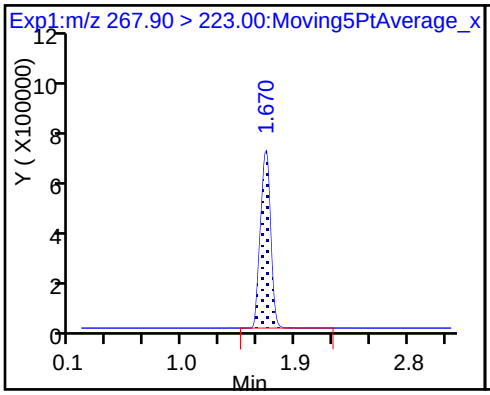
2 Perfluorobutyric acid



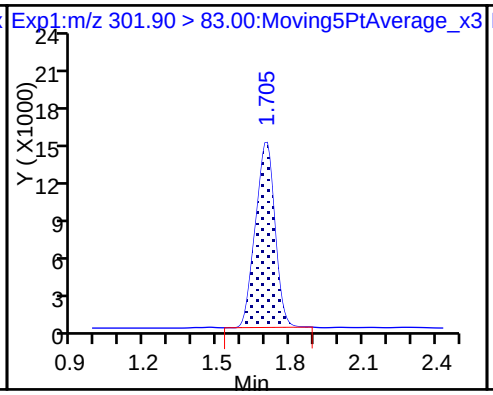
4 Perfluoropentanoic acid



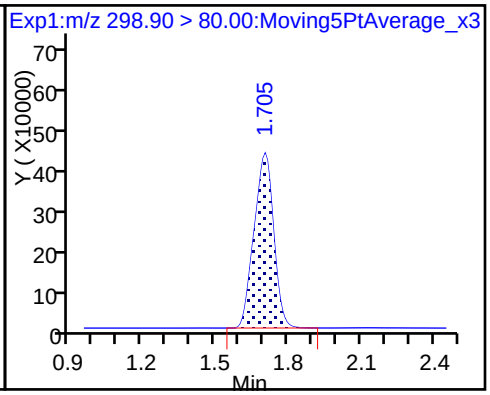
D 3 13C5-PFPeA



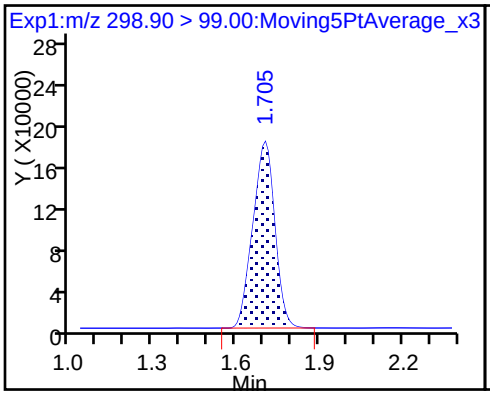
D 47 13C3-PFBS



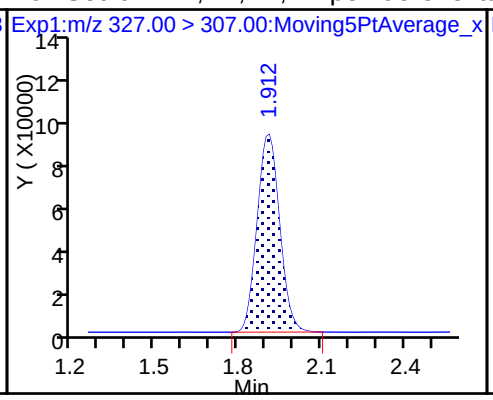
5 Perfluorobutanesulfonic acid



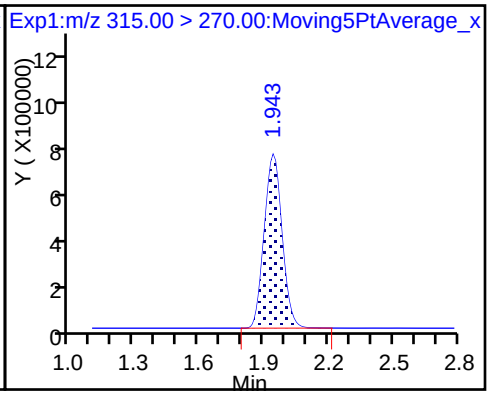
5 Perfluorobutanesulfonic acid



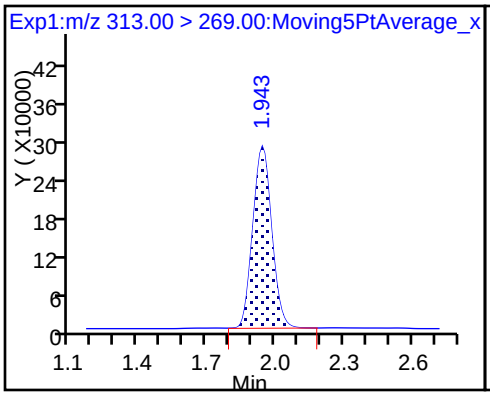
61 Sodium 1H,1H,2H,2H-perfluorohexa



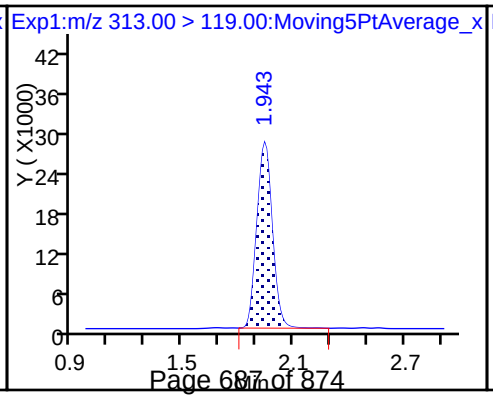
De 7 13C2 PFHxA



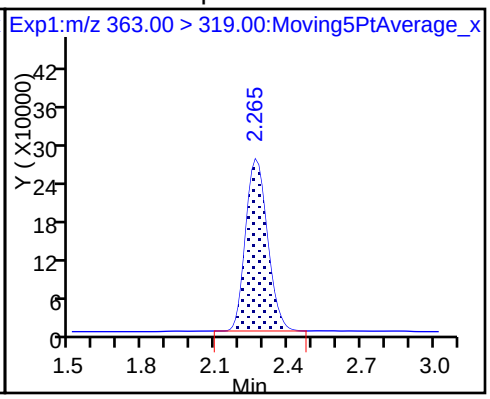
6 Perfluorohexanoic acid



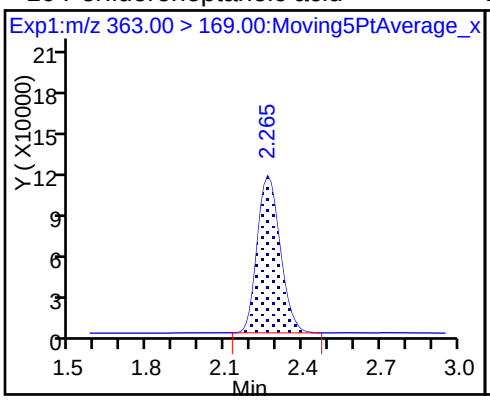
6 Perfluorohexanoic acid



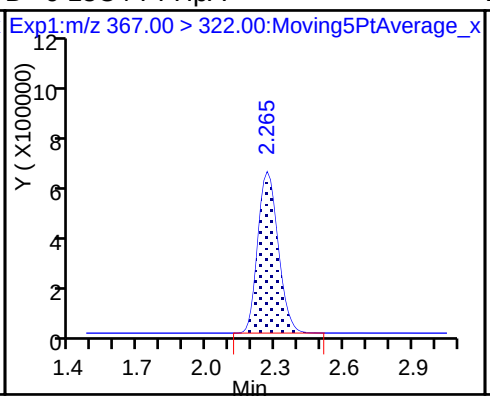
10 Perfluoroheptanoic acid



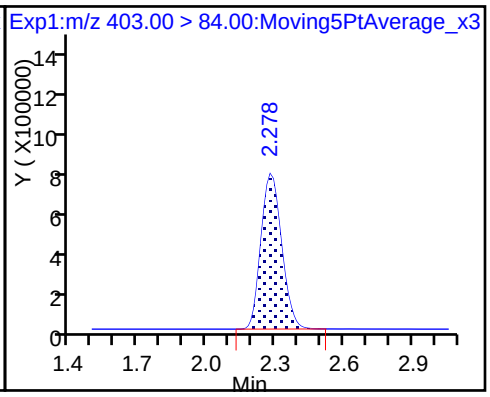
10 Perfluoroheptanoic acid



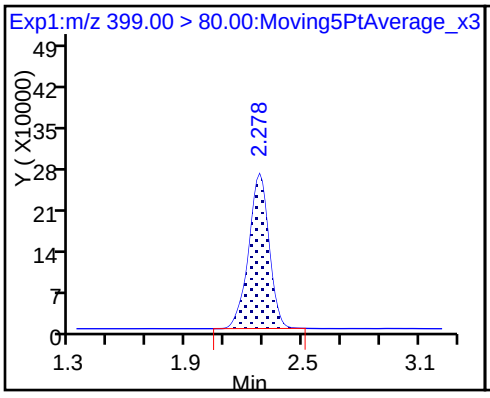
D 9 13C4-PFHpA



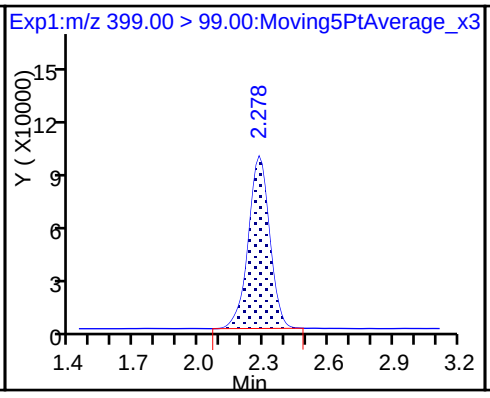
D 11 18O2 PFHxS



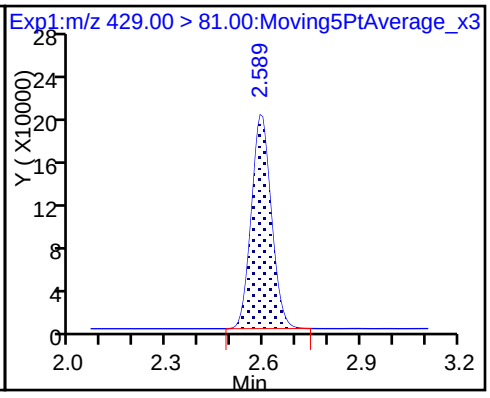
8 Perfluorohexanesulfonic acid



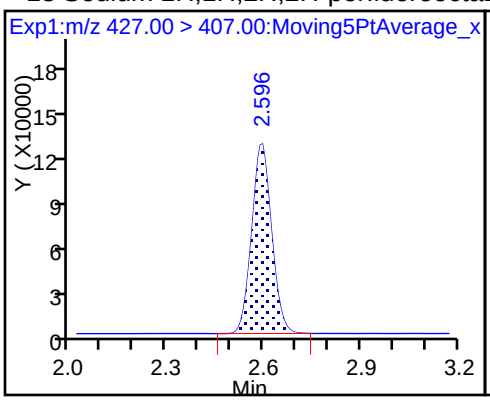
8 Perfluorohexanesulfonic acid



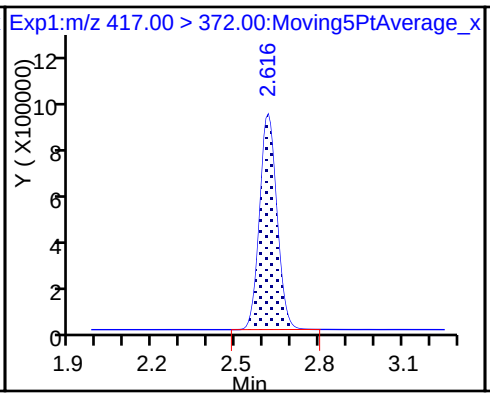
D 12 M2-6:2FTS



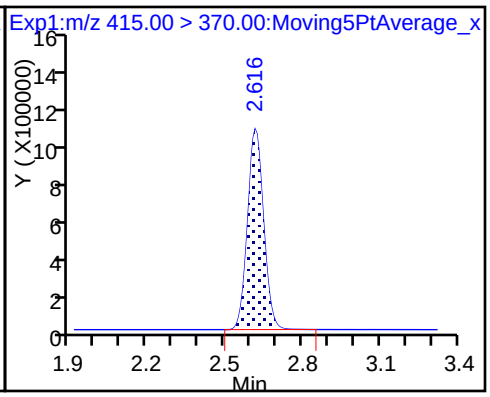
13 Sodium 1H,1H,2H,2H-perfluorooctane



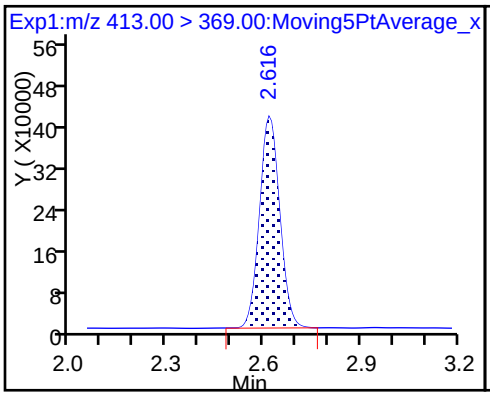
D 14 13C4 PFOA



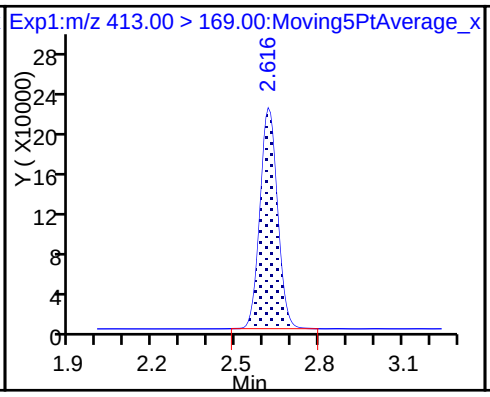
* 62 13C2-PFOA



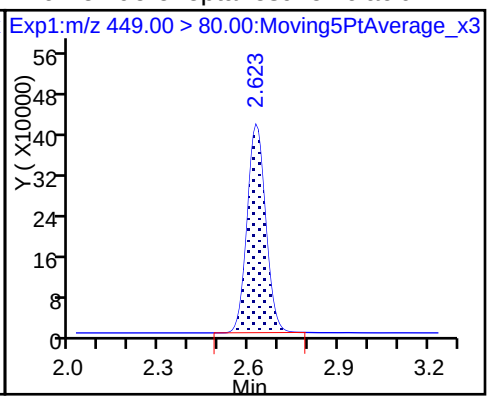
15 Perfluorooctanoic acid



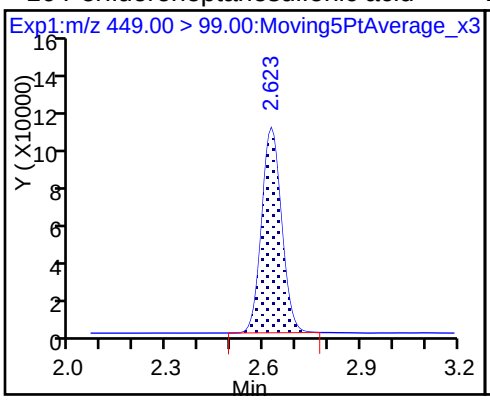
15 Perfluorooctanoic acid



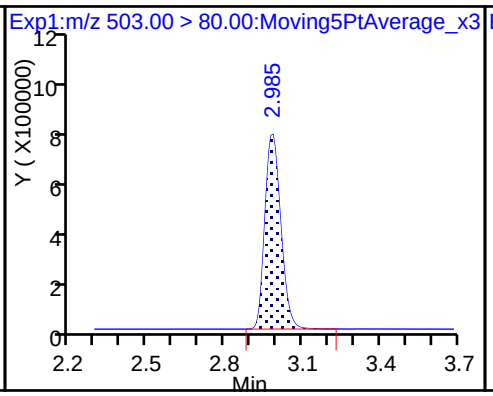
16 Perfluoroheptanesulfonic acid



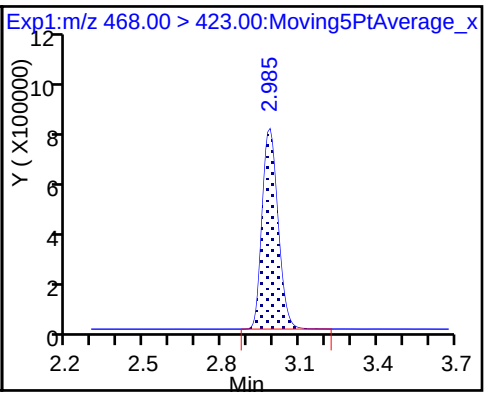
16 Perfluoroheptanesulfonic acid



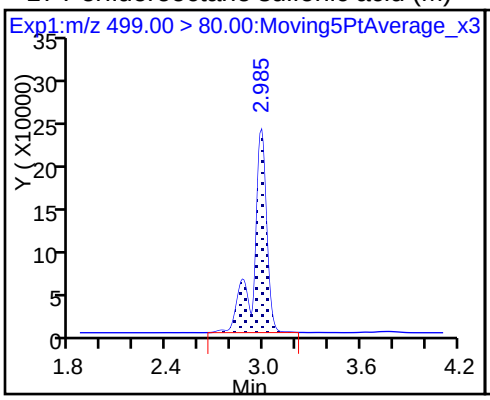
D 18 13C4 PFOS



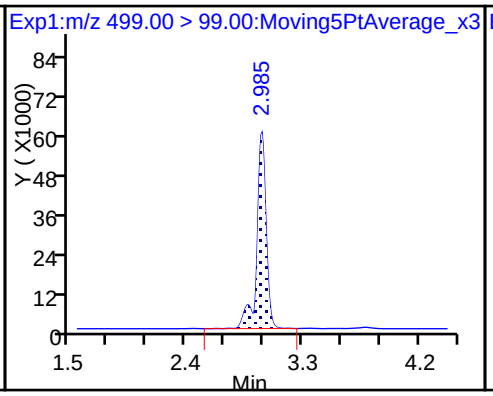
D 19 13C5 PFNA



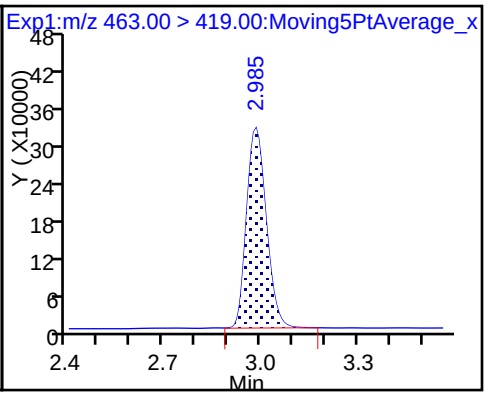
17 Perfluorooctane sulfonic acid (M)



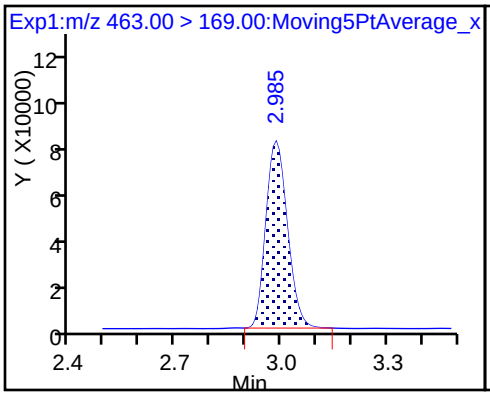
17 Perfluorooctane sulfonic acid



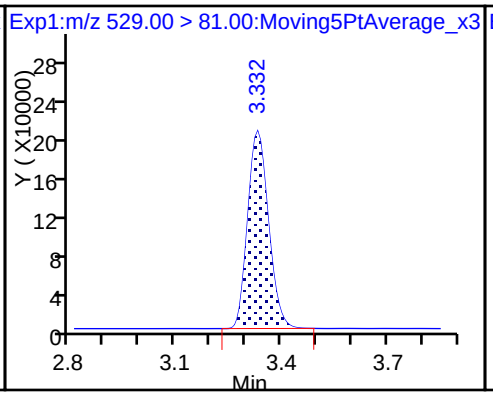
20 Perfluorononanoic acid



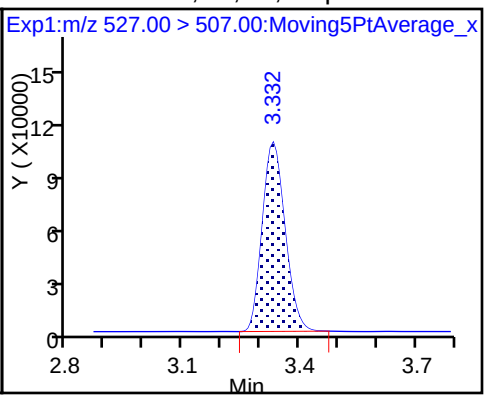
20 Perfluorononanoic acid



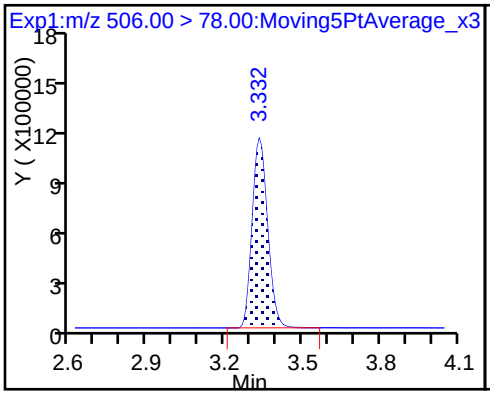
D 26 M2-8:2FTS



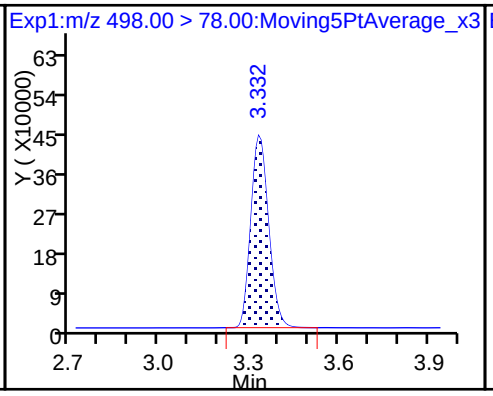
25 Sodium 1H,1H,2H,2H-perfluorodecane



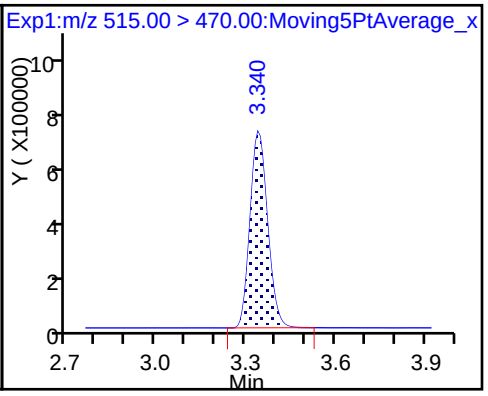
D 21 13C8 FOSA



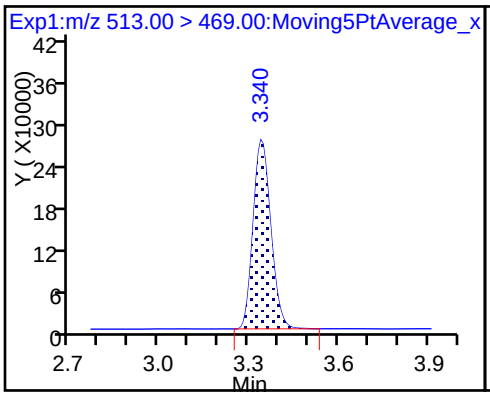
22 Perfluorooctane Sulfonamide



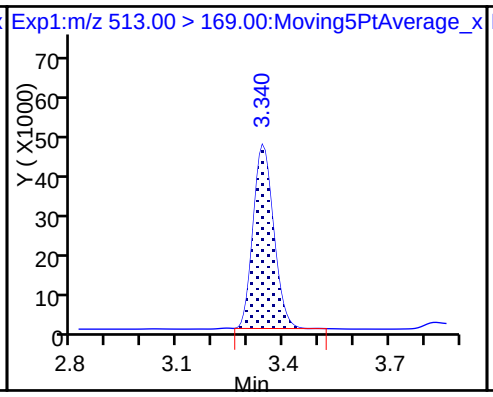
D 23 13C2 PFDA



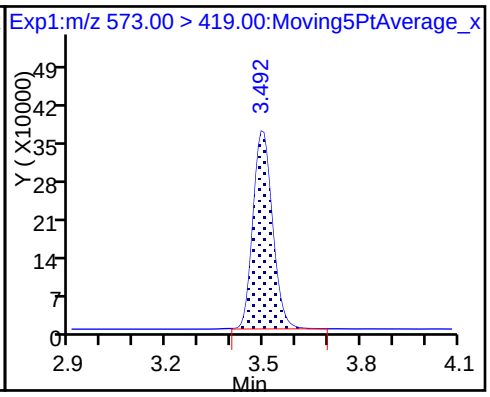
24 Perfluorodecanoic acid



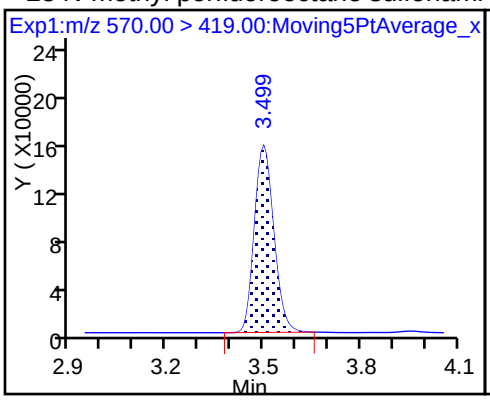
24 Perfluorodecanoic acid



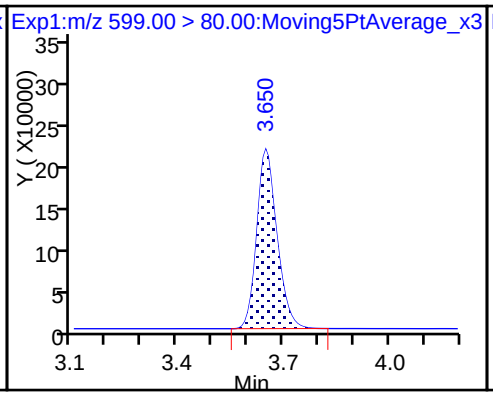
D 27 d3-NMeFOSAA



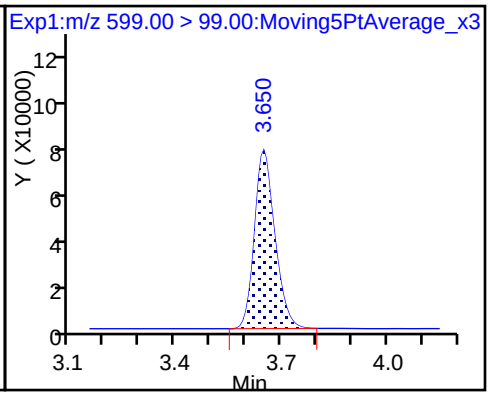
28 N-methyl perfluorooctane sulfonami



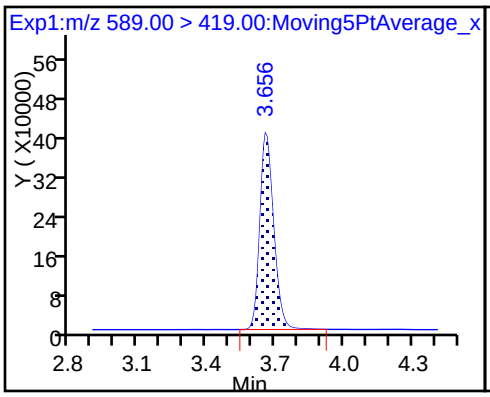
29 Perfluorodecane Sulfonic acid



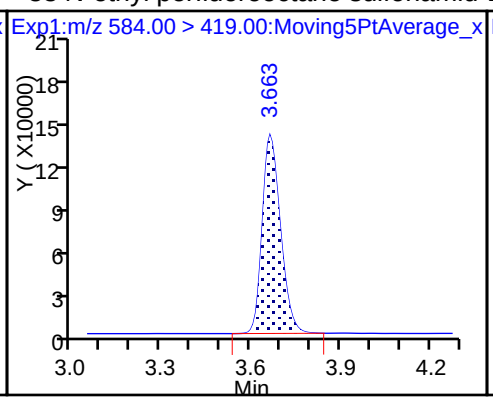
29 Perfluorodecane Sulfonic acid



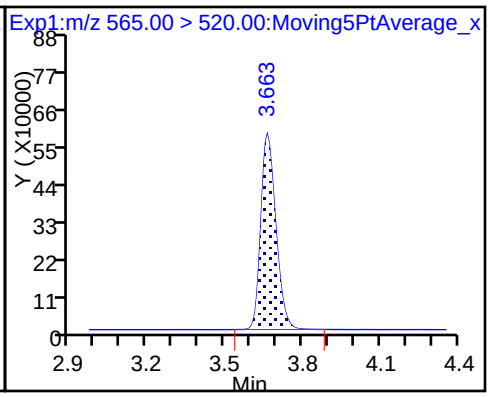
D 32 d5-NEtFOSAA



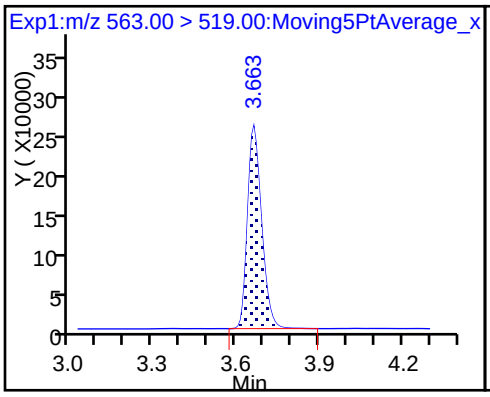
33 N-ethyl perfluorooctane sulfonamid



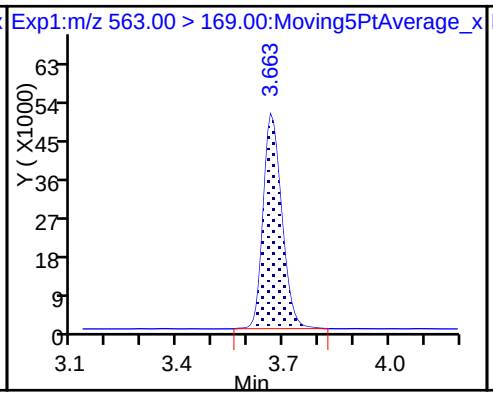
D 30 13C2 PFUnA



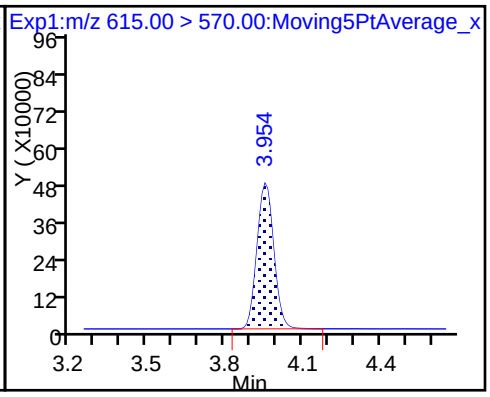
31 Perfluoroundecanoic acid



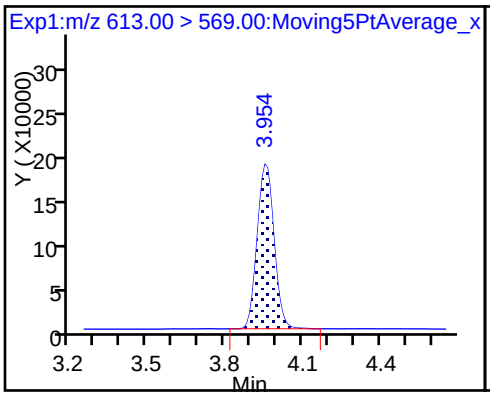
31 Perfluoroundecanoic acid



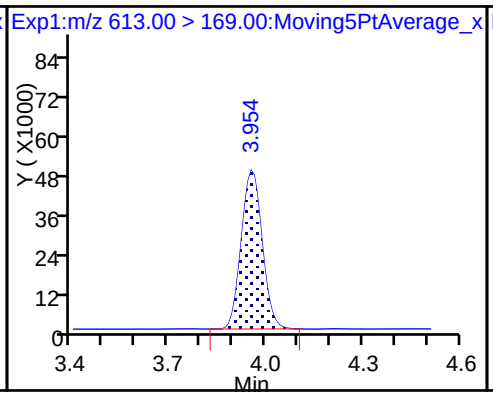
D 36 13C2 PFDoA



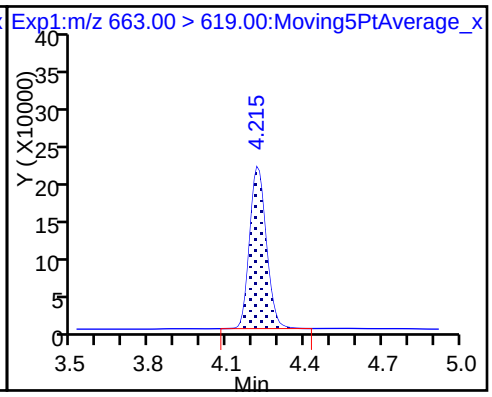
37 Perfluorododecanoic acid



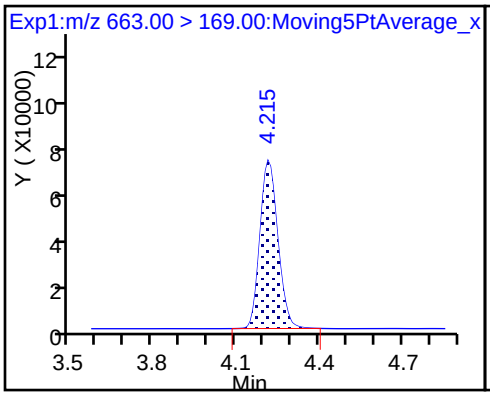
37 Perfluorododecanoic acid



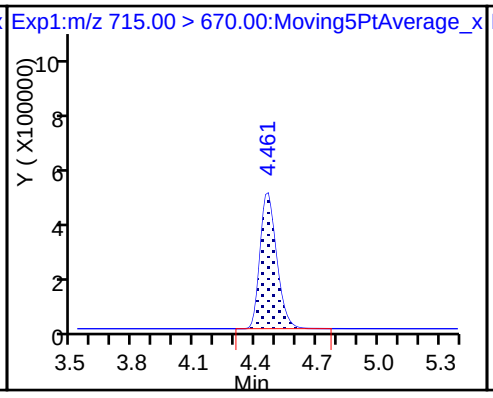
41 Perfluorotridecanoic acid



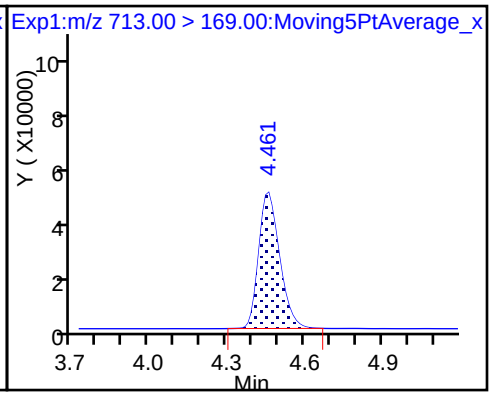
41 Perfluorotridecanoic acid



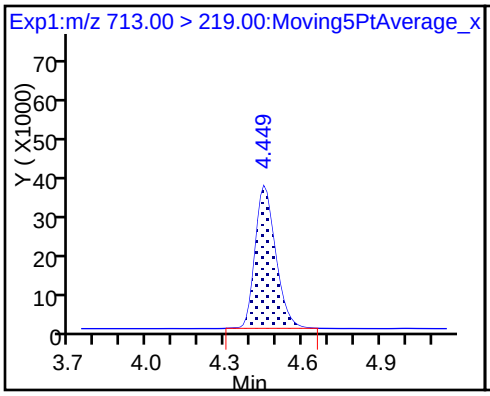
D 43 13C2-PFTeDA



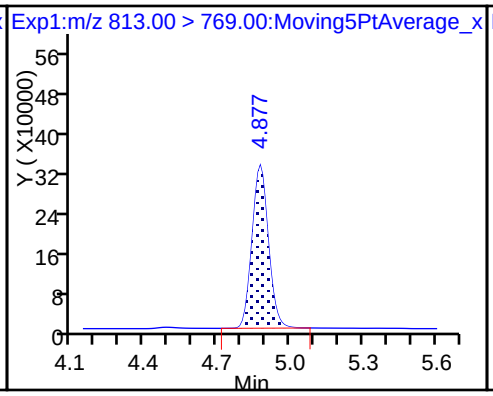
42 Perfluorotetradecanoic acid



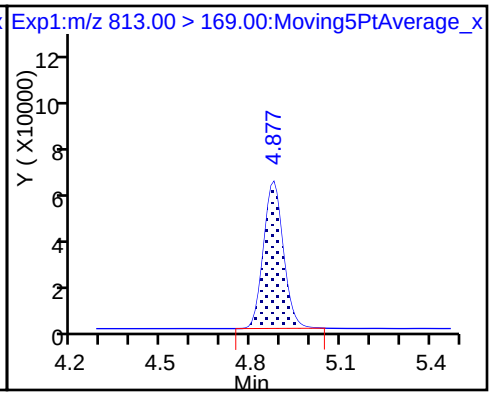
42 Perfluorotetradecanoic acid



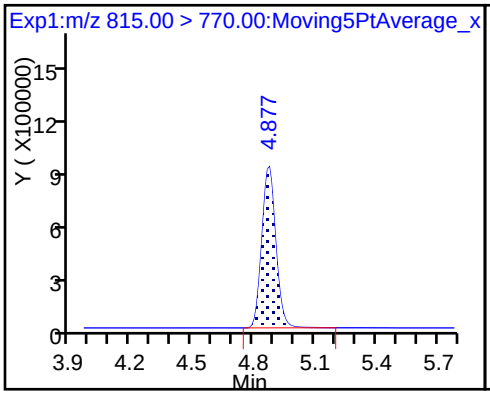
45 Perfluorohexadecanoic acid



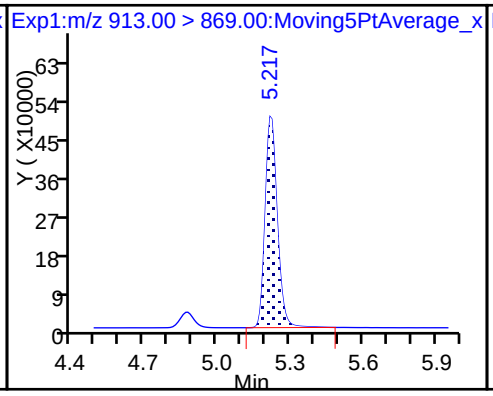
45 Perfluorohexadecanoic acid



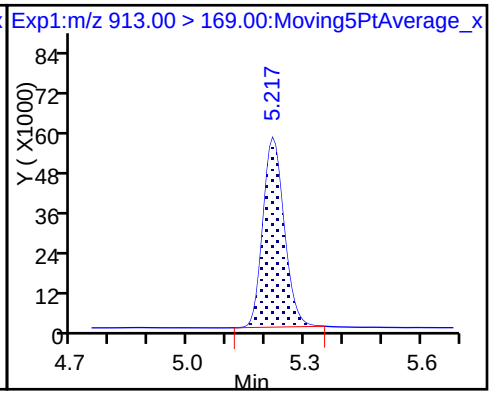
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

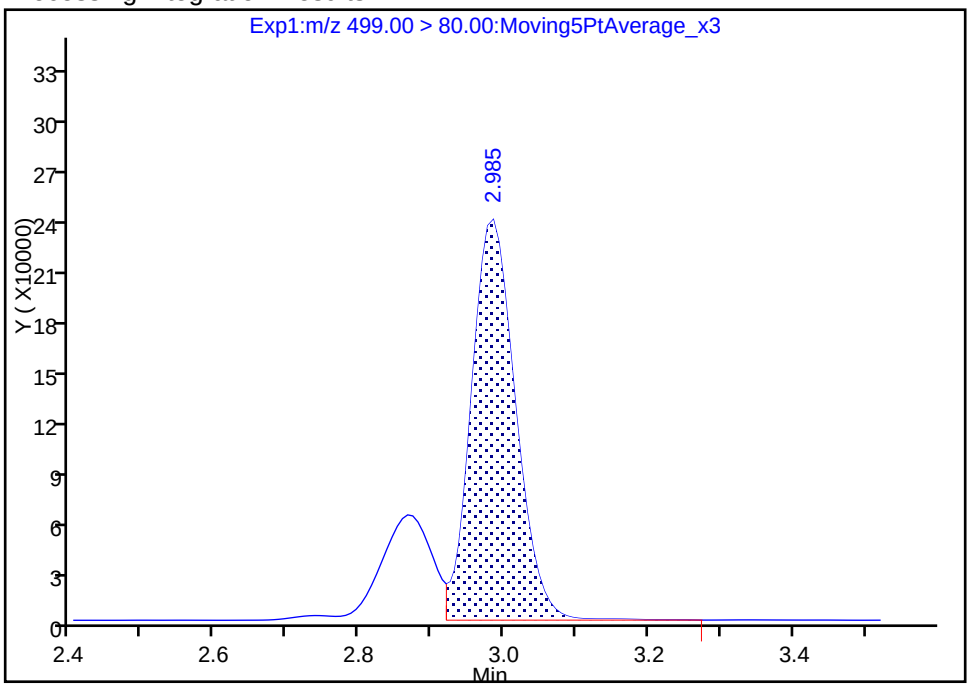
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_054.d
Injection Date: 08-Feb-2018 23:04:17 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

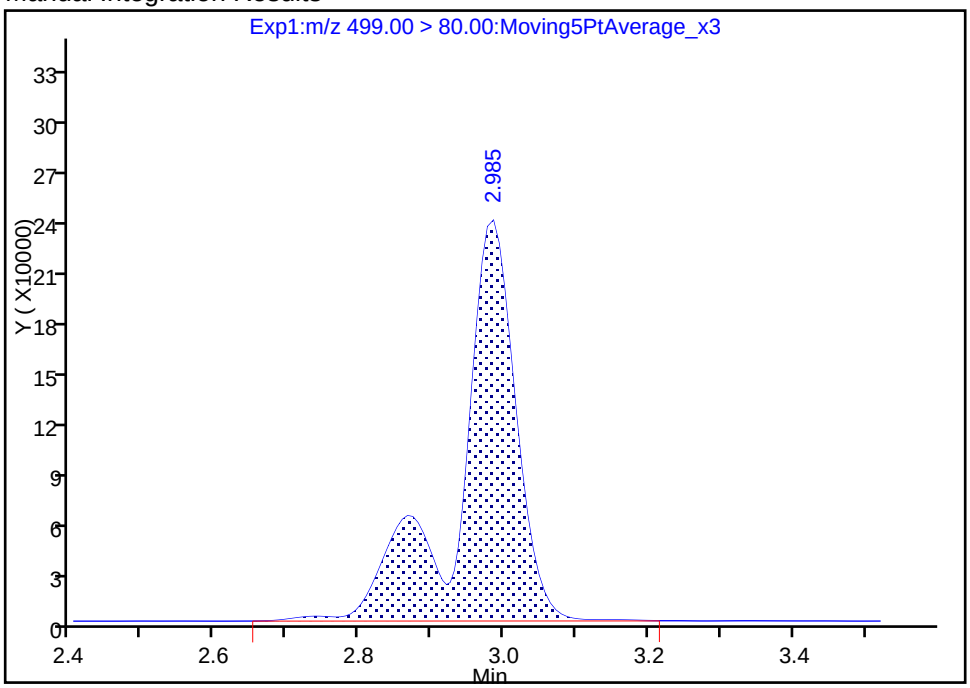
Processing Integration Results

RT: 2.99
Area: 1002319
Amount: 0.683060
Amount Units: ng/ml



Manual Integration Results

RT: 2.99
Area: 1309865
Amount: 0.892647
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 16:06:06
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/3 Calibration Date: 02/08/2018 23:19

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_056.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9576		2.53	2.50	1.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.212		2.55	2.50	2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.93		2.24	2.21	1.4	25.0
4:2 FTS	AveID	16.11	15.03		2.18	2.34	-6.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.996		2.41	2.50	-3.7	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.108		2.66	2.50	6.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.056		2.11	2.28	-7.1	25.0
6:2FTS	AveID	1.798	1.723		2.27	2.37	-4.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.083		2.38	2.50	-4.9	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.449		2.53	2.38	6.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.051		2.58	2.50	3.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.150		2.42	2.32	4.1	25.0
8:2FTS	AveID	1.228	1.233		2.40	2.40	0.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	1.000		2.45	2.50	-2.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	1.020		2.58	2.50	3.0	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.052		2.45	2.50	-1.9	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7430		2.71	2.41	12.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.030		2.50	2.50	0.0	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9453		2.55	2.50	1.8	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.109		2.64	2.50	5.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.099		2.46	2.50	-1.5	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2566		2.59	2.50	3.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9557		2.47	2.50	-1.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	1.016		2.29	2.50	-8.4	25.0
13C4 PFBA	Ave	1.444	1.474		2.55	2.50	2.0	50.0
13C5 PFPeA	Ave	0.8768	0.8601		2.45	2.50	-1.9	50.0
13C3-PFBS	Ave	0.0196	0.0204		2.42	2.33	3.9	50.0
13C2 PFHxA	Ave	0.9470	0.9520		2.51	2.50	0.5	50.0
13C4-PFHpA	Ave	0.9180	0.8990		2.45	2.50	-2.1	50.0
18O2 PFHxS	Ave	1.134	1.105		2.31	2.37	-2.5	50.0
M2-6:2FTS	Ave	0.1948	0.1933		2.36	2.38	-0.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/3 Calibration Date: 02/08/2018 23:19

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_056.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9255		2.58	2.50	3.0	50.0
13C4 PFOS	Ave	0.7450	0.7306		2.34	2.39	-1.9	50.0
13C5 PFNA	Ave	0.7311	0.7478		2.56	2.50	2.3	50.0
13C8 FOSA	Ave	1.030	1.030		2.50	2.50	-0.0	50.0
M2-8:2FTS	Ave	0.2169	0.2079		2.30	2.40	-4.2	50.0
13C2 PFDA	Ave	0.6297	0.6261		2.49	2.50	-0.6	50.0
d3-NMeFOSAA	Ave	0.3401	0.3417		2.51	2.50	0.5	50.0
13C2 PFUnA	Ave	0.4871	0.4986		2.56	2.50	2.4	50.0
d5-NEtFOSAA	Ave	0.3488	0.3527		2.53	2.50	1.1	50.0
13C2 PFDoA	Ave	0.4977	0.4694		2.36	2.50	-5.7	50.0
13C2-PFTeDA	Ave	0.6138	0.6084		2.48	2.50	-0.9	50.0
13C2-PFHxDA	Ave	1.061	0.9682		2.28	2.50	-8.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_056.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 08-Feb-2018 23:19:53 ALS Bottle#: 14 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 09-Feb-2018 16:13:41 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK029

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.419	1.412	0.007	0.541	6530640	2.55		102	27917	
2 Perfluorobutyric acid										
212.90 > 169.00	1.419	1.412	0.007	1.000	6253968	2.53		101	1580	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.670	1.660	0.010	1.000	4621440	2.55		102	3247	
D 3 13C5-PFPeA										
267.90 > 223.00	1.670	1.660	0.010	0.637	3811569	2.45		98.1	63185	
D 47 13C3-PFBS										
301.90 > 83.00	1.705	1.695	0.010	0.650	83988	2.42		104	2188	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.705	1.695	0.010	1.000	6221425	2.24		101	39700	
298.90 > 99.00	1.705	1.695	0.010	1.000	2480011		2.51(1.25-3.74)		20304	
D 60 M2-4:2FTS										
329.00 > 81.00	1.912	1.899	0.013	0.729	602378	NC			8370	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.912	1.899	0.013	1.000	1268173	2.18		93.3	56605	
D 7 13C2 PFHxA										
315.00 > 270.00	1.943	1.930	0.013	0.741	4219159	2.51		101	38831	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.943	1.940	0.003	1.000	4202261	2.41		96.3	16858	
313.00 > 119.00	1.943	1.940	0.003	1.000	404076		10.40(5.03-15.10)		9928	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.264	2.262	0.002	1.000	4413468	2.66		106	5673	
363.00 > 169.00	2.264	2.262	0.002	1.000	1729335		2.55(1.13-3.40)		10621	
D 9 13C4-PFHpA										
367.00 > 322.00	2.264	2.262	0.002	0.863	3984308	2.45		97.9	24747	
D 11 18O2 PFHxS										
403.00 > 84.00	2.278	2.275	0.003	0.868	4632714	2.31		97.5	19917	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.278	2.275	0.003	1.000	4706726	2.11		92.9	10331	
399.00 > 99.00	2.278	2.275	0.003	1.000	1616920		2.91(1.50-4.49)		7220	
D 12 M2-6:2FTS										
429.00 > 81.00	2.596	2.588	0.008	0.990	813961	2.36		99.3	17336	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.596	2.588	0.008	1.000	1399435	2.27		95.8	22114	
D 14 13C4 PFOA										
417.00 > 372.00	2.623	2.606	0.017	1.000	4101733	2.58		103	28193	
* 62 13C2-PFOA										
415.00 > 370.00	2.623	2.606	0.017		4431715	2.50			28810	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.623	2.606	0.017	1.000	4442304	2.38		95.1	1727	
413.00 > 169.00	2.623	2.606	0.017	1.000	2280123		1.95(0.84-2.52)		11239	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.630	2.613	0.017	1.000	4467770	2.53		106	21551	
449.00 > 99.00	2.630	2.613	0.017	1.000	1176168		3.80(1.94-5.82)		13648	
D 18 13C4 PFOS										
503.00 > 80.00	2.985	2.976	0.009	1.138	3095347	2.34		98.1	15087	
D 19 13C5 PFNA										
468.00 > 423.00	2.985	2.976	0.009	1.138	3314069	2.56		102	23069	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.985	2.976	0.009	1.000	3454100	2.42		104	7668	
499.00 > 99.00	2.985	2.976	0.009	1.000	751847		4.59(2.31-6.93)		7344	
20 Perfluorononanoic acid										
463.00 > 419.00	2.985	2.976	0.009	1.000	3481801	2.58		103	4836	
463.00 > 169.00	2.985	2.976	0.009	1.000	851766		4.09(1.90-5.69)		15757	
D 26 M2-8:2FTS										
529.00 > 81.00	3.332	3.316	0.016	1.270	882664	2.30		95.8	17849	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.332	3.323	0.009	1.000	1088234	2.40		100	15665	
D 21 13C8 FOSA										
506.00 > 78.00	3.332	3.331	0.001	1.270	4565531	2.50		100.0	23317	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.340	3.331	0.009	1.002	4657777	2.58		103	23586	
D 23 13C2 PFDA										
515.00 > 470.00	3.347	3.331	0.016	1.276	2774512	2.49		99.4	18722	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.340	3.331	0.009	0.998	2774942	2.45		97.9	10515	
513.00 > 169.00	3.340	3.331	0.009	0.998	507751		5.47(2.36-7.09)		1789	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.499	3.483	0.016	1.334	1514229	2.51		100	11765	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.499	3.491	0.008	1.000	1592404	2.45		98.1	8500	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.650	3.641	0.009	1.000	2319136	2.71		113	34167	
599.00 > 99.00	3.650	3.641	0.009	1.000	781787		2.97(1.39-4.16)		15280	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.663	3.648	0.015	1.397	1562964	2.53		101	8008	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.671	3.655	0.016	1.002	1477505	2.55		102	14001	
D 30 13C2 PFUnA										
565.00 > 520.00	3.663	3.655	0.008	1.397	2209675	2.56		102	22459	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.663	3.655	0.008	1.000	2276777	2.50		100	7492	
563.00 > 169.00	3.663	3.655	0.008	1.000	451986		5.04(0.00-0.00)		13677	
D 36 13C2 PFDoA										
615.00 > 570.00	3.964	3.952	0.012	1.511	2080406	2.36		94.3	16571	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.964	3.952	0.012	1.000	2306672	2.64		106	9725	
613.00 > 169.00	3.964	3.952	0.012	1.000	571509		4.04(2.13-6.40)		11840	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.226	4.204	0.022	1.000	2287229	2.46		98.5	5986	
663.00 > 169.00	4.226	4.204	0.022	1.000	788858		2.90(1.25-3.76)		35638	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.461	4.443	0.018	1.701	2696434	2.48		99.1	15667	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.461	4.443	0.018	1.000	691923	2.59		104	13837	
713.00 > 219.00	4.450	4.443	0.007	0.997	486958		1.42(0.71-2.13)		11242	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.869	4.862	0.006	1.000	4100670	2.47		98.9	4743	
813.00 > 169.00	4.869	4.862	0.006	1.000	704407		5.82(2.86-8.58)		5183	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.869	4.862	0.006	1.856	4290786	2.28		91.2	9222	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.218	5.199	0.019	1.000	4360503	2.29		91.6	1073	
913.00 > 169.00	5.211	5.199	0.012	0.999	528497		8.25(0.00-0.00)		1949	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL5_00003 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 16:13:41 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_056.d

Injection Date: 08-Feb-2018 23:19:53 Instrument ID: A8_N

Lims ID: CCV L5

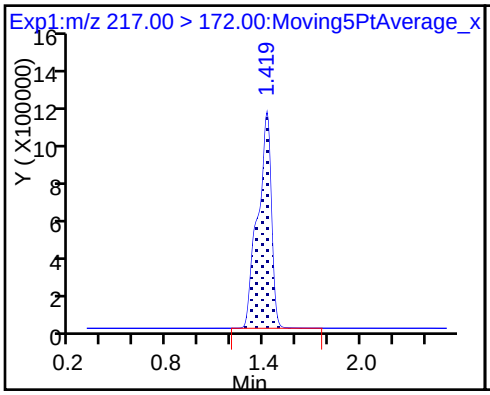
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 3

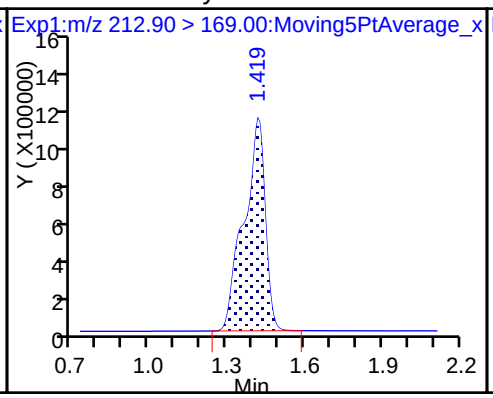
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

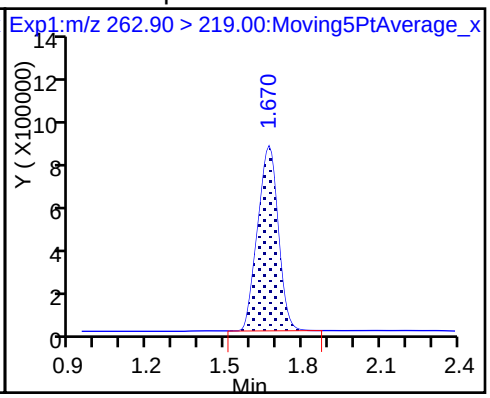
D 1 13C4 PFBA



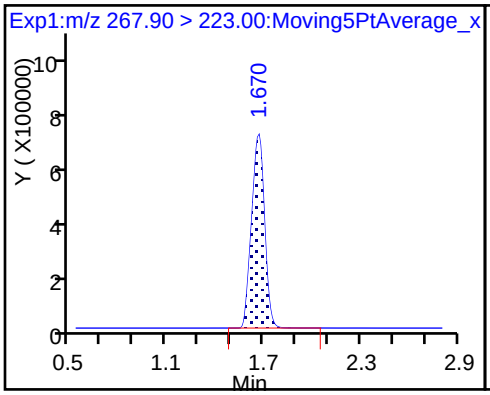
2 Perfluorobutyric acid



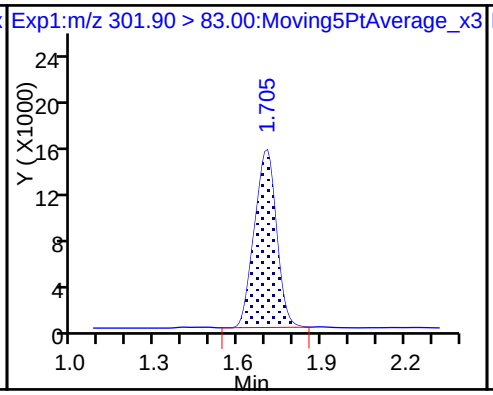
4 Perfluoropentanoic acid



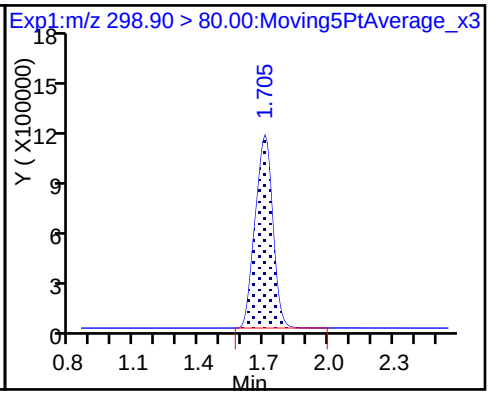
D 3 13C5-PFPeA



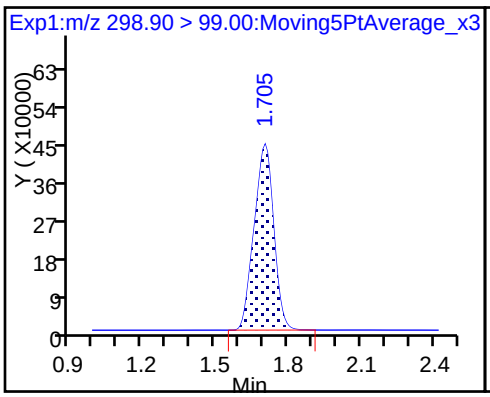
D 47 13C3-PFBS



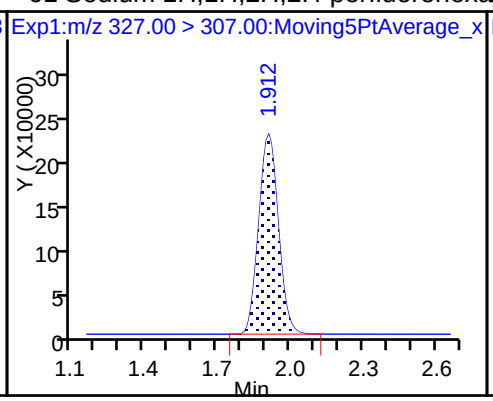
5 Perfluorobutanesulfonic acid



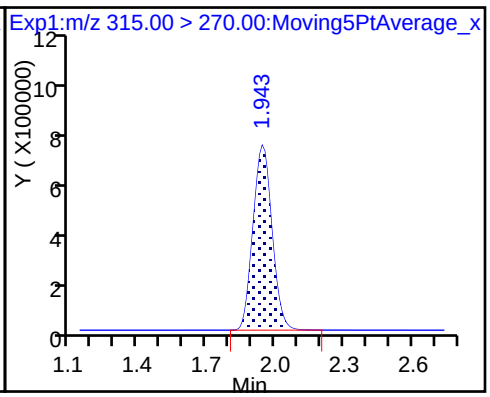
5 Perfluorobutanesulfonic acid



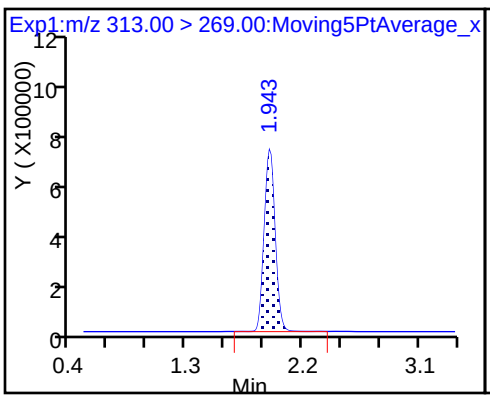
61 Sodium 1H,1H,2H,2H-perfluorohexa



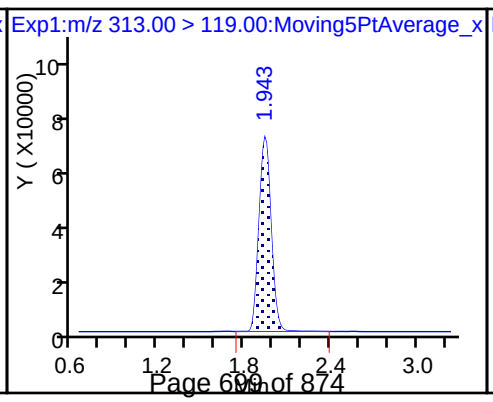
D 7 13C2 PFHxA



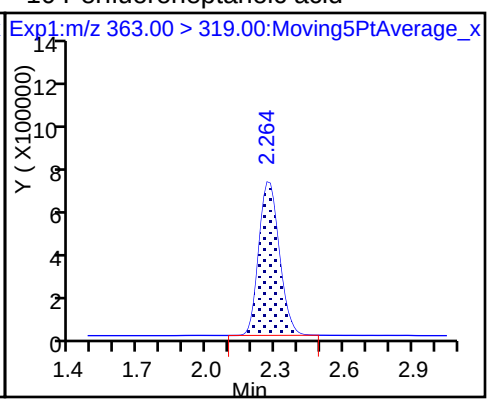
6 Perfluorohexanoic acid



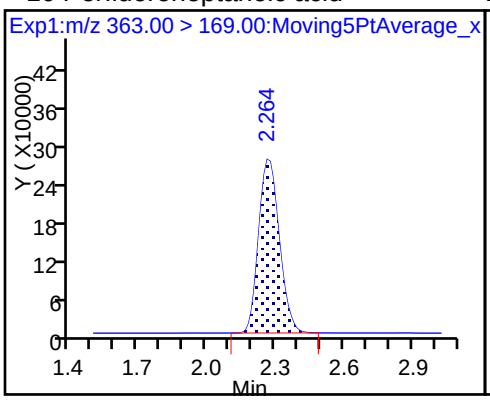
6 Perfluorohexanoic acid



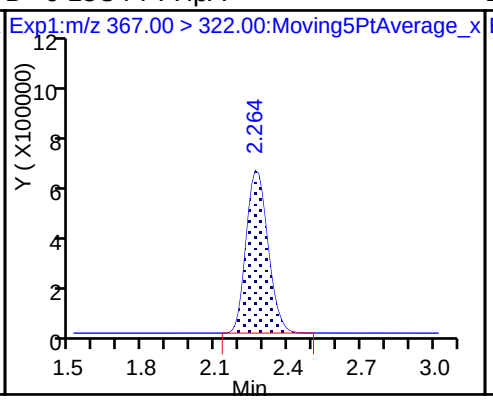
10 Perfluoroheptanoic acid



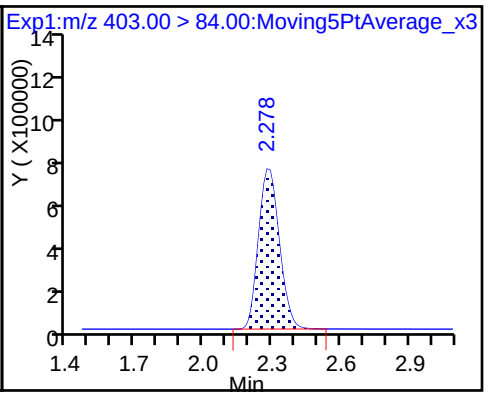
10 Perfluoroheptanoic acid



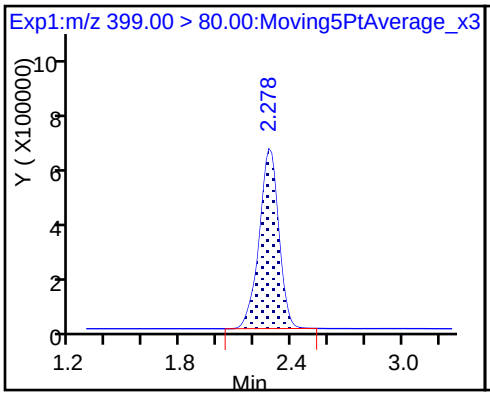
D 9 13C4-PFHpA



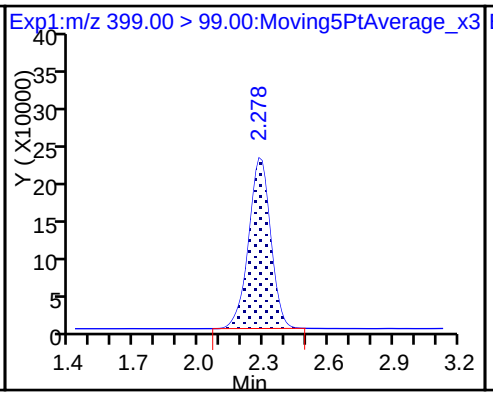
D 11 18O2 PFHxS



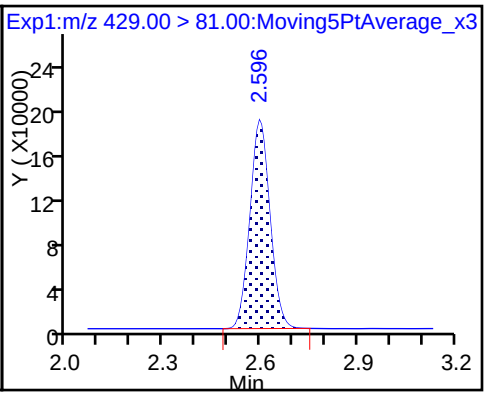
8 Perfluorohexanesulfonic acid



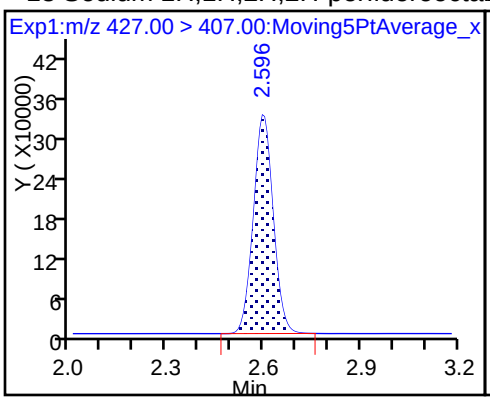
8 Perfluorohexanesulfonic acid



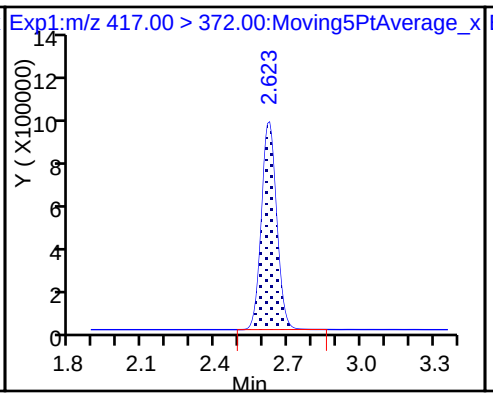
D 12 M2-6:2FTS



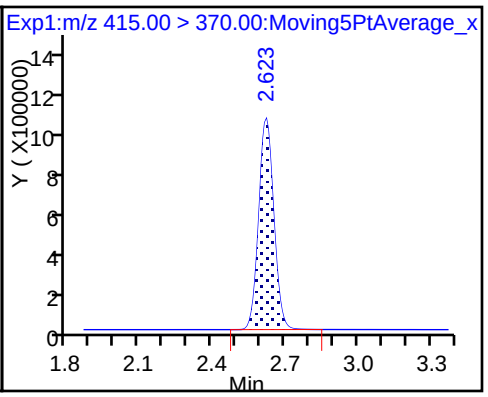
13 Sodium 1H,1H,2H,2H-perfluorooctane



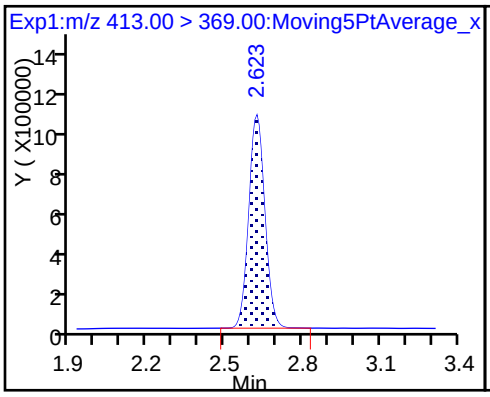
D 14 13C4 PFOA



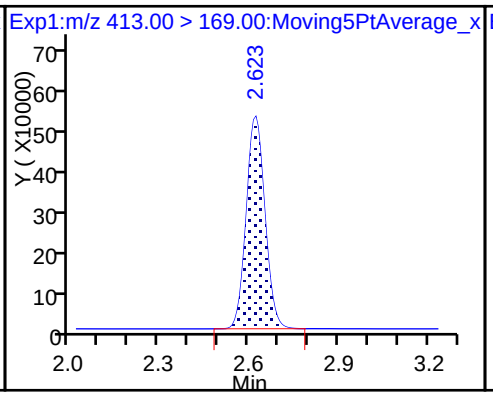
* 62 13C2-PFOA



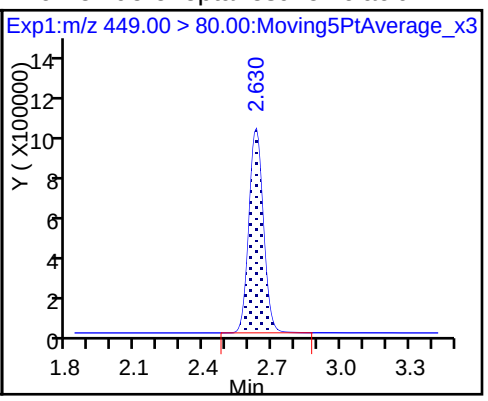
15 Perfluorooctanoic acid



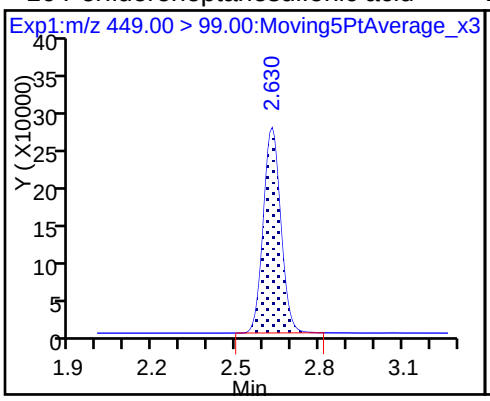
15 Perfluorooctanoic acid



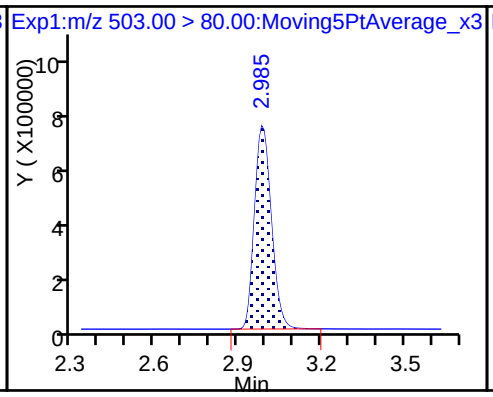
16 Perfluoroheptanesulfonic acid



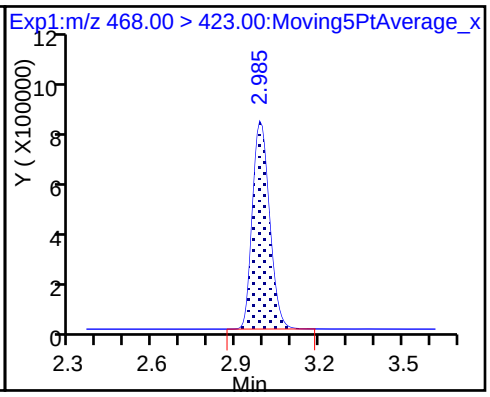
16 Perfluoroheptanesulfonic acid



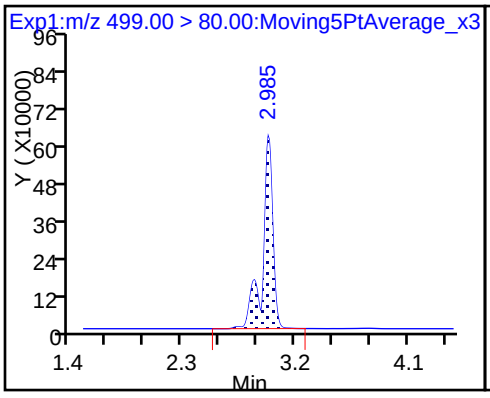
D 18 13C4 PFOS



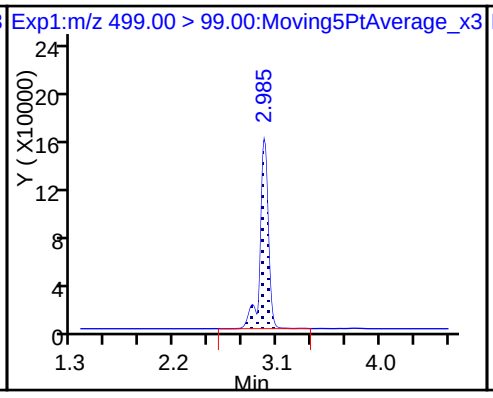
D 19 13C5 PFNA



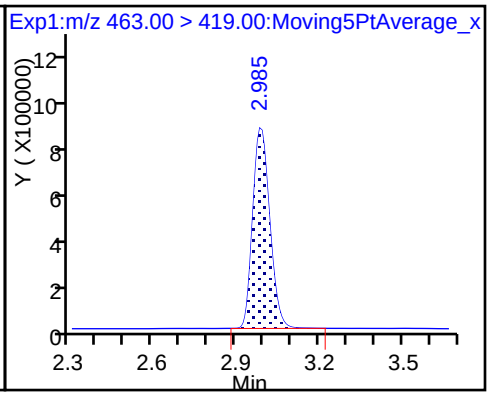
17 Perfluorooctane sulfonic acid



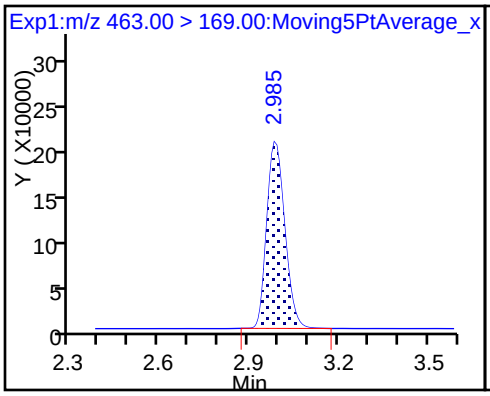
17 Perfluorooctane sulfonic acid



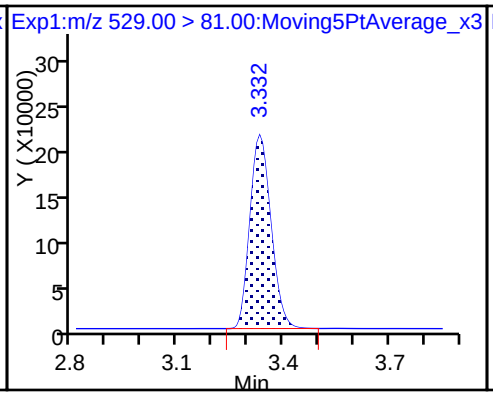
20 Perfluorononanoic acid



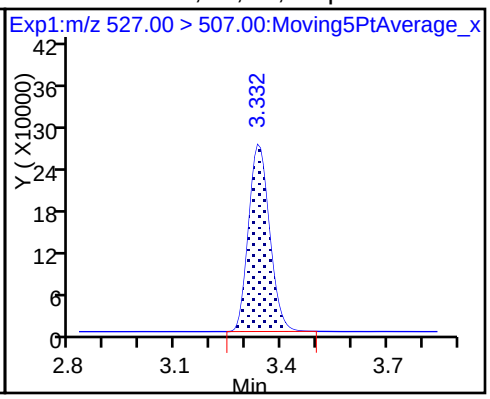
20 Perfluorononanoic acid



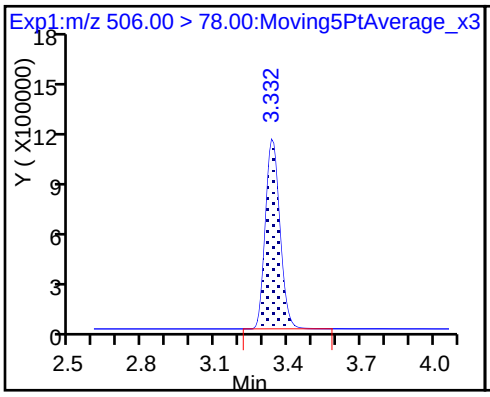
D 26 M2-8:2FTS



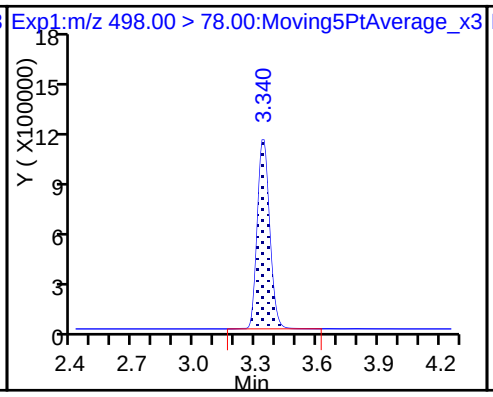
25 Sodium 1H,1H,2H,2H-perfluorodecane



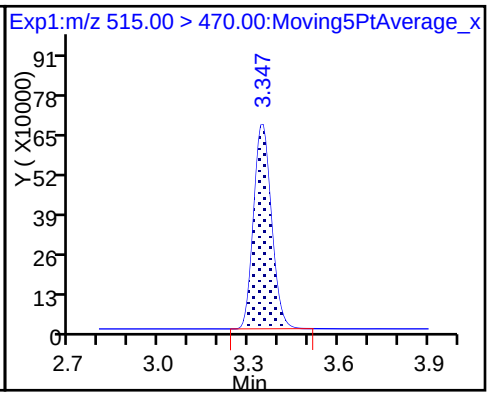
D 21 13C8 FOSA



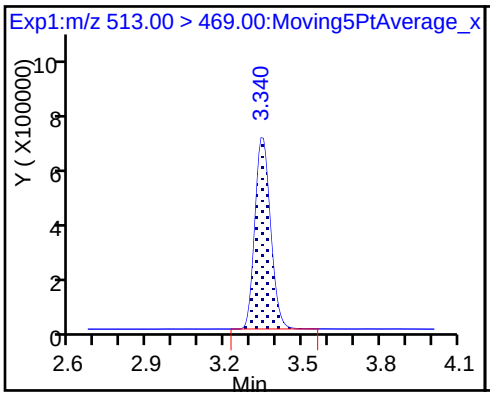
22 Perfluorooctane Sulfonamide



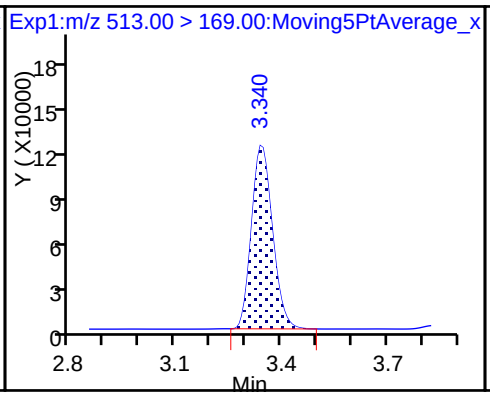
D 23 13C2 PFDA



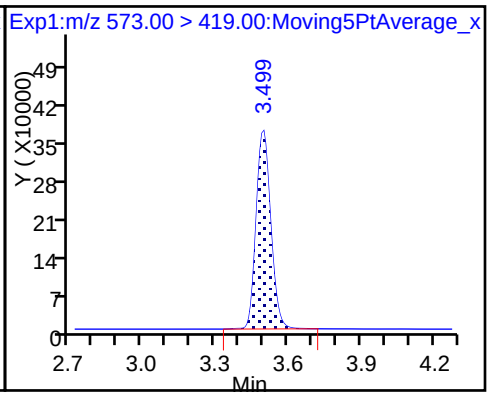
24 Perfluorodecanoic acid



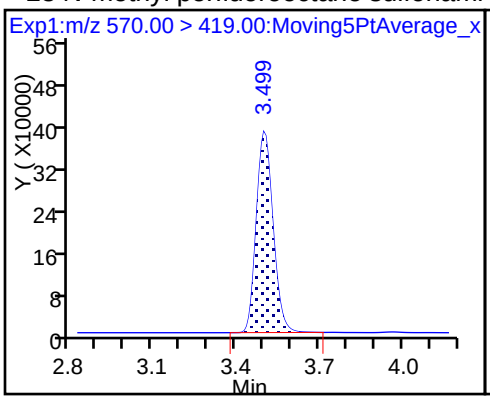
24 Perfluorodecanoic acid



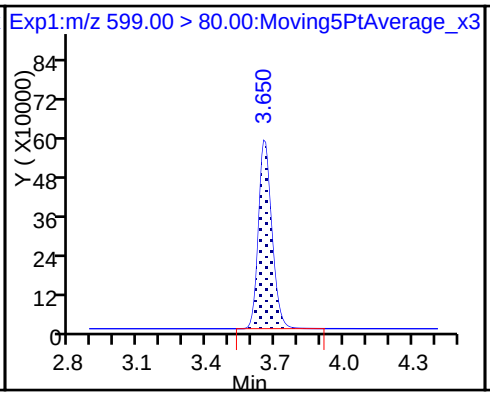
D 27 d3-NMeFOSAA



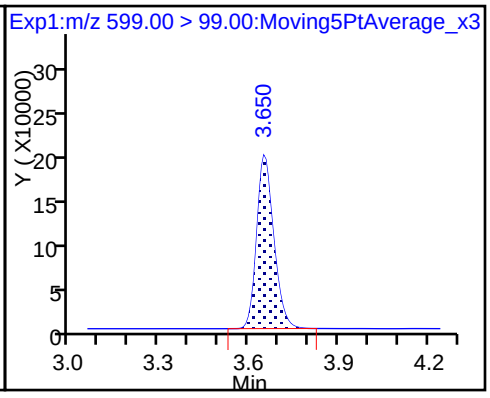
28 N-methyl perfluorooctane sulfonami



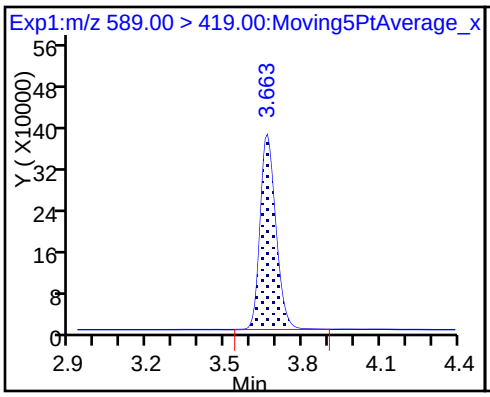
29 Perfluorodecane Sulfonic acid



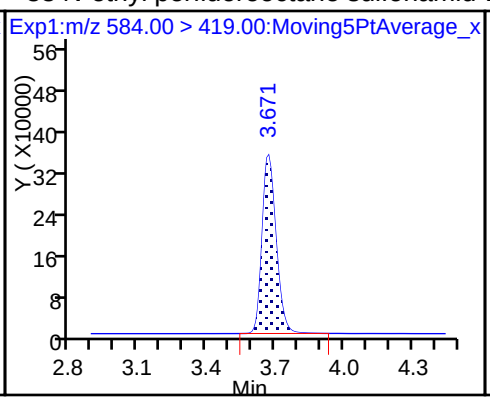
29 Perfluorodecane Sulfonic acid



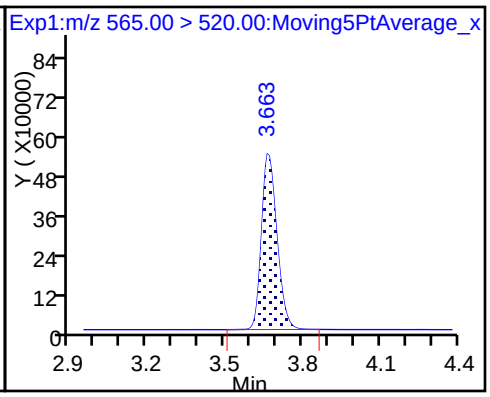
D 32 d5-NEtFOSAA



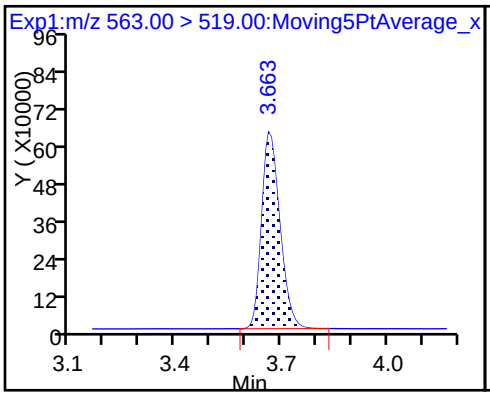
33 N-ethyl perfluorooctane sulfonamid



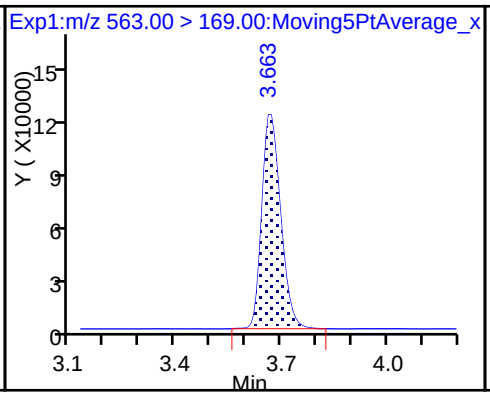
D 30 13C2 PFUnA



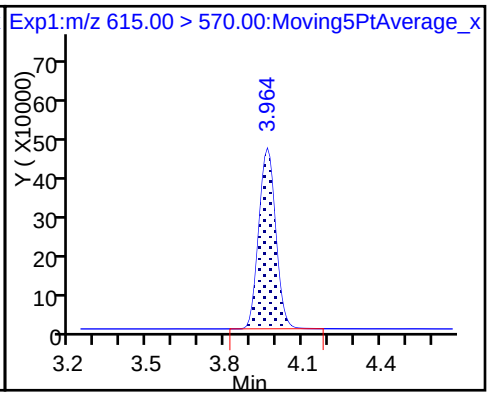
31 Perfluoroundecanoic acid



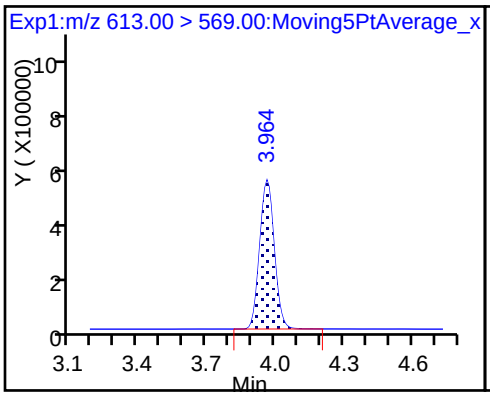
31 Perfluoroundecanoic acid



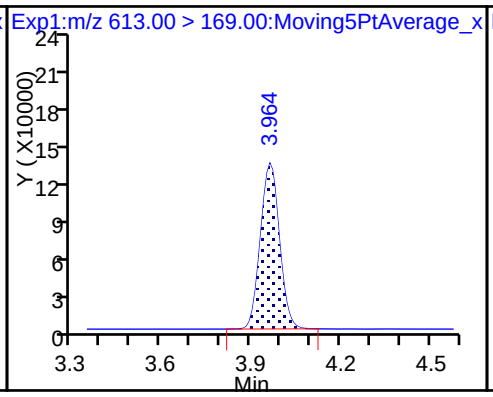
D 36 13C2 PFDoA



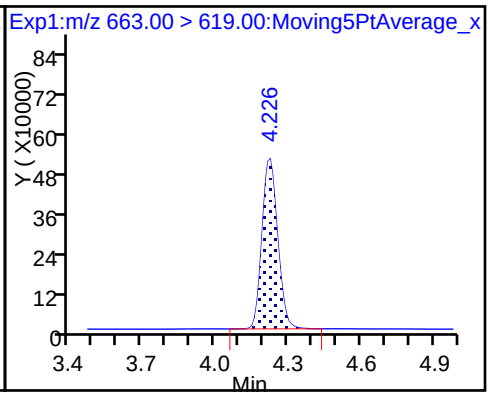
37 Perfluorododecanoic acid



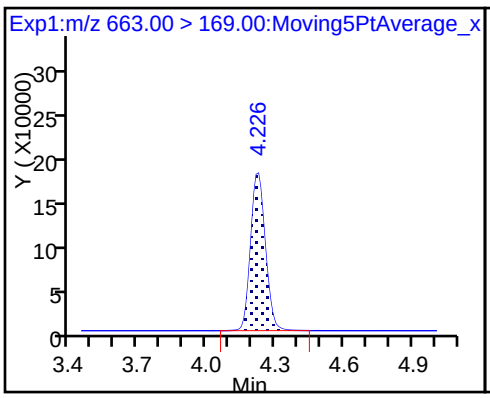
37 Perfluorododecanoic acid



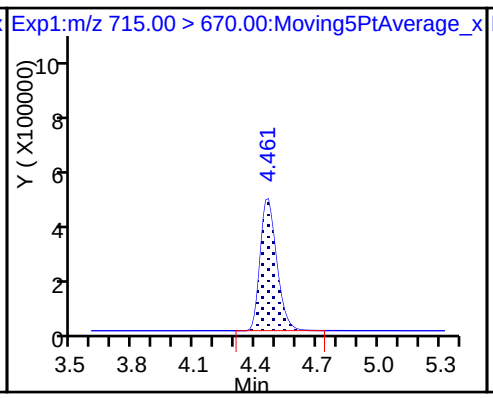
41 Perfluorotridecanoic acid



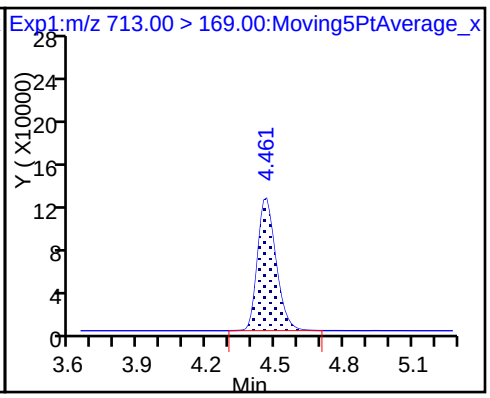
41 Perfluorotridecanoic acid



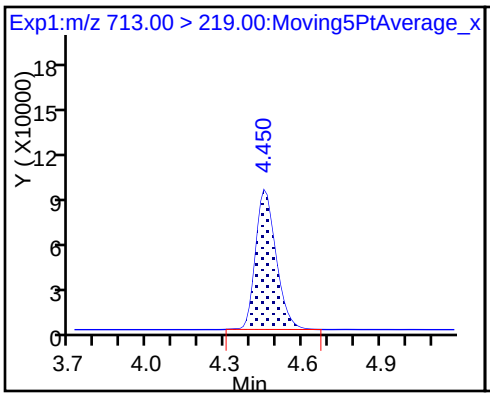
D 43 13C2-PFTeDA



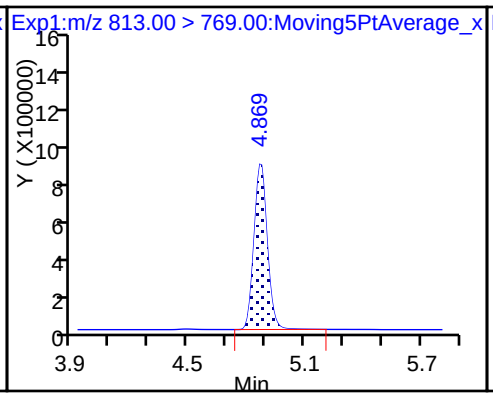
42 Perfluorotetradecanoic acid



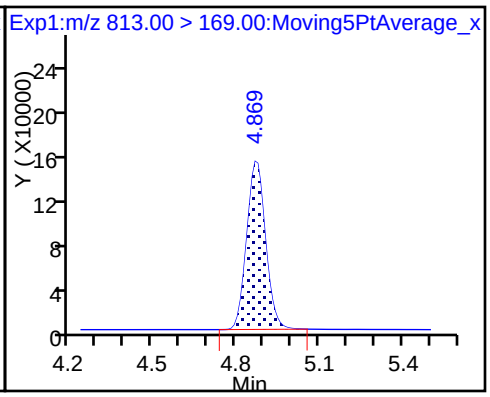
42 Perfluorotetradecanoic acid



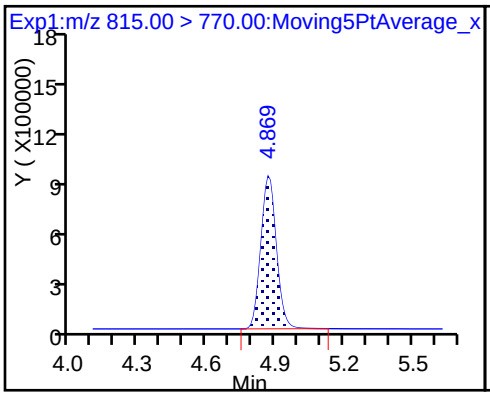
45 Perfluorohexadecanoic acid



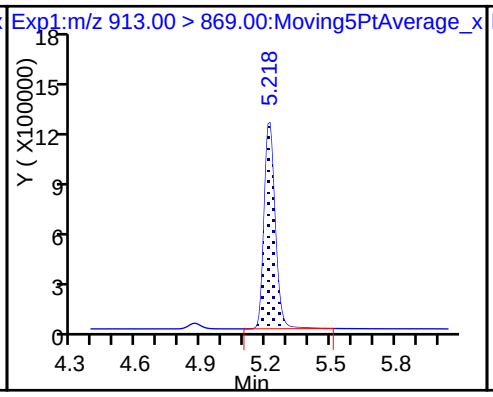
45 Perfluorohexadecanoic acid



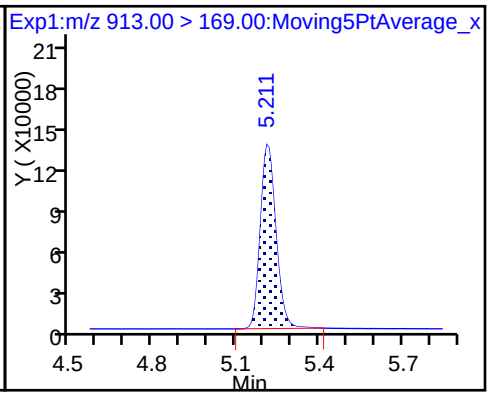
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-208660/10 Calibration Date: 02/15/2018 15:29

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.15LLICALA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9323		2.49	2.50	-0.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.121		2.35	2.50	-5.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	76.01		2.26	2.21	2.2	25.0
4:2 FTS	AveID	13.80	13.27		2.25	2.34	-3.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9699		2.35	2.50	-5.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	1.077		2.51	2.50	0.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.057		2.19	2.28	-4.1	25.0
6:2FTS	AveID	1.694	1.538		2.16	2.38	-9.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.363		2.45	2.38	3.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.149		2.61	2.50	4.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.058		2.28	2.31	-1.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.023		2.49	2.50	-0.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	1.017		2.61	2.50	4.3	25.0
8:2FTS	AveID	1.272	1.241		2.34	2.40	-2.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	0.9862		2.52	2.50	0.9	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	1.017		2.28	2.50	-8.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.6934		2.55	2.41	5.6	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.8827		2.28	2.50	-8.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	0.9493		2.22	2.50	-11.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	1.027		2.55	2.50	1.8	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.9162		2.43	2.50	-2.7	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2697		2.55	2.50	1.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9348		2.43	2.50	-2.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	0.9403		2.37	2.50	-5.0	25.0
13C4 PFBA	Ave	1.300	1.388		2.67	2.50	6.8	50.0
13C5 PFPeA	Ave	0.9279	1.000		2.70	2.50	7.8	50.0
13C3-PFBS	Ave	0.0248	0.0260		2.44	2.33	4.9	50.0
13C2 PFHxA	Ave	0.998	1.085		2.72	2.50	8.7	50.0
13C4-PFHpA	Ave	0.9453	0.995		2.63	2.50	5.3	50.0
18O2 PFHxS	Ave	1.332	1.387		2.46	2.37	4.1	50.0
M2-6:2FTS	Ave	0.2372	0.2746		2.75	2.38	15.8	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-208660/10 Calibration Date: 02/15/2018 15:29

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.15LLICALA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.9712		2.68	2.50	7.2	50.0
13C4 PFOS	Ave	0.9166	0.9873		2.57	2.39	7.7	50.0
13C5 PFNA	Ave	0.6993	0.7559		2.70	2.50	8.1	50.0
13C8 FOSA	Ave	1.318	1.422		2.70	2.50	7.9	50.0
M2-8:2FTS	Ave	0.2184	0.2385		2.62	2.40	9.2	50.0
13C2 PFDA	Ave	0.5764	0.6244		2.71	2.50	8.3	50.0
d3-NMeFOSAA	Ave	0.1687	0.1869		2.77	2.50	10.8	50.0
d5-NEtFOSAA	Ave	0.1780	0.1922		2.70	2.50	8.0	50.0
13C2 PFUnA	Ave	0.4407	0.4750		2.69	2.50	7.8	50.0
13C2 PFDoA	Ave	0.4199	0.4589		2.73	2.50	9.3	50.0
13C2-PFTeDA	Ave	0.3706	0.4182		2.82	2.50	12.8	50.0
13C2-PFHxDA	Ave	0.5001	0.5790		2.89	2.50	15.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_010.d
Lims ID: ICV Full
Client ID:
Sample Type: ICV
Inject. Date: 15-Feb-2018 15:29:55 ALS Bottle#: 18 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 16-Feb-2018 09:35:38 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK025

First Level Reviewer: roycea Date: 16-Feb-2018 09:34:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.405	1.401	0.004	0.537	6697237	2.67		107	85347	
2 Perfluorobutyric acid										
212.90 > 169.00	1.405	1.404	0.001	1.000	6243850	2.49			2006	
D 3 13C5-PFPeA										
267.90 > 223.00	1.650	1.648	0.002	0.630	4826008	2.70		108	88170	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.658	1.649	0.009	1.005	5411242	2.35			1716	
D 47 13C3-PFBS										
301.90 > 83.00	1.685	1.680	0.005	0.644	116702	2.44		105	2354	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.694	1.683	0.011	1.005	8441653	2.26			79321	
298.90 > 99.00	1.694	1.683	0.011	1.005	3483029		2.42(1.25-3.74)		42003	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.898	1.891	0.007	1.000	1556517	2.25			56071	
D 60 M2-4:2FTS										
329.00 > 81.00	1.898	1.891	0.007	0.725	745497	NC			12342	
D 7 13C2 PFHxA										
315.00 > 270.00	1.939	1.925	0.014	0.741	5232078	2.72		109	129248	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.939	1.926	0.013	1.000	5074527	2.35			16523	
313.00 > 119.00	1.939	1.926	0.013	1.000	484950		10.46(5.03-15.10)		8354	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.260	2.251	0.009	1.000	5170984	2.51			7565	
363.00 > 169.00	2.260	2.251	0.009	1.000	2032765		2.54(1.13-3.40)		16344	
D 9 13C4-PFHpA										
367.00 > 322.00	2.260	2.251	0.009	0.863	4802578	2.63		105	86132	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.273	2.262	0.011	1.000	6452642	2.19			19937	
399.00 > 99.00	2.273	2.262	0.011	1.000	2157436		2.99(1.50-4.49)		6647	
D 11 18O2 PFHxS										
403.00 > 84.00	2.273	2.264	0.009	0.868	6329805	2.46		104	113083	
D 12 M2-6:2FTS										
429.00 > 81.00	2.598	2.588	0.010	0.992	1258470	2.75		116	32954	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.598	2.589	0.009	1.000	1935794	2.16			64556	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.625	2.614	0.011	1.003	5384558	2.61			607	
413.00 > 169.00	2.618	2.614	0.004	1.000	2793282		1.93(0.84-2.52)		928	
* 62 13C2-PFOA										
415.00 > 370.00	2.618	2.614	0.004		4824322	2.50			85455	
D 14 13C4 PFOA										
417.00 > 372.00	2.618	2.614	0.004	1.000	4685538	2.68		107	90435	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.625	2.620	0.005	1.000	6165380	2.45			90560	
449.00 > 99.00	2.625	2.620	0.005	1.000	1559505		3.95(1.94-5.82)		23046	
D 18 13C4 PFOS										
503.00 > 80.00	2.989	2.981	0.008	1.141	4553342	2.57		108	32395	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.989	2.982	0.007	1.000	4665729	2.28			27788	
499.00 > 99.00	2.989	2.982	0.007	1.000	1026651		4.54(2.31-6.93)		7702	
20 Perfluorononanoic acid										
463.00 > 419.00	2.997	2.983	0.014	1.003	3731007	2.49			4410	
463.00 > 169.00	2.997	2.983	0.014	1.003	950305		3.93(1.90-5.69)		27880	
D 19 13C5 PFNA										
468.00 > 423.00	2.989	2.983	0.006	1.141	3646687	2.70		108	65598	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.330	0.005	1.274	6860464	2.70		108	67593	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.343	3.330	0.013	1.000	1370471	2.34			33136	
D 26 M2-8:2FTS										
529.00 > 81.00	3.343	3.330	0.013	1.277	1102199	2.62		109	26790	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.335	3.333	0.002	1.000	6978023	2.61			41648	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.340	0.010	1.280	3012379	2.71		108	39069	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.341	0.009	1.000	2970888	2.52			11356	
513.00 > 169.00	3.350	3.341	0.009	1.000	548255		5.42(2.36-7.09)		13639	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.503	3.493	0.010	1.338	901659	2.77		111	27520	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.510	3.497	0.013	1.002	917145	2.28			10113	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.659	3.648	0.011	1.000	3187028	2.55			74836	
599.00 > 99.00	3.659	3.648	0.011	1.000	1052333		3.03(1.39-4.16)		18309	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.666	3.660	0.006	1.400	927106	2.70		108	1699	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.673	3.666	0.007	1.002	818380	2.28			15061	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.673	3.668	0.005	1.000	2175345	2.22			5186	
563.00 > 169.00	3.673	3.668	0.005	1.000	447475		4.86(0.00-0.00)		20625	
D 30 13C2 PFUnA										
565.00 > 520.00	3.673	3.669	0.004	1.403	2291428	2.69		108	62754	
D 36 13C2 PFDoA										
615.00 > 570.00	3.966	3.960	0.006	1.515	2213856	2.73		109	20321	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.966	3.961	0.005	1.000	2273936	2.55			4557	
613.00 > 169.00	3.966	3.961	0.005	1.000	564793		4.03(2.13-6.40)		26100	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.226	4.221	0.005	1.000	2028425	2.43			4700	
663.00 > 169.00	4.226	4.221	0.005	1.000	693541		2.92(1.25-3.76)		15999	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.462	4.459	0.003	1.000	544019	2.55			19756	
713.00 > 219.00	4.450	4.459	-0.009	0.997	356258		1.53(0.71-2.13)		9265	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.459	0.003	1.704	2017286	2.82		113	26249	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.878	4.867	0.011	1.863	2793094	2.89		116	15276	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.878	4.871	0.007	1.000	2611010	2.43			763	
813.00 > 169.00	4.878	4.871	0.007	1.000	470682		5.55(2.86-8.58)		8655	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.225	5.216	0.009	1.000	2626225	2.37			472	
913.00 > 169.00	5.225	5.216	0.009	1.000	335413		7.83(0.00-0.00)		2258	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFCIC_FULL_00009 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 09:35:39 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_010.d

Injection Date: 15-Feb-2018 15:29:55 Instrument ID: A8_N

Lims ID: ICV Full

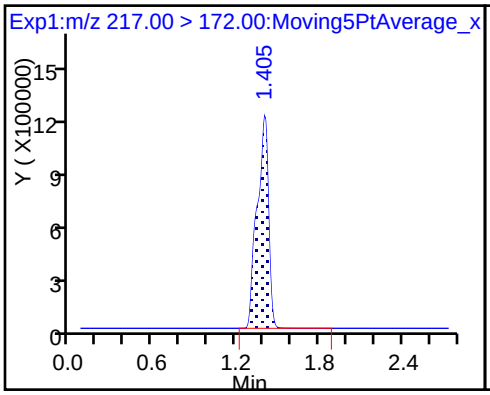
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 10

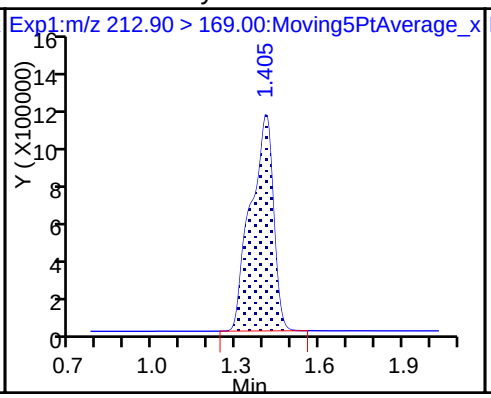
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

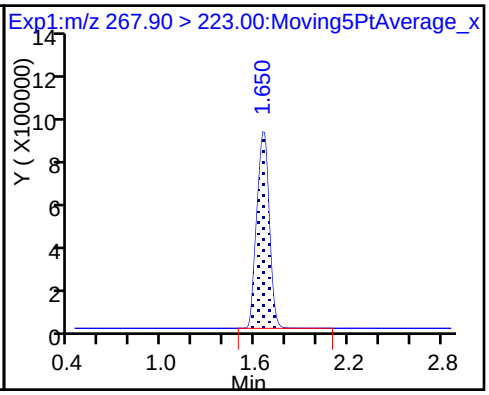
D 1 13C4 PFBA



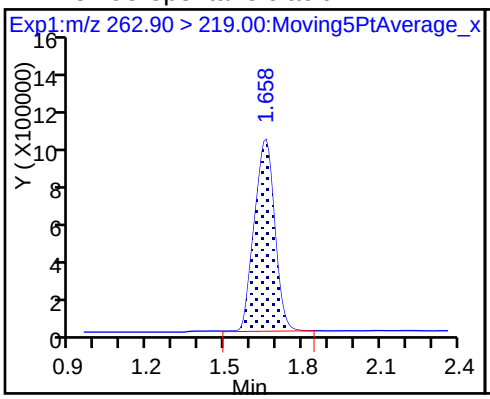
2 Perfluorobutyric acid



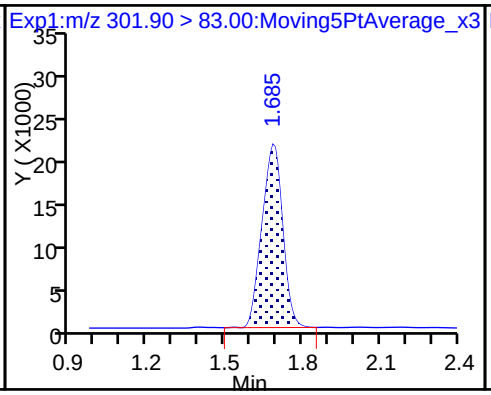
D 3 13C5-PFPeA



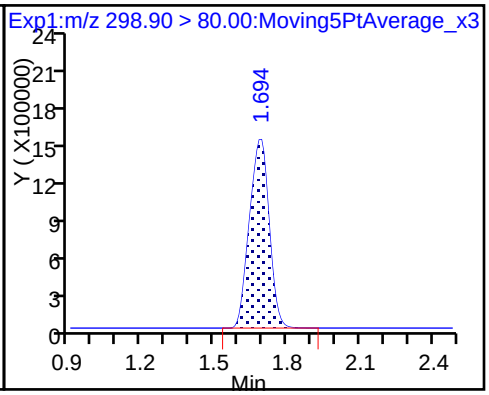
4 Perfluoropentanoic acid



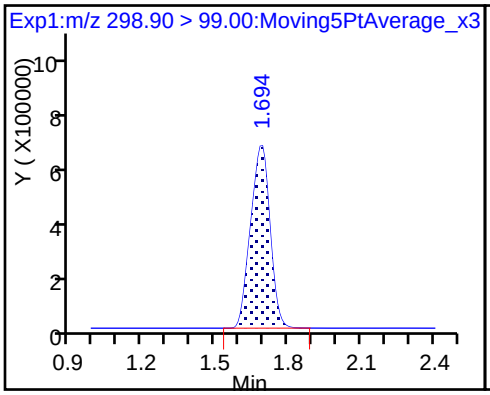
D 47 13C3-PFBS



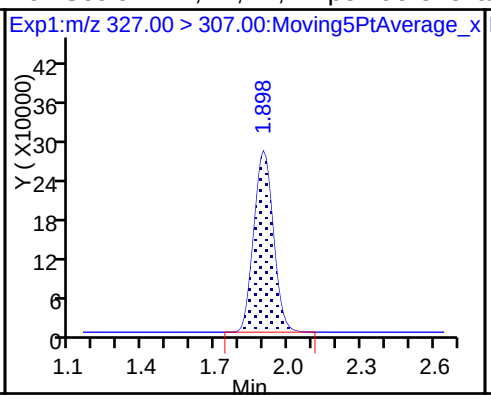
5 Perfluorobutanesulfonic acid



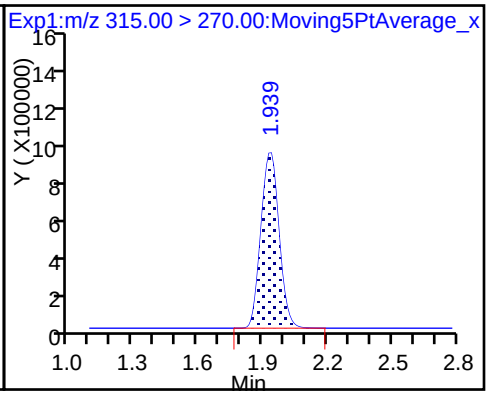
5 Perfluorobutanesulfonic acid



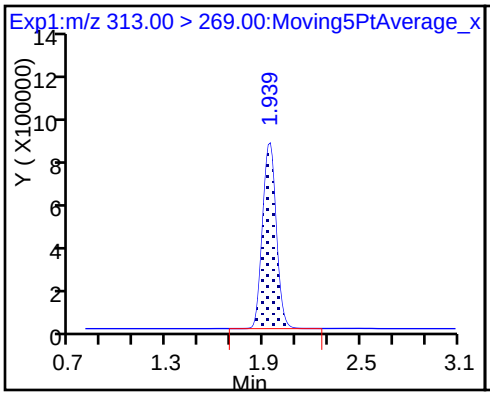
61 Sodium 1H,1H,2H,2H-perfluorohexa



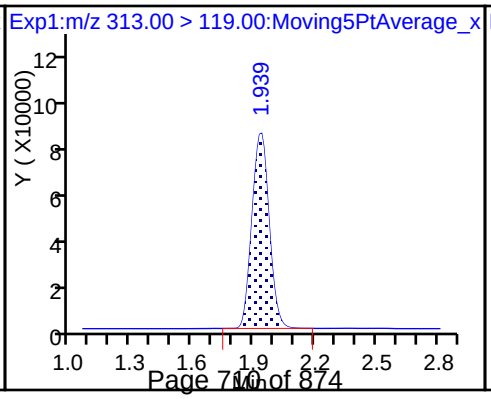
D 7 13C2 PFHxA



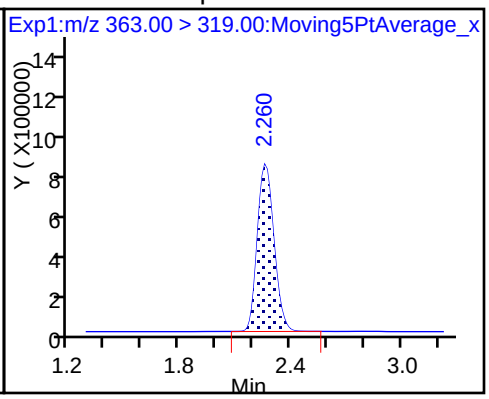
6 Perfluorohexanoic acid



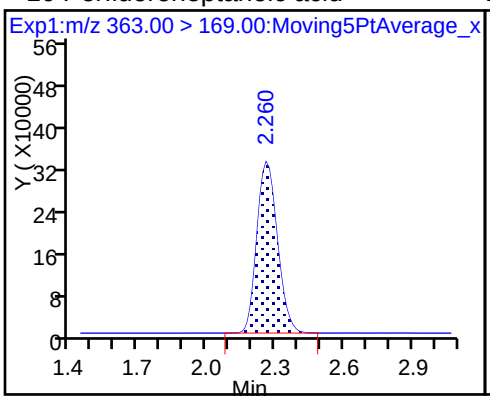
6 Perfluorohexanoic acid



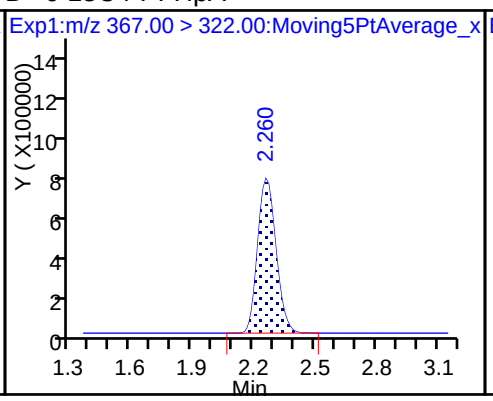
10 Perfluoroheptanoic acid



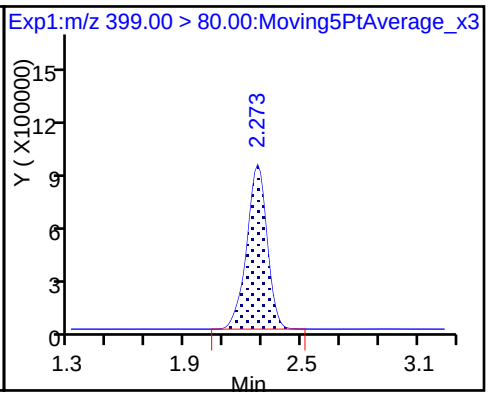
10 Perfluoroheptanoic acid



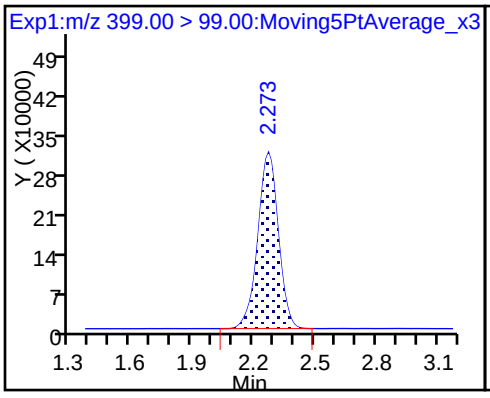
D 9 13C4-PFHpA



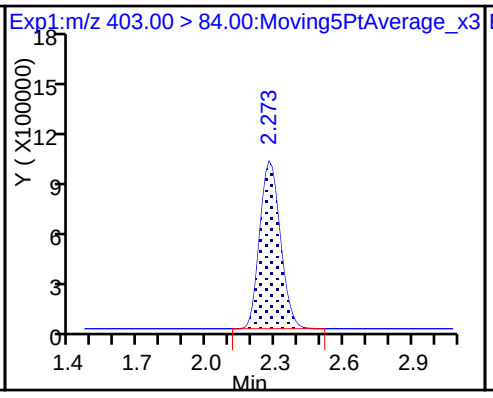
8 Perfluorohexanesulfonic acid



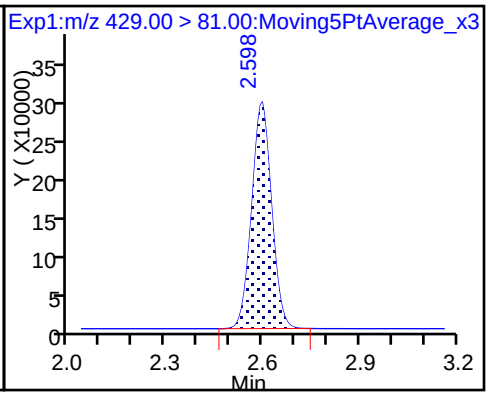
8 Perfluorohexanesulfonic acid



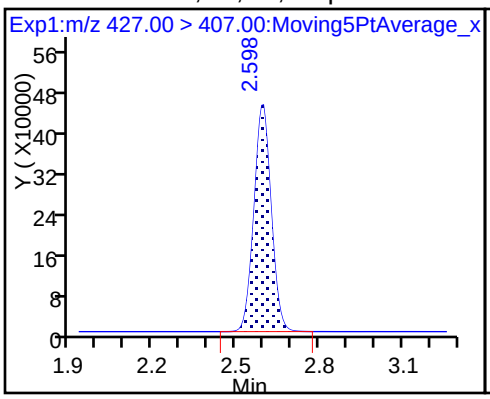
D 11 18O2 PFHxS



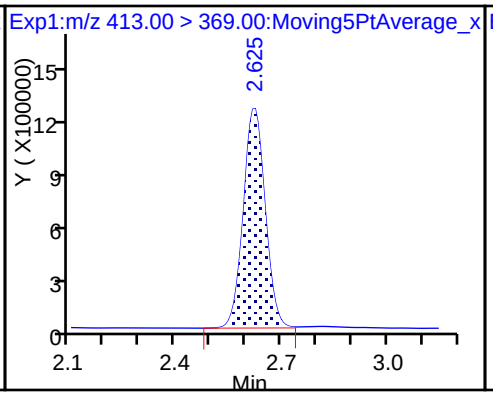
D 12 M2-6:2FTS



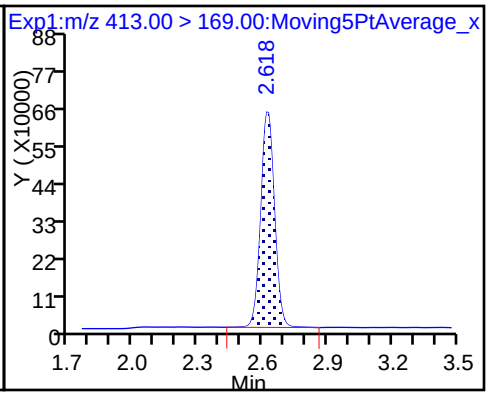
13 Sodium 1H,1H,2H,2H-perfluorooctane



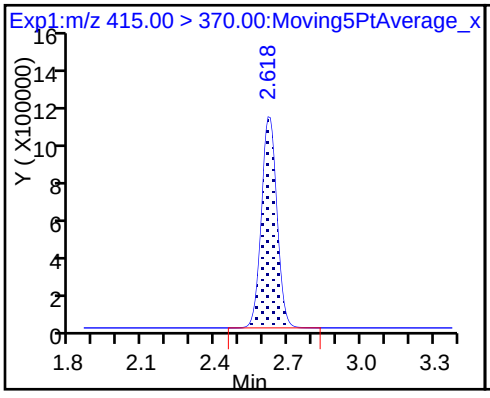
15 Perfluorooctanoic acid



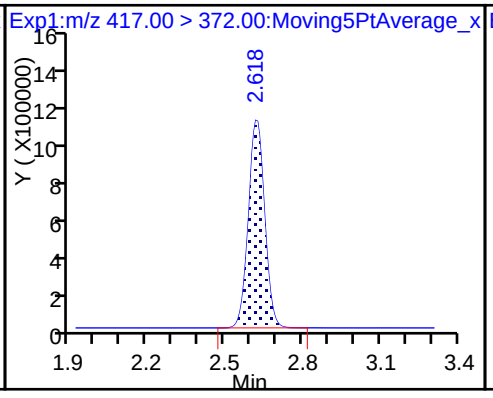
15 Perfluorooctanoic acid



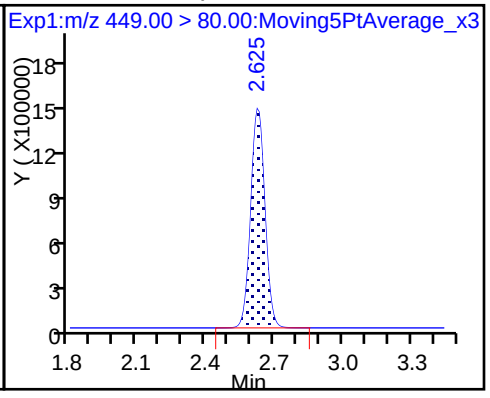
* 62 13C2-PFOA



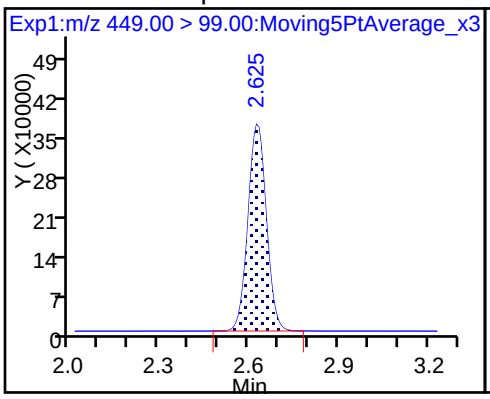
D 14 13C4 PFOA



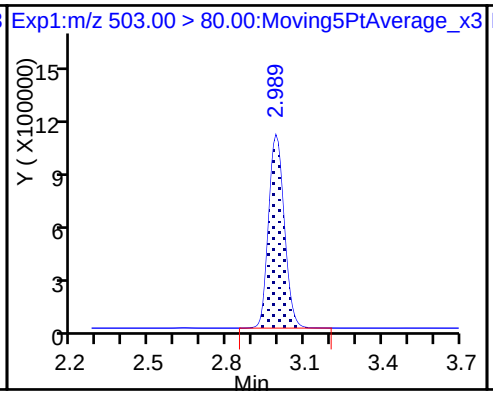
16 Perfluoroheptanesulfonic acid



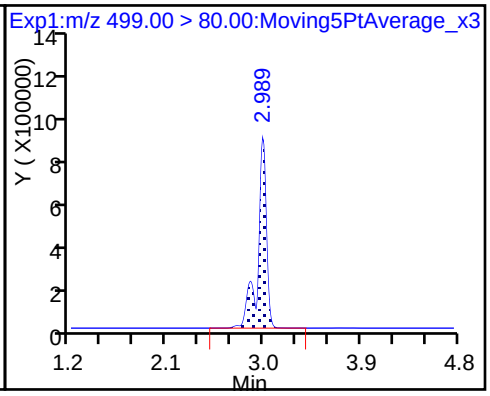
16 Perfluoroheptanesulfonic acid



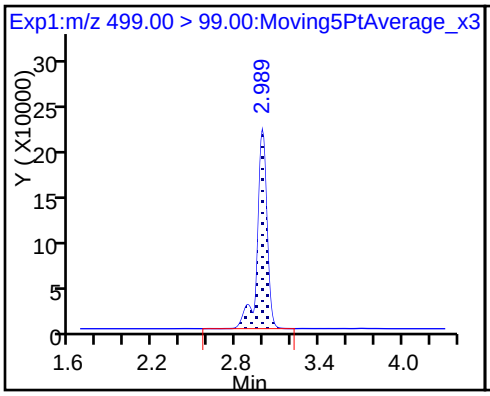
D 18 13C4 PFOS



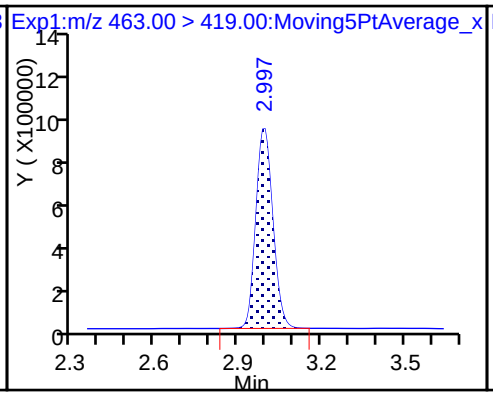
17 Perfluorooctane sulfonic acid



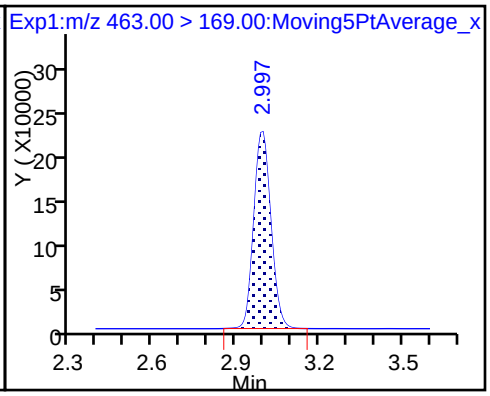
17 Perfluorooctane sulfonic acid



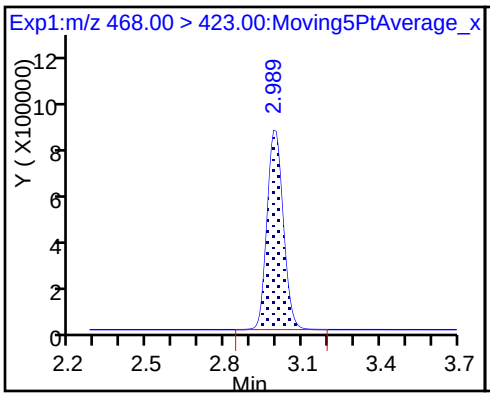
20 Perfluorononanoic acid



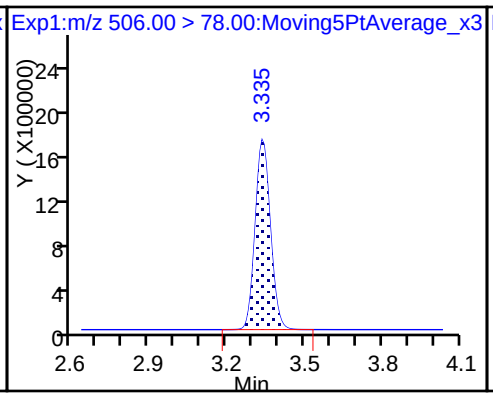
20 Perfluorononanoic acid



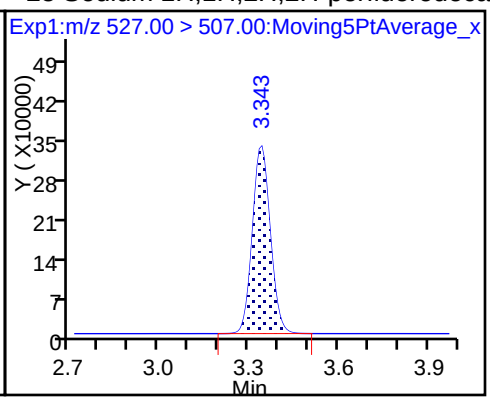
D 19 13C5 PFNA



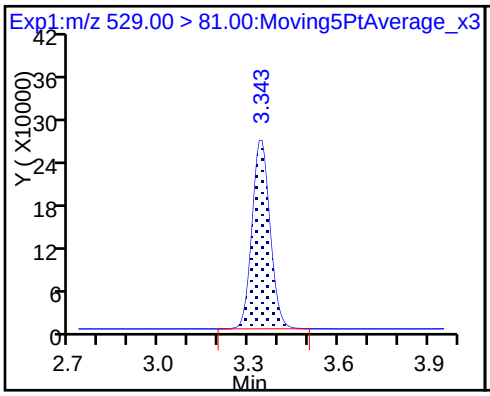
D 21 13C8 FOSA



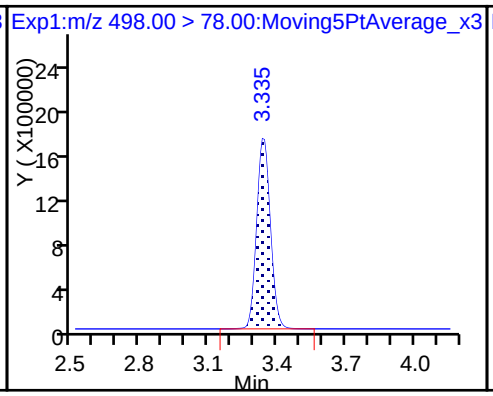
25 Sodium 1H,1H,2H,2H-perfluorodecane



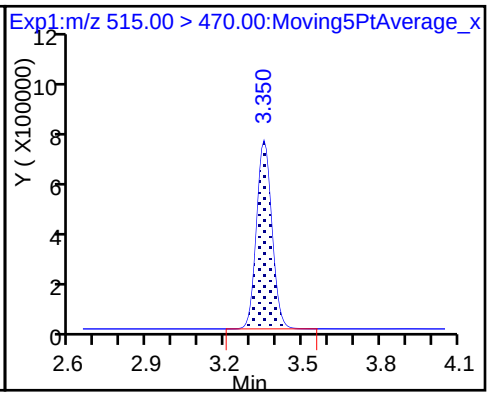
D 26 M2-8:2FTS



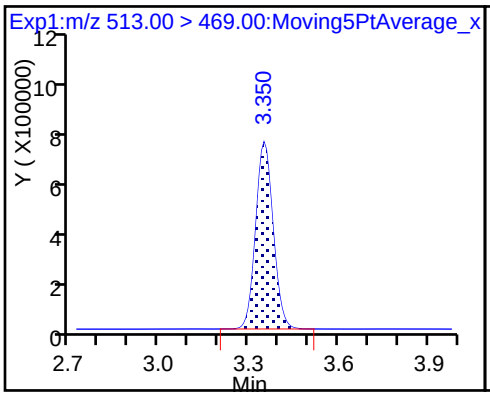
22 Perfluorooctane Sulfonamide



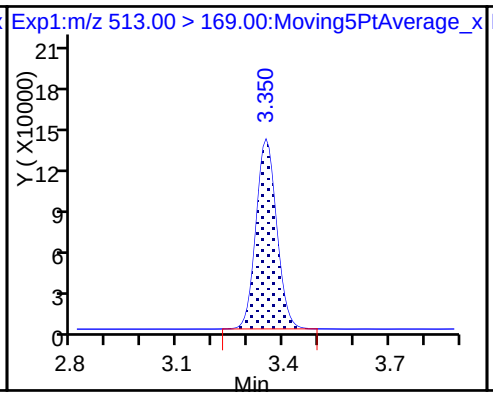
D 23 13C2 PFDA



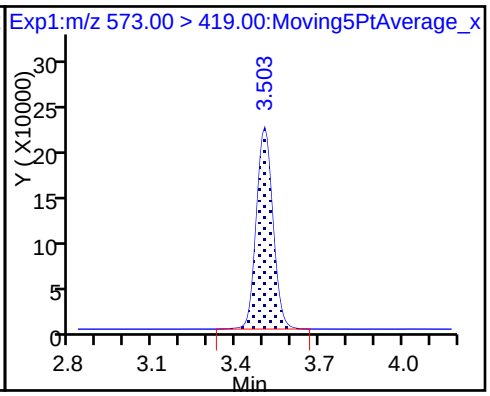
24 Perfluorodecanoic acid



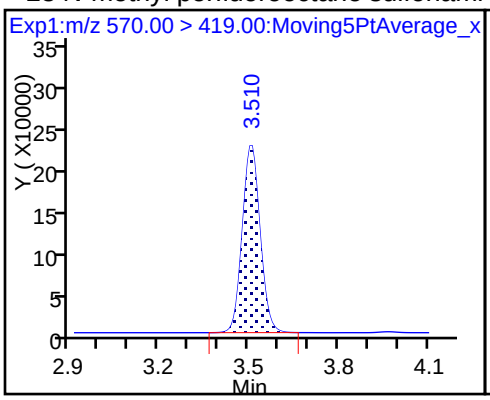
24 Perfluorodecanoic acid



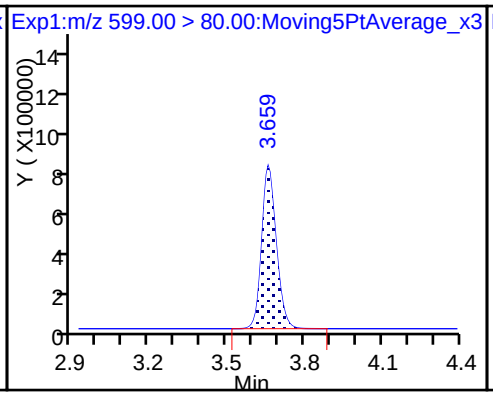
D 27 d3-NMeFOSAA



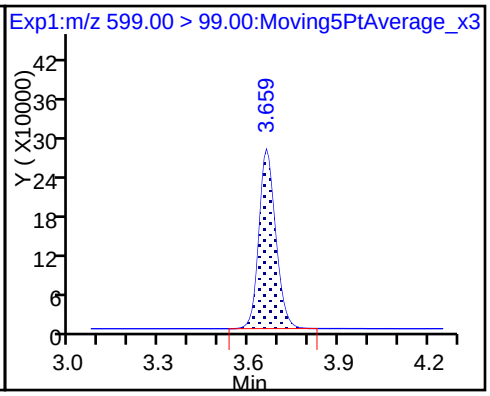
28 N-methyl perfluorooctane sulfonami



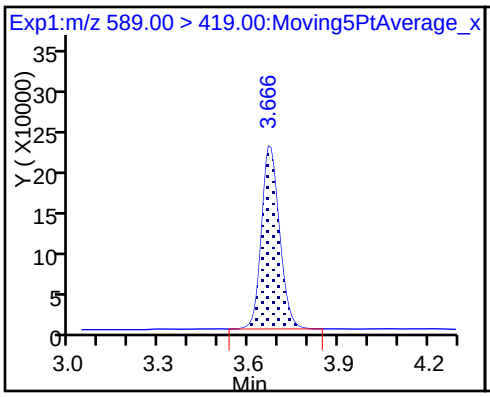
29 Perfluorodecane Sulfonic acid



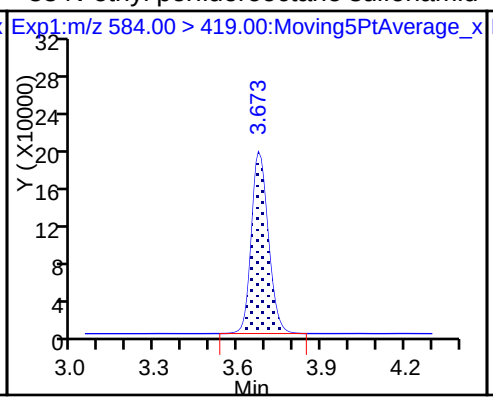
29 Perfluorodecane Sulfonic acid



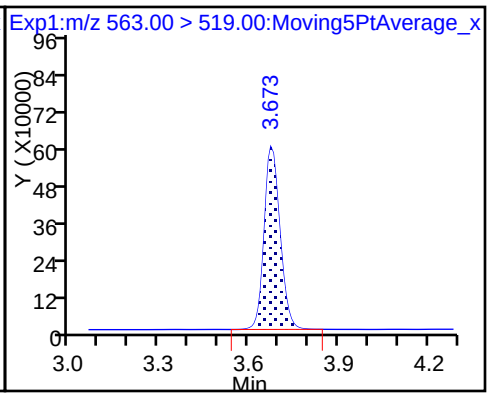
D 32 d5-NEtFOSAA



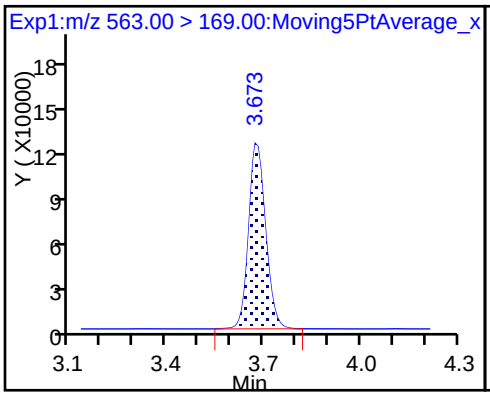
33 N-ethyl perfluorooctane sulfonamid



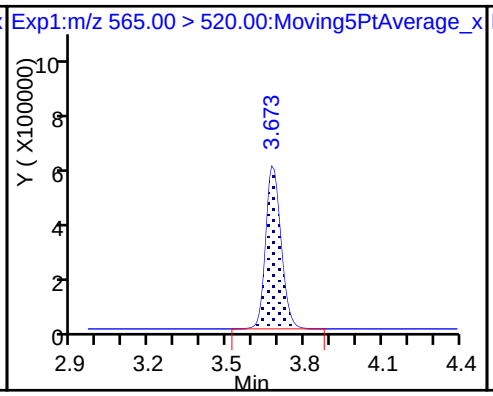
31 Perfluoroundecanoic acid



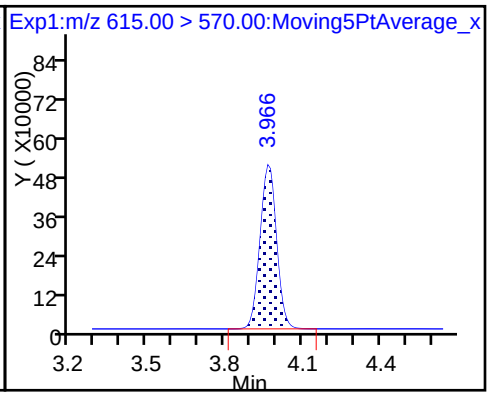
31 Perfluoroundecanoic acid



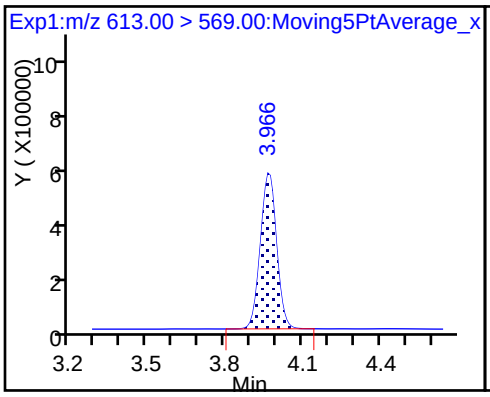
D 30 13C2 PFUnA



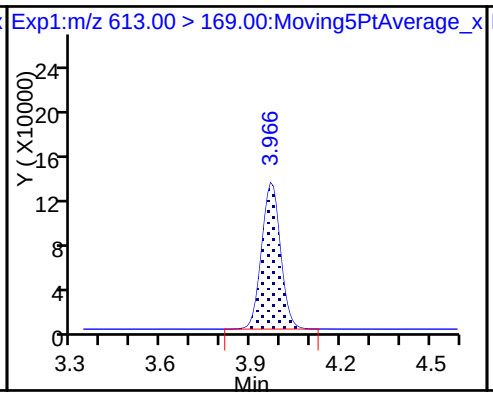
D 36 13C2 PFDoA



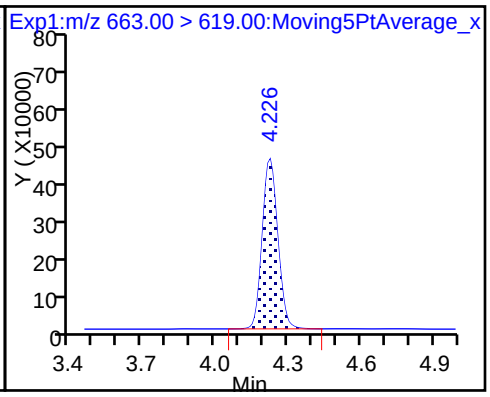
37 Perfluorododecanoic acid



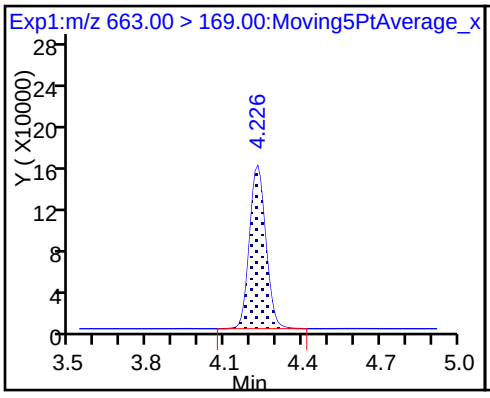
37 Perfluorododecanoic acid



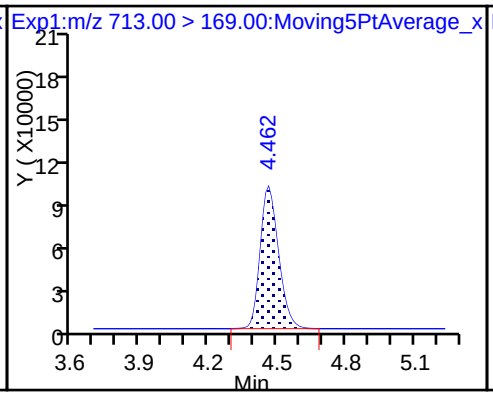
41 Perfluorotridecanoic acid



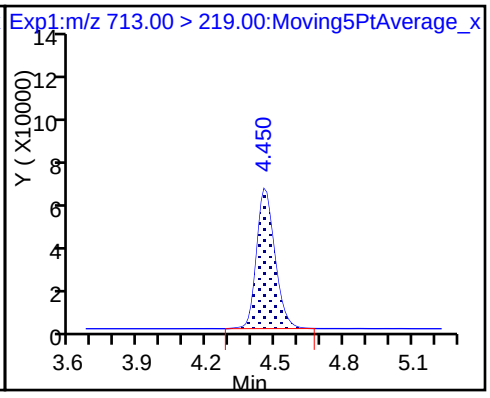
41 Perfluorotridecanoic acid



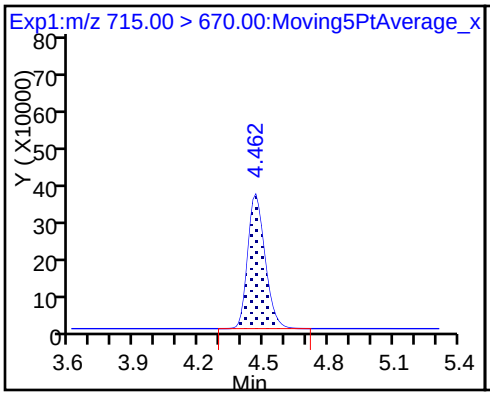
42 Perfluorotetradecanoic acid



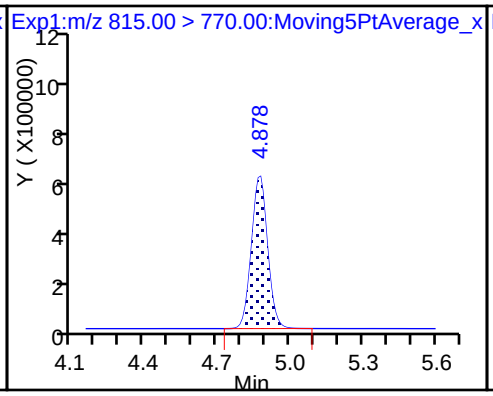
42 Perfluorotetradecanoic acid



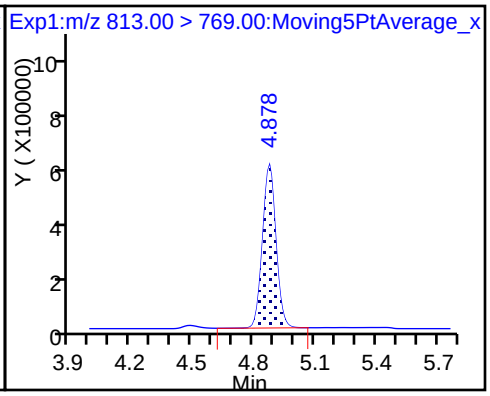
D 43 13C2-PFTeDA



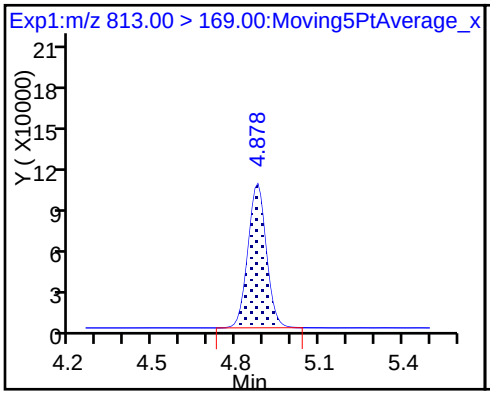
D 44 13C2-PFHxDA



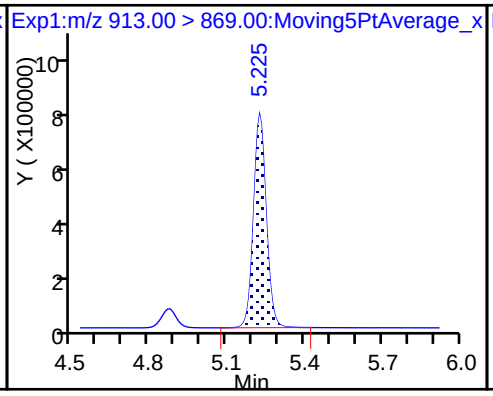
45 Perfluorohexadecanoic acid



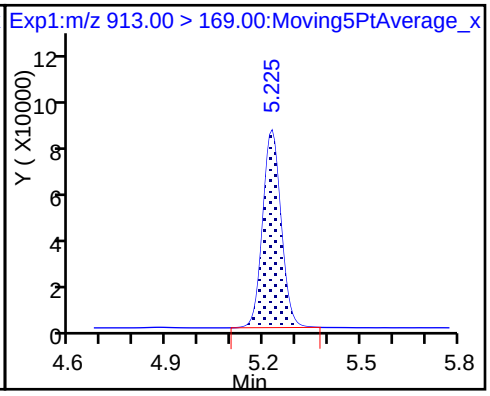
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-208863/3 Calibration Date: 02/16/2018 15:25

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9039		0.0483	0.0500	-3.5	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.353		0.0568	0.0500	13.6	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	71.60		0.0426	0.0442	-3.7	50.0
4:2 FTS	AveID	13.80	13.98		0.473	0.467	1.2	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.039		0.0504	0.0500	0.8	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	0.9799		0.0457	0.0500	-8.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.163		0.0480	0.0455	5.4	50.0
6:2FTS	AveID	1.694	1.668		0.467	0.474	-1.6	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.043		0.0473	0.0500	-5.4	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.294		0.0466	0.0476	-2.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.029		0.0500	0.0500	-0.0	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.013		0.0438	0.0464	-5.6	50.0
8:2FTS	AveID	1.272	1.143		0.431	0.479	-10.1	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	0.9417		0.0483	0.0500	-3.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	0.8836		0.0452	0.0500	-9.6	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	0.9873		0.443	0.500	-11.5	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.5832		0.0428	0.0482	-11.2	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.8115		0.419	0.500	-16.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	1.096		0.0512	0.0500	2.5	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	0.9102		0.0451	0.0500	-9.8	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.9526		0.0506	0.0500	1.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2108		0.0398	0.0500	-20.4	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.373		0.0516	0.0500	3.3	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	0.9081		0.0459	0.0500	-8.3	50.0
13C4 PFBA	Ave	1.300	1.378		2.65	2.50	6.0	50.0
13C5 PFPeA	Ave	0.9279	0.9682		2.61	2.50	4.3	50.0
13C3-PFBS	Ave	0.0248	0.0259		2.43	2.33	4.4	50.0
13C2 PFHxA	Ave	0.998	1.041		2.61	2.50	4.3	50.0
13C4-PFHpA	Ave	0.9453	0.9788		2.59	2.50	3.5	50.0
18O2 PFHxS	Ave	1.332	1.371		2.43	2.37	2.9	50.0
M2-6:2FTS	Ave	0.2372	0.2316		2.32	2.38	-2.4	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-208863/3 Calibration Date: 02/16/2018 15:25

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.9196		2.54	2.50	1.5	50.0
13C4 PFOS	Ave	0.9166	0.9325		2.43	2.39	1.7	50.0
13C5 PFNA	Ave	0.6993	0.7226		2.58	2.50	3.3	50.0
M2-8:2FTS	Ave	0.2184	0.2154		2.36	2.40	-1.4	50.0
13C2 PFDA	Ave	0.5764	0.5819		2.52	2.50	0.9	50.0
13C8 FOSA	Ave	1.318	1.397		2.65	2.50	6.0	50.0
d3-NMeFOSAA	Ave	0.1687	0.1332		1.97	2.50	-21.1	50.0
13C2 PFUnA	Ave	0.4407	0.4382		2.49	2.50	-0.6	50.0
d5-NEtFOSAA	Ave	0.1780	0.1512		2.12	2.50	-15.1	50.0
13C2 PFDoA	Ave	0.4199	0.3811		2.27	2.50	-9.2	50.0
13C2-PFTeDA	Ave	0.3706	0.3642		2.46	2.50	-1.7	50.0
13C2-PFHxDA	Ave	0.5001	0.4930		2.46	2.50	-1.4	50.0

FORM VII 537 (modified)

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54185.b\2018.02.16LLA_003.d
Lims ID: CCVL
Client ID:
Sample Type: CCVIS
Inject. Date: 16-Feb-2018 15:25:29 ALS Bottle#: 21 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54185.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 19-Feb-2018 10:57:55 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK050

First Level Reviewer: phomsophat Date: 16-Feb-2018 18:56:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	1.408	1.408	0.0	1.004	110979	0.0483		96.5	24.3	
D 1 13C4 PFBA										
217.00 > 172.00	1.402	1.424	-0.022	0.537	6138809	2.65		106	78019	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.654	1.654	0.0	1.000	116694	0.0568		114	28.7	
D 3 13C5-PFPeA										
267.90 > 223.00	1.654	1.676	-0.022	0.634	4311998	2.61		104	90684	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.689	1.689	0.0	1.005	145934	0.0426		96.3	1670	
298.90 > 99.00	1.689	1.689	0.0	1.005	60560		2.41(1.25-3.74)		412	
D 47 13C3-PFBS										
301.90 > 83.00	1.681	1.703	-0.023	0.644	107215	2.43		104	2009	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.893	1.893	0.0	1.000	300990	0.4728		101	13884	
D 60 M2-4:2FTS										
329.00 > 81.00	1.893	1.918	-0.025	0.726	717955	NC			7897	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.924	1.924	0.0	1.000	96283	0.0504		101	168	
313.00 > 119.00	1.924	1.924	0.0	1.000	9057		10.63(5.03-15.10)		84.8	
D 7 13C2 PFHxA										
315.00 > 270.00	1.924	1.949	-0.025	0.737	4635023	2.61		104	103384	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.253	2.253	0.0	1.000	85429	0.0457		91.5	88.9	
363.00 > 169.00	2.253	2.253	0.0	1.000	34514		2.48(1.13-3.40)		234	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.266	2.266	0.0	1.000	129182	0.0480		105	528	
399.00 > 99.00	2.266	2.266	0.0	1.000	41691		3.10(1.50-4.49)		81.7	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 9 13C4-PFHpA										
367.00 > 322.00	2.253	2.286	-0.033	0.863	4359008	2.59		104	90863	
D 11 18O2 PFHxS										
403.00 > 84.00	2.266	2.299	-0.033	0.868	5775700	2.43		103	79094	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.590	2.590	0.0	1.000	326066	0.4665		98.4	11024	
D 12 M2-6:2FTS										
429.00 > 81.00	2.590	2.611	-0.021	0.992	979680	2.32		97.6	19313	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.609	2.609	0.0	1.000	85409	0.0473		94.6	11.2	
413.00 > 169.00	2.609	2.609	0.0	1.000	48922		1.75(0.84-2.52)		16.7	
* 62 13C2-PFOA										
415.00 > 370.00	2.609	2.609	0.0		4453670	2.50			76561	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.617	2.617	0.0	1.000	102333	0.0466		98.0	3517	
449.00 > 99.00	2.617	2.617	0.0	1.000	28080		3.64(1.94-5.82)		484	
D 14 13C4 PFOA										
417.00 > 372.00	2.609	2.640	-0.031	1.000	4095600	2.54		102	109629	
20 Perfluorononanoic acid										
463.00 > 419.00	2.978	2.978	0.0	1.000	66217	0.0500		100.0	74.0	
463.00 > 169.00	2.978	2.978	0.0	1.000	15397		4.30(1.90-5.69)		361	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.978	2.978	0.0	1.000	78089	0.0438		94.4	869	
499.00 > 99.00	2.978	2.978	0.0	1.000	18105		4.31(2.31-6.93)		97.2	
D 18 13C4 PFOS										
503.00 > 80.00	2.978	3.004	-0.026	1.141	3970383	2.43		102	82290	
D 19 13C5 PFNA										
468.00 > 423.00	2.978	3.004	-0.026	1.141	3218389	2.58		103	71903	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.325	3.325	0.0	1.000	210081	0.4305		89.9	8743	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.333	3.333	0.0	1.000	117187	0.0483		96.6	2468	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.340	3.340	0.0	1.002	45799	0.0452		90.4	154	
513.00 > 169.00	3.333	3.340	-0.007	1.000	9136		5.01(2.36-7.09)		183	
D 21 13C8 FOSA										
506.00 > 78.00	3.333	3.350	-0.017	1.277	6222336	2.65		106	58098	
D 26 M2-8:2FTS										
529.00 > 81.00	3.325	3.350	-0.025	1.274	918874	2.36		98.6	20617	
D 23 13C2 PFDA										
515.00 > 470.00	3.333	3.358	-0.025	1.277	2591503	2.52		101	50053	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.493	3.493	0.0	1.000	117098	0.4427		88.5	1517	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.493	3.510	-0.017	1.338	593026	1.97		78.9	16207	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.643	3.643	0.0	1.000	46700	0.0428		88.8	2496	
599.00 > 99.00	3.643	3.643	0.0	1.000	17850		2.62(1.39-4.16)		203	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.657	3.657	0.0	1.000	42764	0.0512		102	45.0	
563.00 > 169.00	3.664	3.657	0.007	1.002	8312		5.14(0.00-0.00)		338	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.657	3.657	0.0	1.000	109269	0.4191		83.8	1807	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.657	3.673	-0.016	1.401	673233	2.12		84.9	1592	
D 30 13C2 PFUnA										
565.00 > 520.00	3.657	3.682	-0.025	1.401	1951572	2.49		99.4	40871	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.955	3.955	0.0	1.000	30896	0.0451		90.2	56.1	
613.00 > 169.00	3.955	3.955	0.0	1.000	9119		3.39(2.13-6.40)		421	
D 36 13C2 PFDoA										
615.00 > 570.00	3.955	3.974	-0.019	1.516	1697172	2.27		90.8	17424	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.215	4.215	0.0	1.000	32334	0.0506		101	101	
663.00 > 169.00	4.215	4.215	0.0	1.000	11966		2.70(1.25-3.76)		407	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.450	4.450	0.0	1.000	6839	0.0398		79.6	212	
713.00 > 219.00	4.438	4.450	-0.012	0.997	5925		1.15(0.71-2.13)		117	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.450	4.473	-0.023	1.705	1622208	2.46		98.3	25135	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.858	4.858	0.0	1.000	60279	0.0516		103	8.9	
813.00 > 169.00	4.858	4.858	0.0	1.000	10419		5.79(2.86-8.58)		324	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.858	4.887	-0.029	1.862	2195571	2.46		98.6	14412	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.203	5.203	0.0	1.000	39874	0.0459		91.7	9.9	
913.00 > 169.00	5.203	5.203	0.0	1.000	4884		8.16(0.00-0.00)		61.3	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_CCVL_00002 Amount Added: 1.00 Units: mL

Report Date: 19-Feb-2018 10:57:57 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54185.b\2018.02.16LLA_003.d

Injection Date: 16-Feb-2018 15:25:29 Instrument ID: A8_N

Lims ID: CCVL

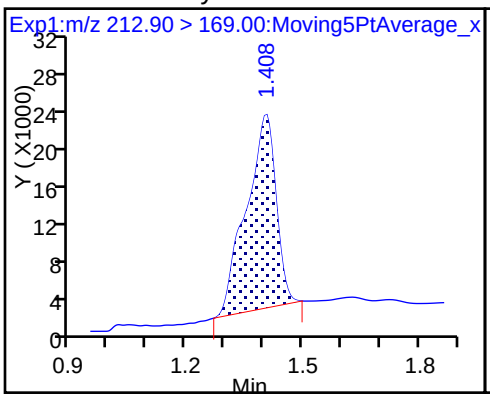
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 3

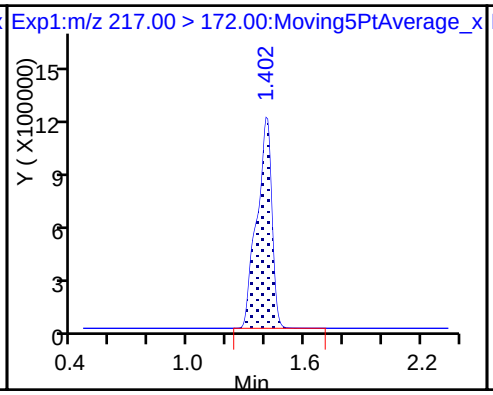
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

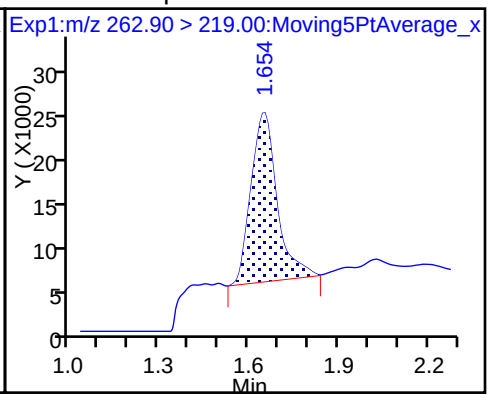
2 Perfluorobutyric acid



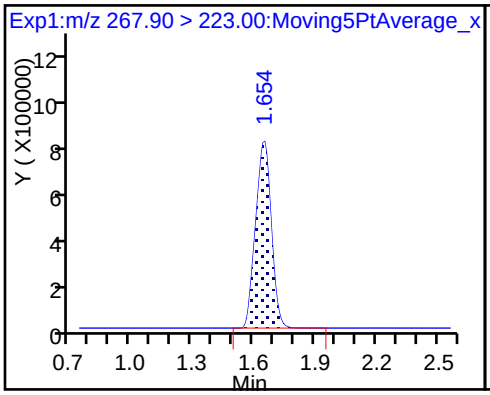
D 1 13C4 PFBA



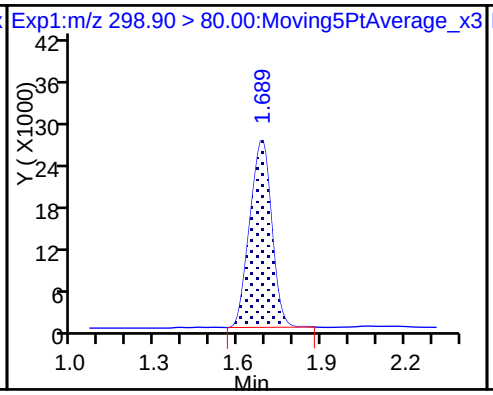
4 Perfluoropentanoic acid



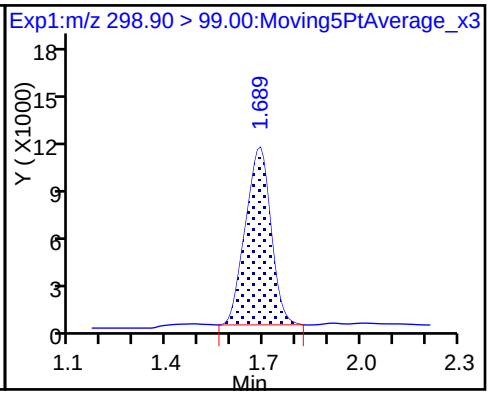
D 3 13C5-PFPeA



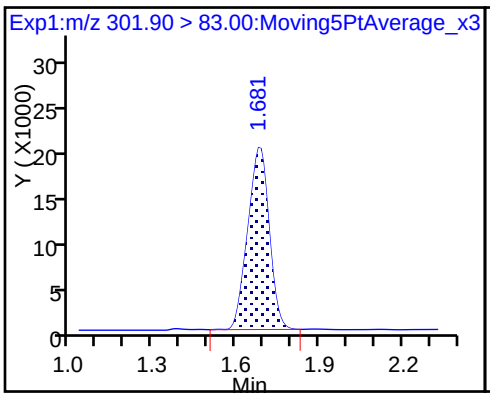
5 Perfluorobutanesulfonic acid



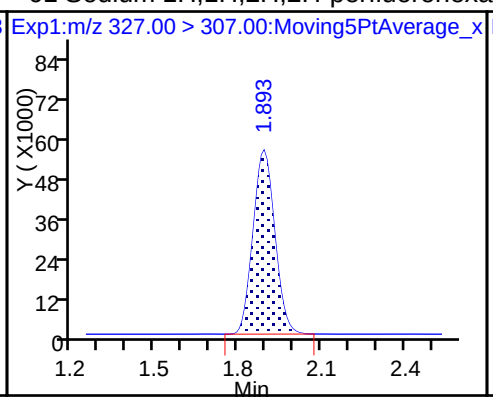
5 Perfluorobutanesulfonic acid



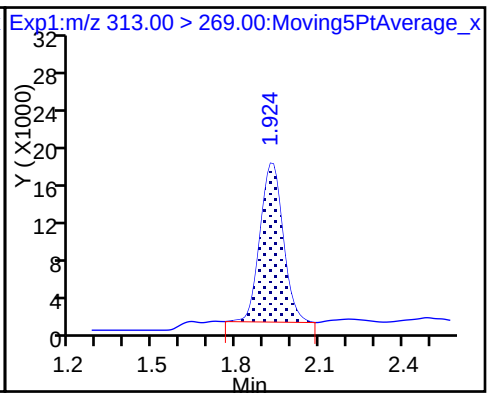
D 47 13C3-PFBS



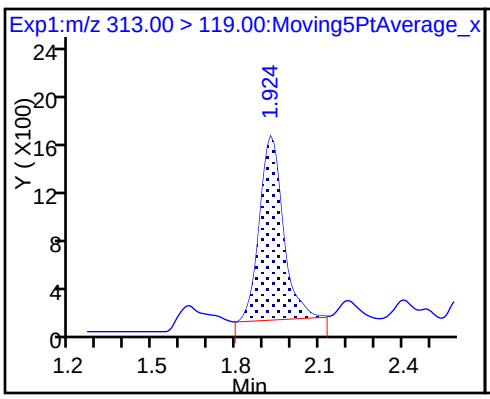
61 Sodium 1H,1H,2H,2H-perfluorohexane



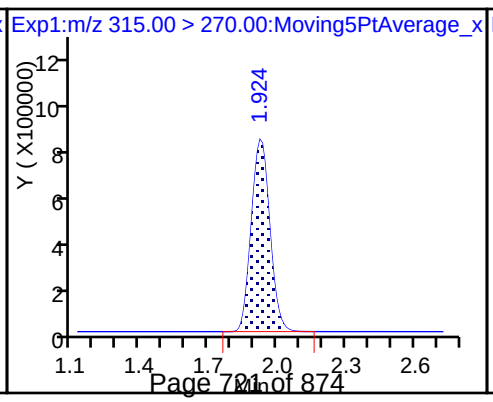
6 Perfluorohexanoic acid



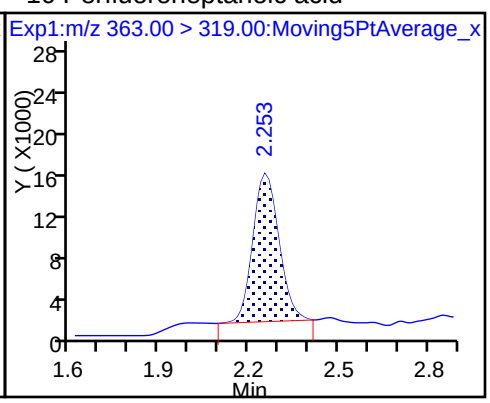
6 Perfluorohexanoic acid



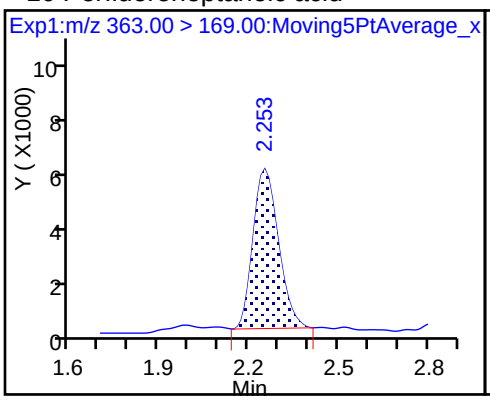
D 7 13C2 PFHxA



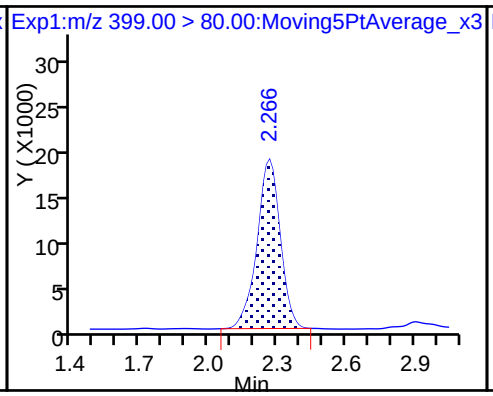
10 Perfluoroheptanoic acid



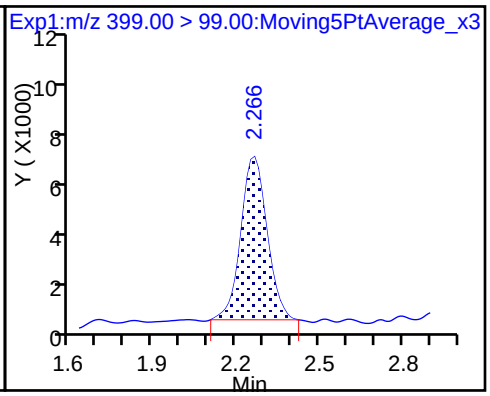
10 Perfluoroheptanoic acid



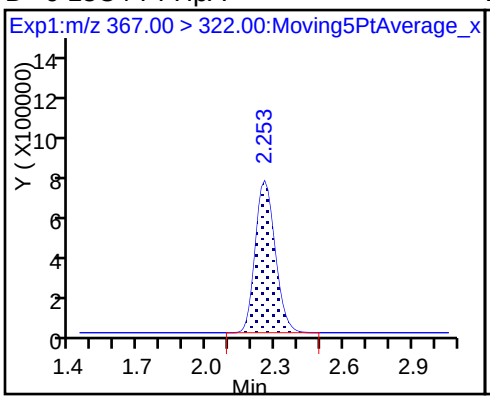
8 Perfluorohexanesulfonic acid



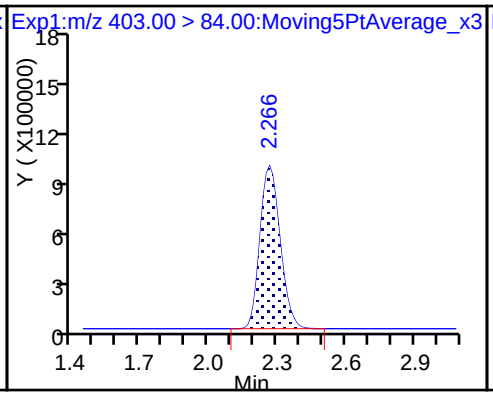
8 Perfluorohexanesulfonic acid



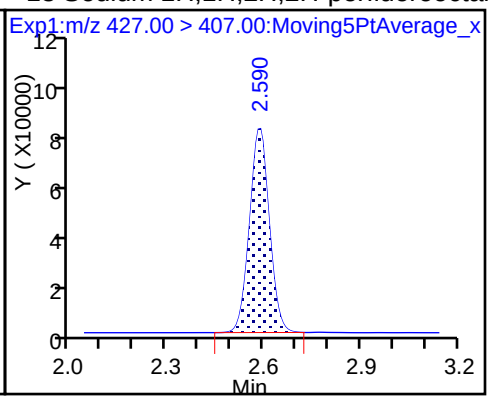
D 9 13C4-PFHpA



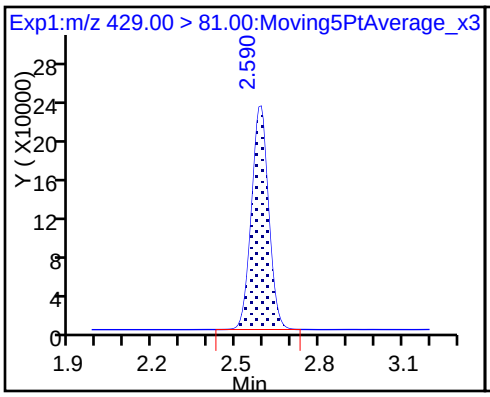
D 11 18O2 PFHxS



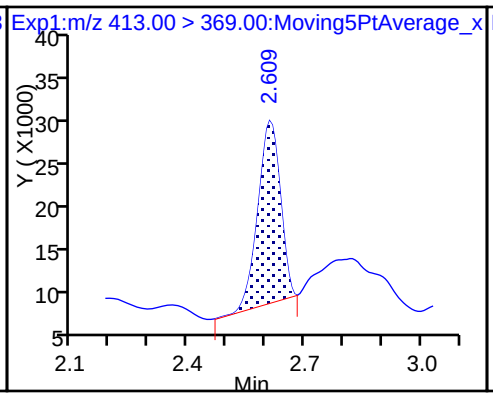
13 Sodium 1H,1H,2H,2H-perfluorooctane



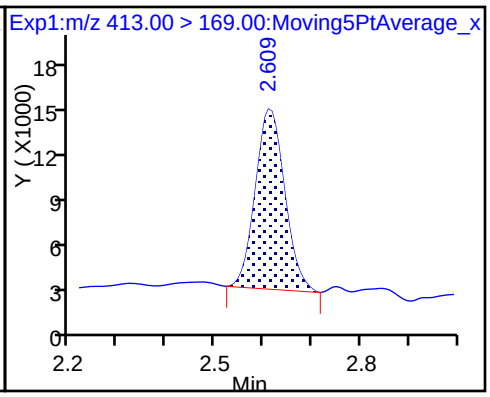
D 12 M2-6:2FTS



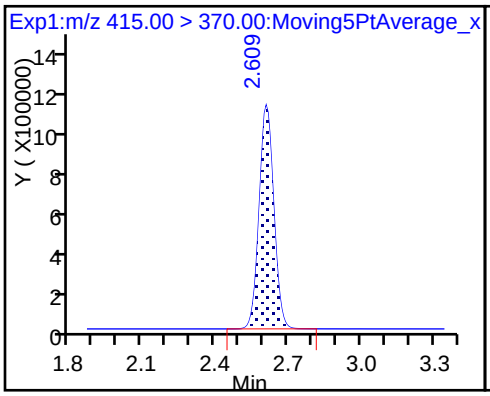
15 Perfluorooctanoic acid



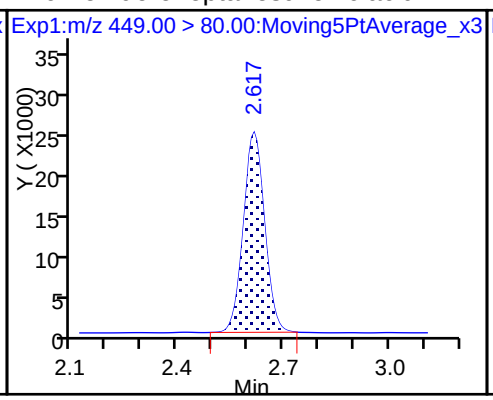
15 Perfluorooctanoic acid



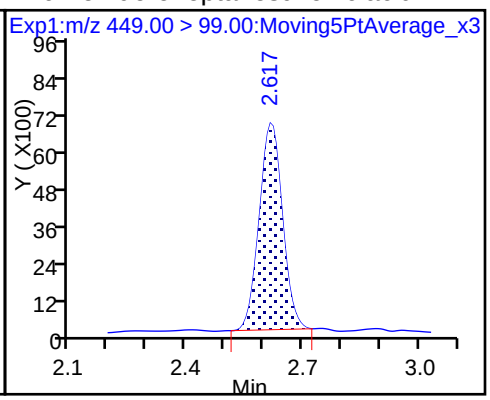
* 62 13C2-PFOA



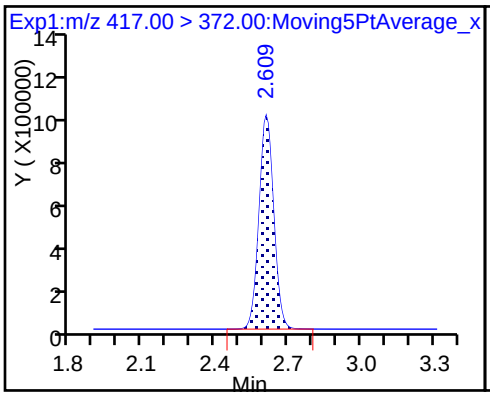
16 Perfluoroheptanesulfonic acid



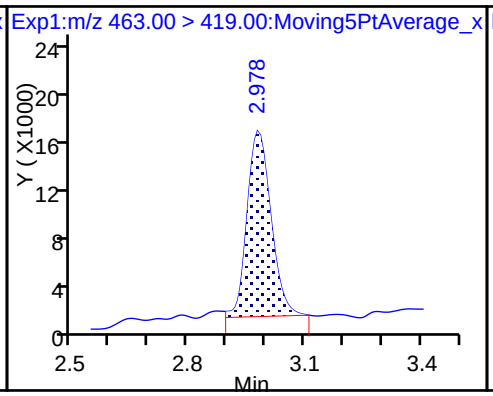
16 Perfluoroheptanesulfonic acid



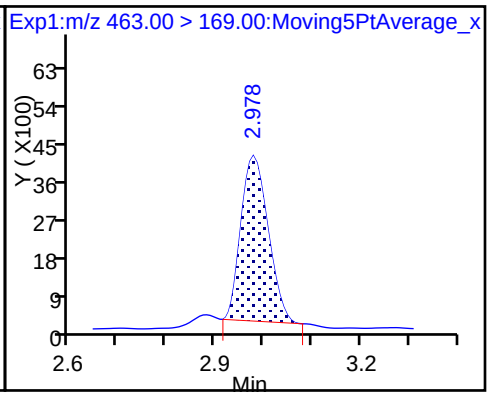
D 14 13C4 PFOA



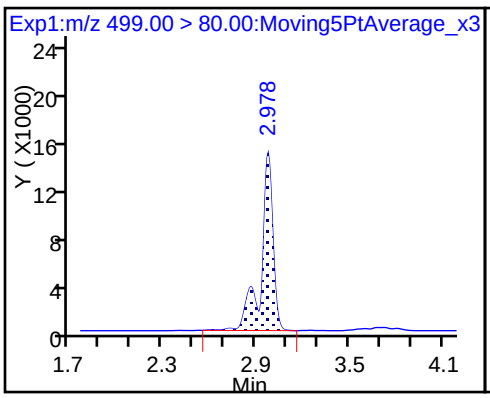
20 Perfluorononanoic acid



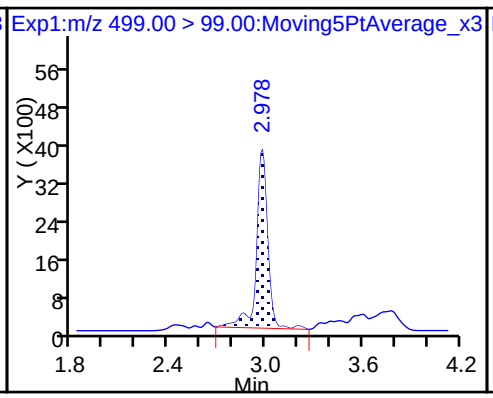
20 Perfluorononanoic acid



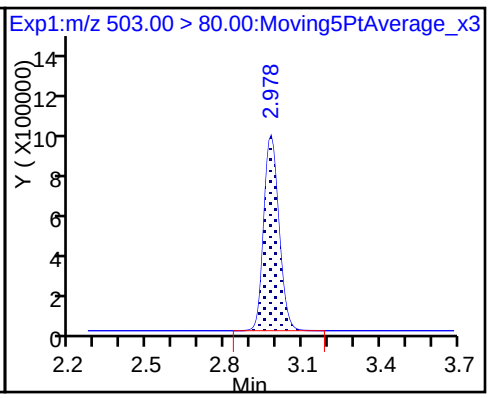
17 Perfluorooctane sulfonic acid



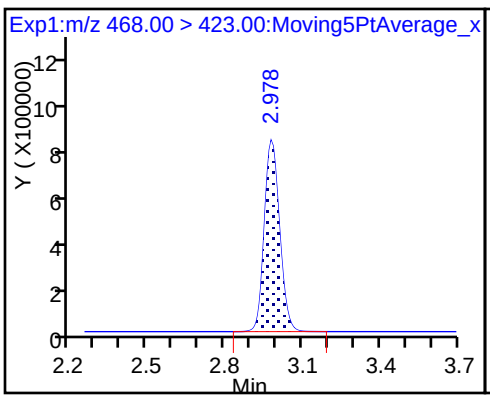
17 Perfluorooctane sulfonic acid



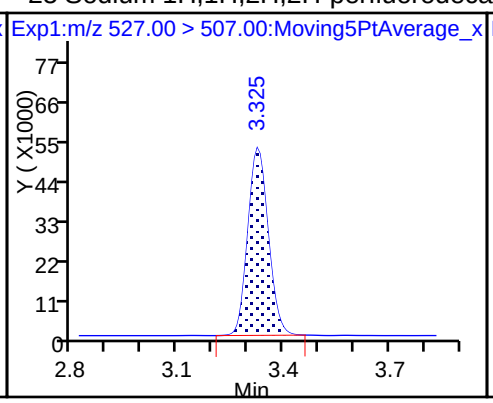
D 18 13C4 PFOS



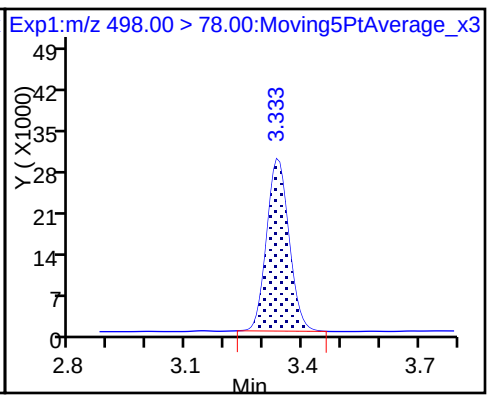
D 19 13C5 PFNA



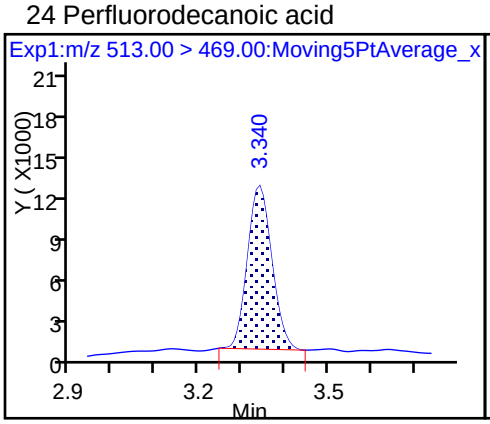
25 Sodium 1H,1H,2H,2H-perfluorodecane



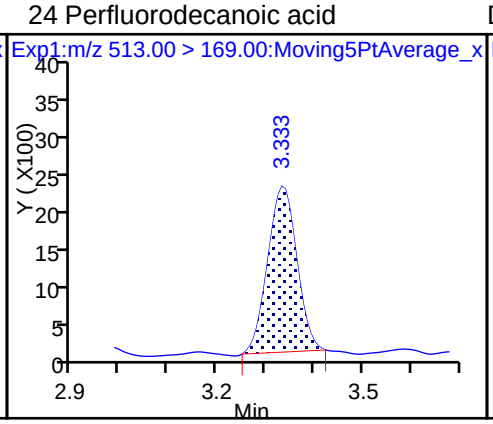
22 Perfluorooctane Sulfonamide



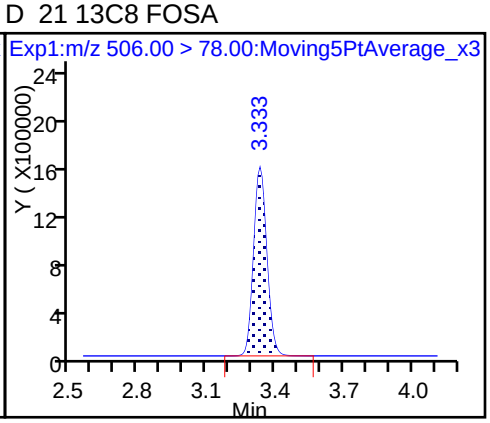
24 Perfluorodecanoic acid



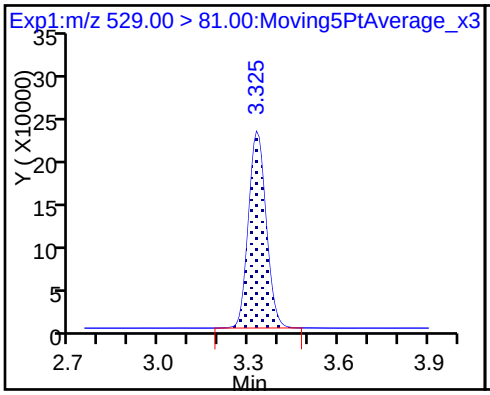
24 Perfluorodecanoic acid



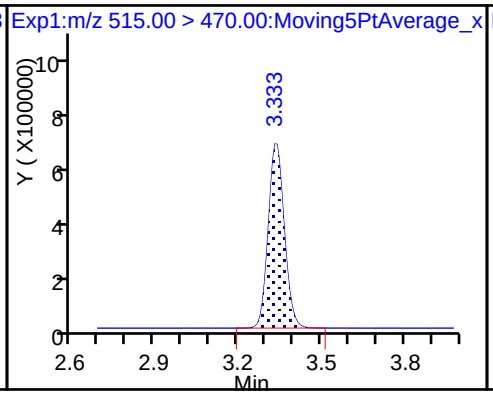
D 21 13C8 FOSA



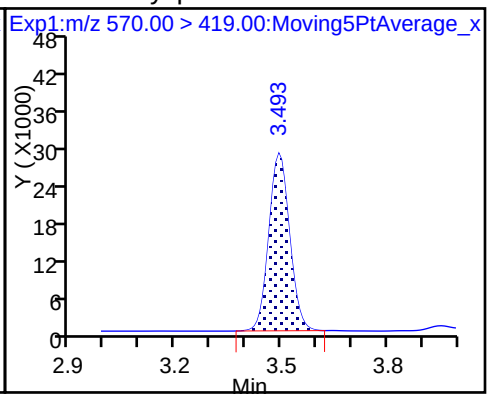
D 26 M2-8:2FTS



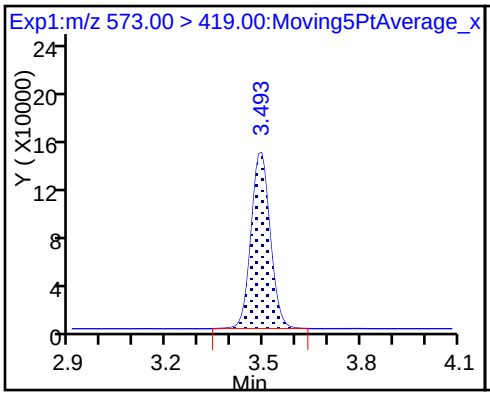
D 23 13C2 PFDA



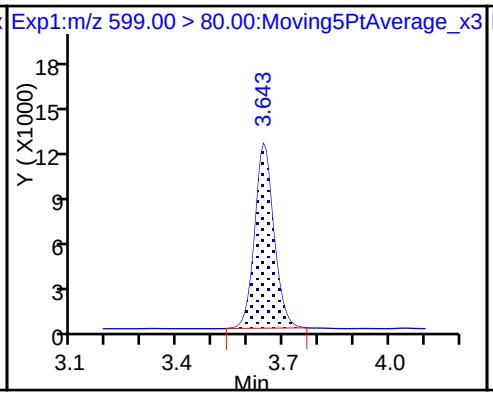
28 N-methyl perfluorooctane sulfonami



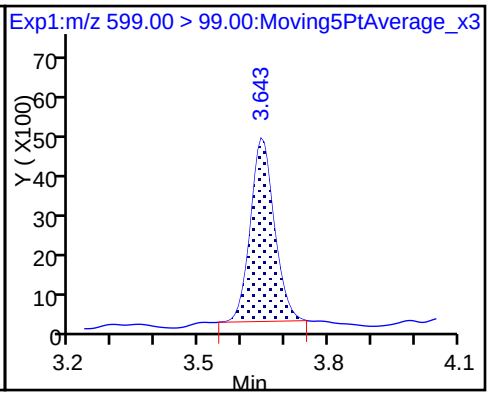
D 27 d3-NMeFOSAA



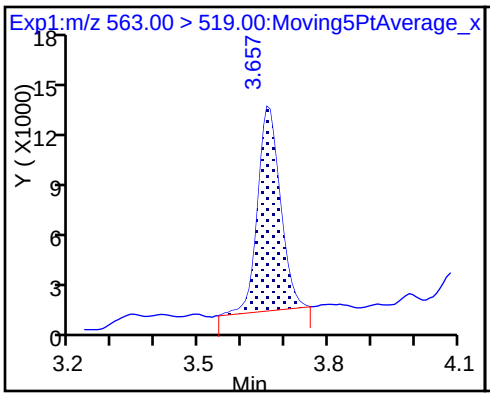
29 Perfluorodecane Sulfonic acid



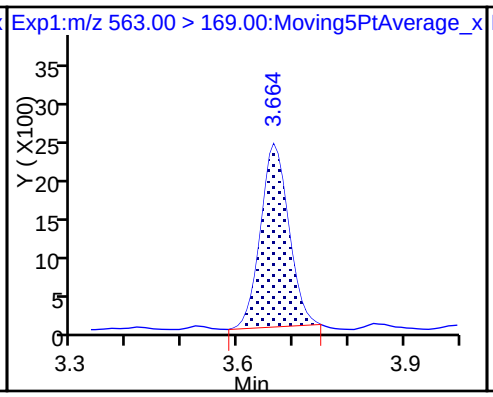
29 Perfluorodecane Sulfonic acid



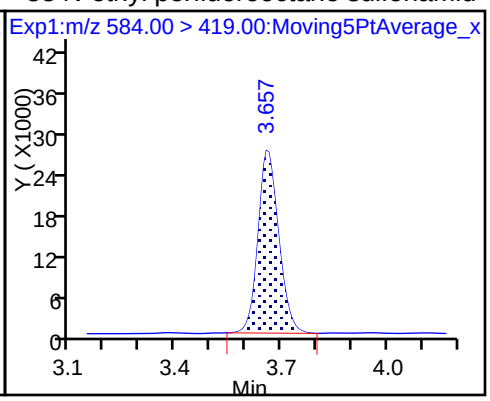
31 Perfluoroundecanoic acid



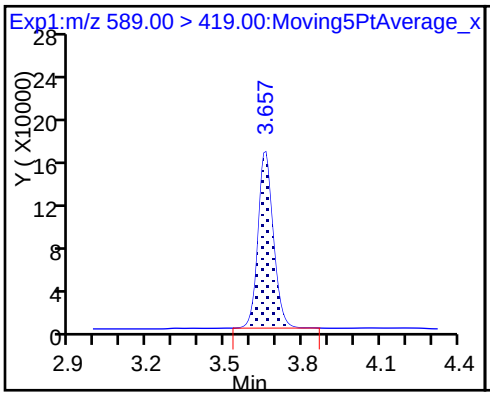
31 Perfluoroundecanoic acid



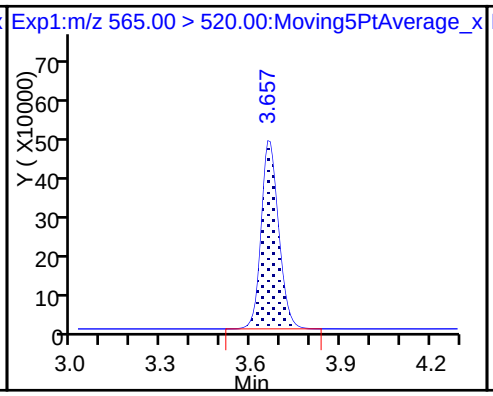
33 N-ethyl perfluorooctane sulfonamid



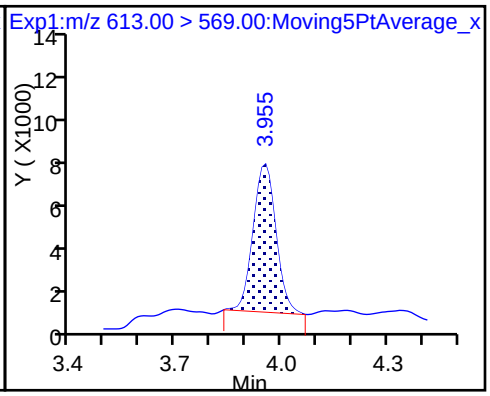
D 32 d5-NEtFOSAA



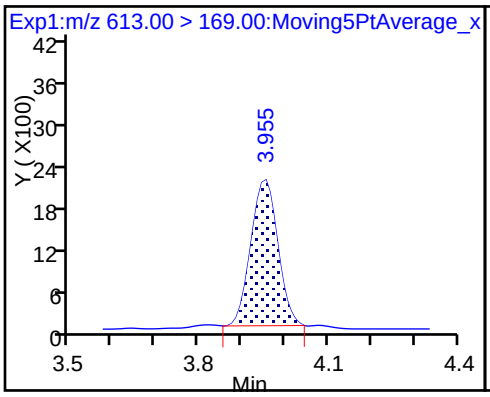
D 30 13C2 PFUnA



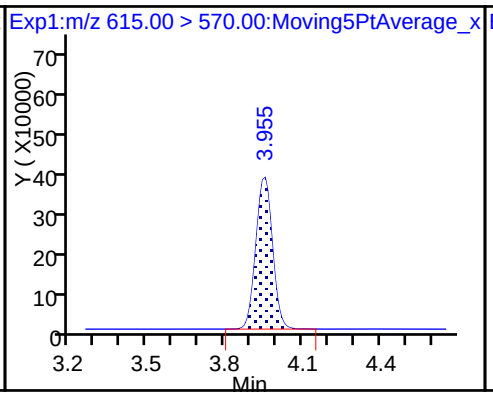
37 Perfluorododecanoic acid



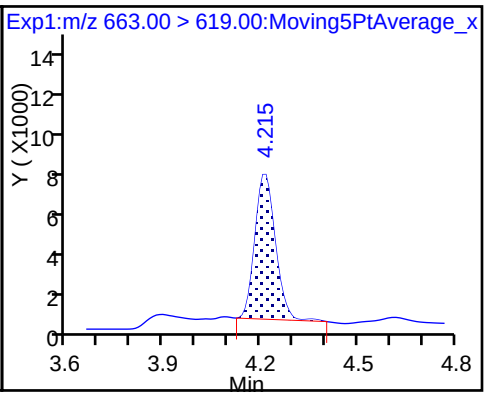
37 Perfluorododecanoic acid



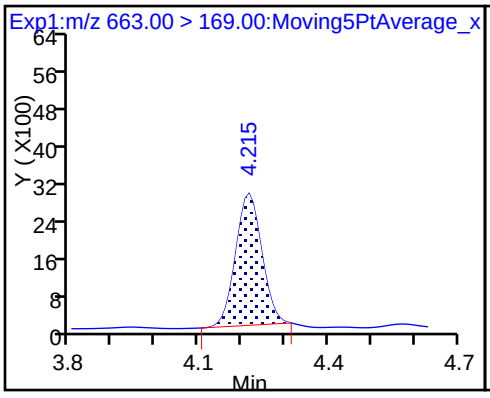
D 36 13C2 PFDoA



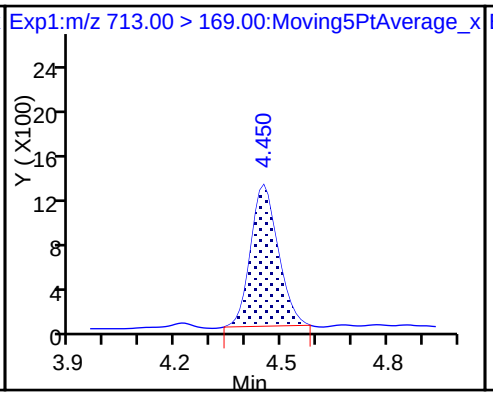
41 Perfluorotridecanoic acid



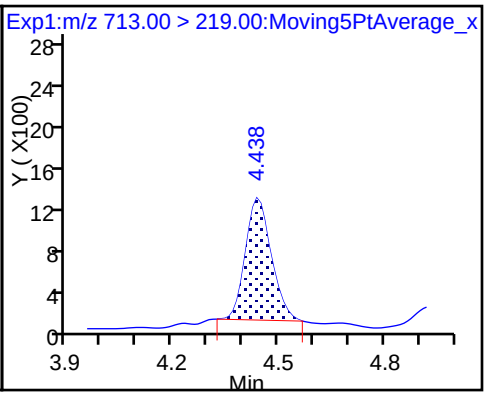
41 Perfluorotridecanoic acid



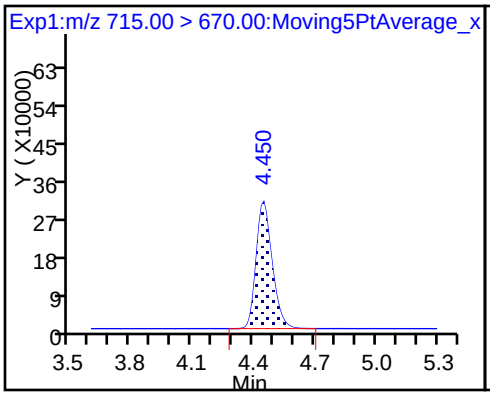
42 Perfluorotetradecanoic acid



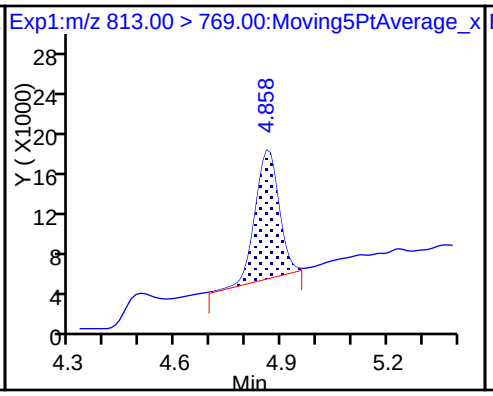
42 Perfluorotetradecanoic acid



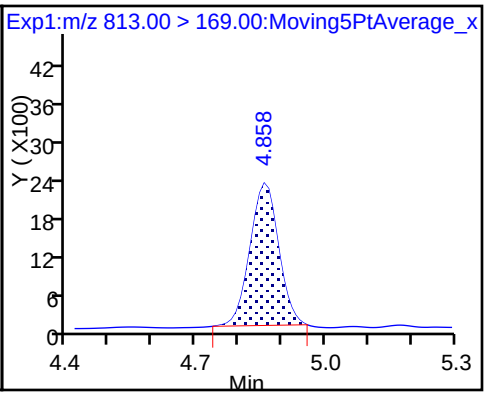
D 43 13C2-PFTeDA



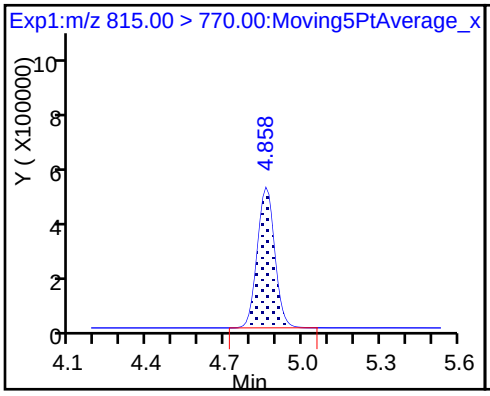
45 Perfluorohexadecanoic acid



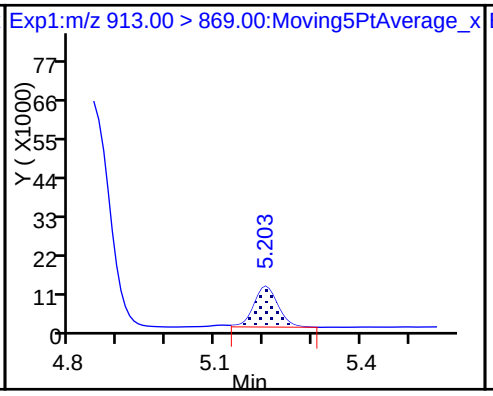
45 Perfluorohexadecanoic acid



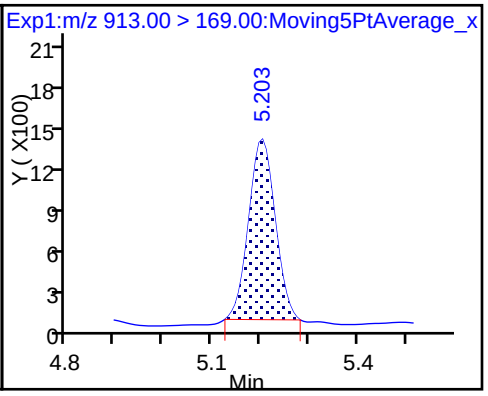
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/1 Calibration Date: 02/16/2018 16:04

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_008.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9558		2.55	2.50	2.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.186		2.49	2.50	-0.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	79.60		2.37	2.21	7.0	25.0
4:2 FTS	AveID	13.80	15.68		2.65	2.34	13.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.011		2.45	2.50	-1.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	1.049		2.45	2.50	-2.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.017		2.10	2.28	-7.8	25.0
6:2FTS	AveID	1.694	1.643		2.30	2.37	-3.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.133		2.57	2.50	2.8	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.439		2.59	2.38	8.9	25.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.044		2.54	2.50	1.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.108		2.39	2.32	3.2	25.0
8:2FTS	AveID	1.272	1.273		2.40	2.40	0.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	1.047		2.69	2.50	7.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	1.029		2.63	2.50	5.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	1.086		2.43	2.50	-2.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.6839		2.51	2.41	4.2	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.9697		2.50	2.50	0.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	0.9876		2.31	2.50	-7.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	1.044		2.59	2.50	3.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.9874		2.62	2.50	4.9	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2640		2.49	2.50	-0.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.028		2.67	2.50	7.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	0.999		2.52	2.50	0.9	25.0
13C4 PFBA	Ave	1.300	1.391		2.67	2.50	7.0	50.0
13C5 PFPeA	Ave	0.9279	0.9581		2.58	2.50	3.3	50.0
13C3-PFBS	Ave	0.0248	0.0249		2.34	2.33	0.5	50.0
13C2 PFHxA	Ave	0.998	1.029		2.58	2.50	3.1	50.0
13C4-PFHpA	Ave	0.9453	0.9849		2.60	2.50	4.2	50.0
18O2 PFHxS	Ave	1.332	1.458		2.59	2.37	9.4	50.0
M2-6:2FTS	Ave	0.2372	0.2266		2.27	2.38	-4.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/1 Calibration Date: 02/16/2018 16:04

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_008.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.9077		2.50	2.50	0.2	50.0
13C4 PFOS	Ave	0.9166	0.9248		2.41	2.39	0.9	50.0
13C5 PFNA	Ave	0.6993	0.7099		2.54	2.50	1.5	50.0
13C8 FOSA	Ave	1.318	1.400		2.66	2.50	6.3	50.0
M2-8:2FTS	Ave	0.2184	0.2142		2.35	2.40	-1.9	50.0
13C2 PFDA	Ave	0.5764	0.5585		2.42	2.50	-3.1	50.0
d3-NMeFOSAA	Ave	0.1687	0.1400		2.08	2.50	-17.0	50.0
d5-NEtFOSAA	Ave	0.1780	0.1501		2.11	2.50	-15.7	50.0
13C2 PFUnA	Ave	0.4407	0.4433		2.51	2.50	0.6	50.0
13C2 PFDoA	Ave	0.4199	0.3900		2.32	2.50	-7.1	50.0
13C2-PFTeDA	Ave	0.3706	0.3706		2.50	2.50	-0.0	50.0
13C2-PFHxDA	Ave	0.5001	0.4692		2.35	2.50	-6.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_008.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 16-Feb-2018 16:04:41 ALS Bottle#: 14 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:25 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: barnettj Date: 17-Feb-2018 13:00:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.408	1.401	0.007	0.538	5693424	2.67		107	77009	
2 Perfluorobutyric acid										
212.90 > 169.00	1.408	1.402	0.006	1.000	5441759	2.55		102	1186	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.654	1.644	0.010	1.000	4651356	2.49		99.6	1477	
D 3 13C5-PFPeA										
267.90 > 223.00	1.654	1.652	0.002	0.632	3921737	2.58		103	81973	
D 47 13C3-PFBS										
301.90 > 83.00	1.689	1.679	0.010	0.646	94899	2.34		101	1462	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.689	1.679	0.010	1.000	7180514	2.37		107	73883	
298.90 > 99.00	1.689	1.679	0.010	1.000	3050006		2.35(1.25-3.74)		20796	
D 60 M2-4:2FTS										
329.00 > 81.00	1.894	1.892	0.002	0.724	688419	NC			7528	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.894	1.892	0.002	1.000	1494769	2.65		114	70363	
D 7 13C2 PFHxA										
315.00 > 270.00	1.924	1.922	0.002	0.735	4212897	2.58		103	92684	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.934	1.923	0.011	1.005	4260806	2.45		98.1	9020	
313.00 > 119.00	1.924	1.923	0.001	1.000	402228		10.59(5.03-15.10)		4722	
D 9 13C4-PFHpA										
367.00 > 322.00	2.253	2.252	0.001	0.861	4031162	2.60		104	83371	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.253	2.252	0.001	1.000	4227064	2.45		97.9	4832	
363.00 > 169.00	2.253	2.252	0.001	1.000	1687019		2.51(1.13-3.40)		12103	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.266	2.265	0.001	0.866	5643976	2.59		109	92516	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.266	2.265	0.001	1.000	5521053	2.10		92.2	16595	
399.00 > 99.00	2.266	2.265	0.001	1.000	1815810		3.04(1.50-4.49)		3697	
D 12 M2-6:2FTS										
429.00 > 81.00	2.590	2.588	0.002	0.990	880917	2.27		95.5	26138	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.590	2.588	0.002	1.000	1444673	2.30		97.0	38004	
D 14 13C4 PFOA										
417.00 > 372.00	2.617	2.614	0.003	1.000	3715117	2.50		100	80324	
* 62 13C2-PFOA										
415.00 > 370.00	2.617	2.615	0.002		4093072	2.50			96757	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.617	2.615	0.002	1.000	4209559	2.57		103	530	
413.00 > 169.00	2.617	2.615	0.002	1.000	2250660		1.87(0.84-2.52)		776	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.624	2.622	0.002	1.000	5185264	2.59		109	82573	
449.00 > 99.00	2.624	2.622	0.002	1.000	1312011		3.95(1.94-5.82)		17324	
D 19 13C5 PFNA										
468.00 > 423.00	2.987	2.984	0.003	1.141	2905836	2.54		102	49913	
D 18 13C4 PFOS										
503.00 > 80.00	2.979	2.984	-0.005	1.138	3618815	2.41		101	35203	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.987	2.985	0.002	1.003	3893226	2.39		103	19076	M
499.00 > 99.00	2.987	2.985	0.002	1.003	849967		4.58(2.31-6.93)		5850	
20 Perfluorononanoic acid										
463.00 > 419.00	2.987	2.985	0.002	1.000	3034269	2.54		101	4150	
463.00 > 169.00	2.987	2.985	0.002	1.000	743630		4.08(1.90-5.69)		19869	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.335	3.331	0.004	1.000	1069693	2.40		100	37484	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.335	3.331	0.004	1.000	6000544	2.69		107	45635	
D 26 M2-8:2FTS										
529.00 > 81.00	3.335	3.332	0.003	1.274	839978	2.35		98.1	22924	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.339	-0.004	1.274	5730523	2.66		106	59313	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.342	3.346	-0.004	1.000	2352498	2.63		105	7887	
513.00 > 169.00	3.342	3.346	-0.004	1.000	418107		5.63(2.36-7.09)		1525	
D 23 13C2 PFDA										
515.00 > 470.00	3.342	3.347	-0.005	1.277	2286073	2.42		96.9	40656	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.495	3.492	0.003	1.336	573142	2.08		83.0	17667	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.503	3.498	0.005	1.002	622179	2.43		97.4	7288	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.652	3.655	-0.003	1.000	2495736	2.51		104	80488	
599.00 > 99.00	3.652	3.655	-0.003	1.000	827774		3.01(1.39-4.16)		7932	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.659	3.656	0.003	1.398	614353	2.11		84.3	1519	
D 30 13C2 PFUnA										
565.00 > 520.00	3.665	3.663	0.002	1.401	1814568	2.51		101	45196	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.665	3.670	-0.005	1.002	595723	2.50		100	11267	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.665	3.670	-0.005	1.000	1792037	2.31		92.4	2327	
563.00 > 169.00	3.673	3.670	0.003	1.002	354829		5.05(0.00-0.00)		16453	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.966	3.961	0.005	1.000	1667238	2.59		104	3544	
613.00 > 169.00	3.966	3.961	0.005	1.000	423131		3.94(2.13-6.40)		16027	
D 36 13C2 PFDoA										
615.00 > 570.00	3.966	3.962	0.004	1.515	1596267	2.32		92.9	16451	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.226	4.222	0.004	1.000	1576080	2.62		105	4924	
663.00 > 169.00	4.217	4.222	-0.005	0.998	485477		3.25(1.25-3.76)		15842	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.448	0.014	1.705	1516757	2.50		100	21112	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.462	4.455	0.007	1.000	400375	2.49		99.7	10319	
713.00 > 219.00	4.451	4.455	-0.004	0.997	273216		1.47(0.71-2.13)		5053	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.869	4.857	0.012	1.861	1920600	2.35		93.8	12701	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.869	4.862	0.007	1.000	1973477	2.67		107	345	
813.00 > 169.00	4.869	4.862	0.007	1.000	351283		5.62(2.86-8.58)		7011	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.219	5.214	0.005	1.000	1919246	2.52		101	454	
913.00 > 169.00	5.212	5.214	-0.002	0.999	250961		7.65(0.00-0.00)		2046	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL5_00003 Amount Added: 1.00 Units: mL

Report Date: 17-Feb-2018 13:11:26 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_008.d

Injection Date: 16-Feb-2018 16:04:41 Instrument ID: A8_N

Lims ID: CCV L5

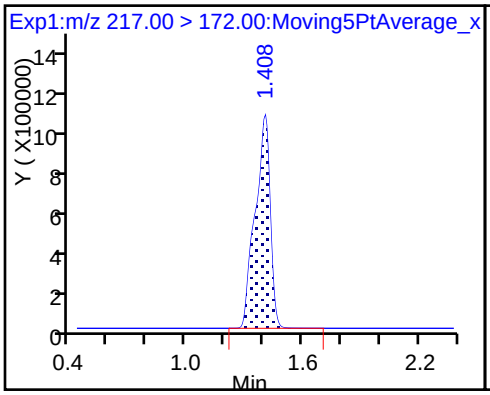
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 1

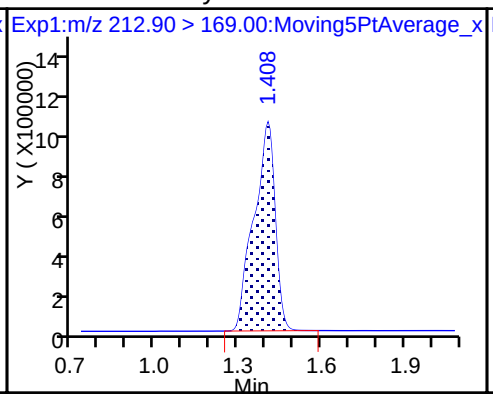
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

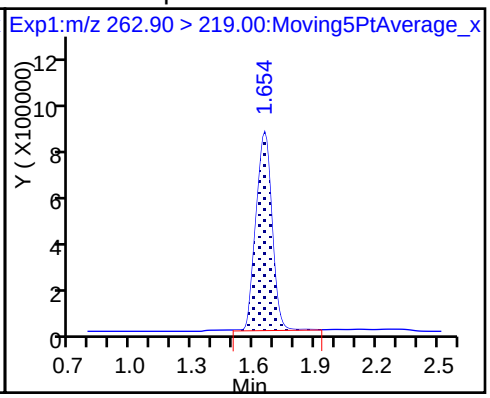
D 1 13C4 PFBA



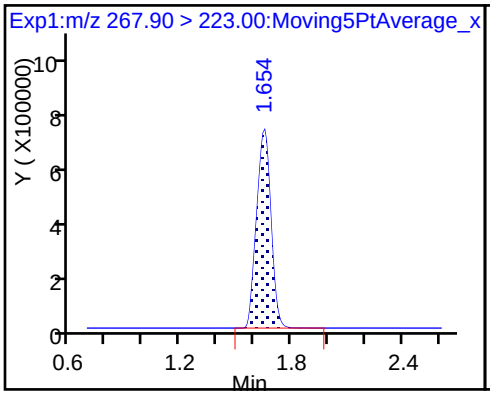
2 Perfluorobutyric acid



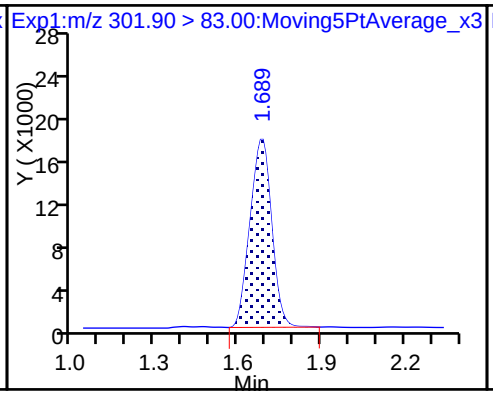
4 Perfluoropentanoic acid



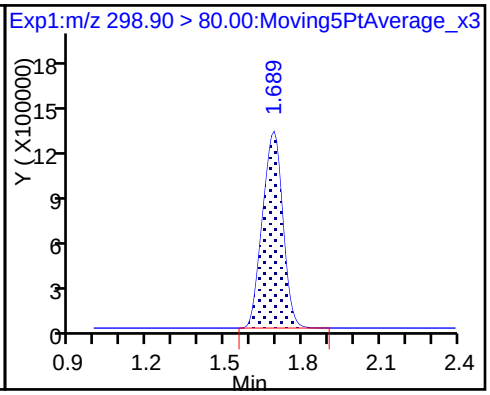
D 3 13C5-PFPeA



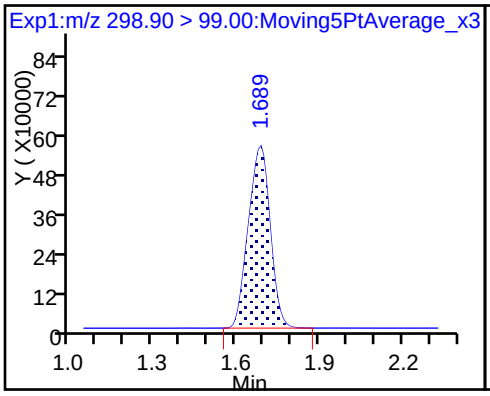
D 47 13C3-PFBS



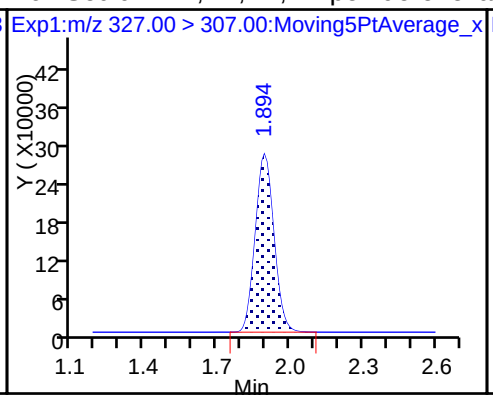
5 Perfluorobutanesulfonic acid



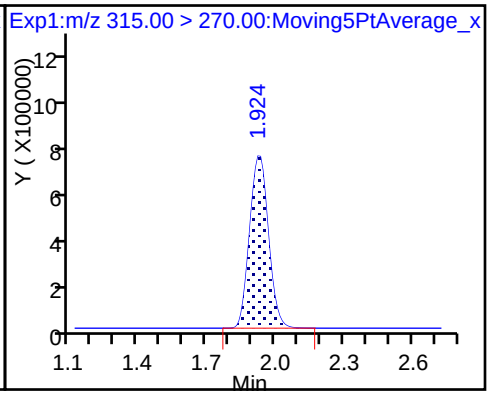
5 Perfluorobutanesulfonic acid



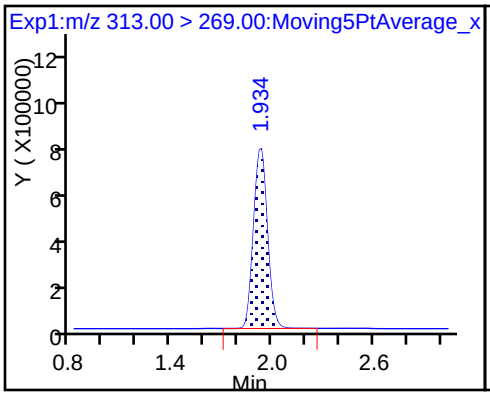
61 Sodium 1H,1H,2H,2H-perfluorohexa



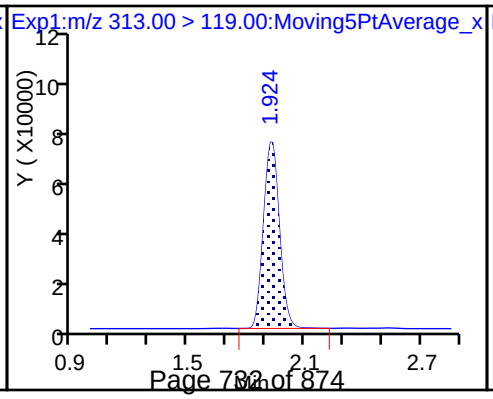
D 7 13C2 PFHxA



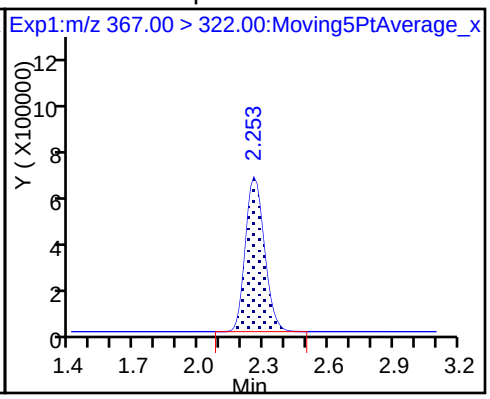
6 Perfluorohexanoic acid



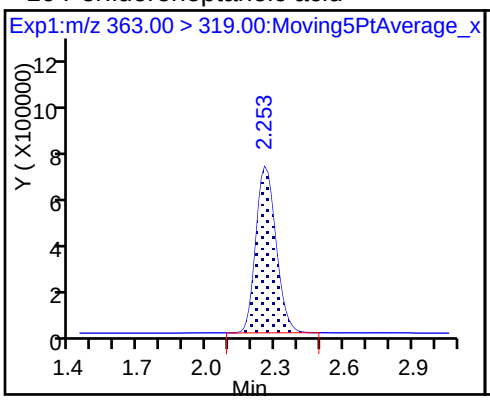
6 Perfluorohexanoic acid



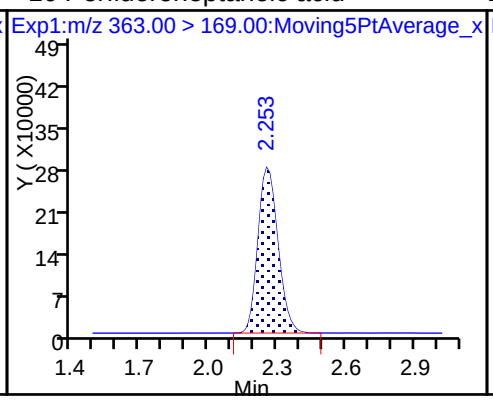
D 9 13C4-PFHpA



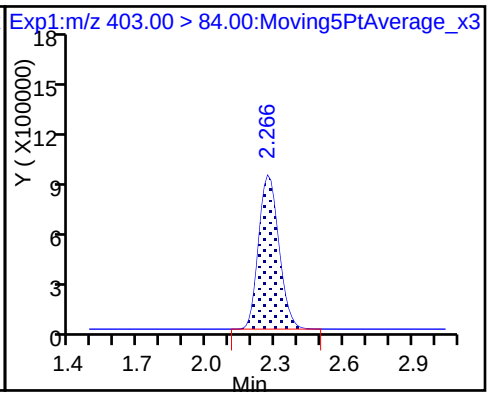
10 Perfluoroheptanoic acid



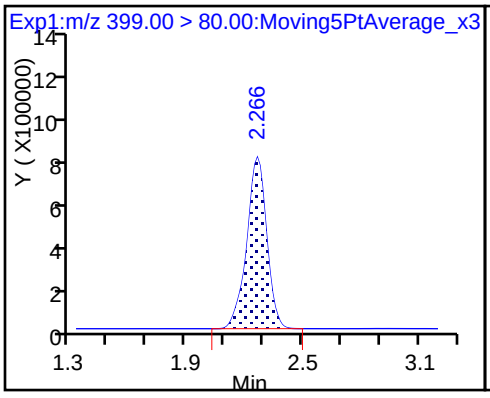
10 Perfluoroheptanoic acid



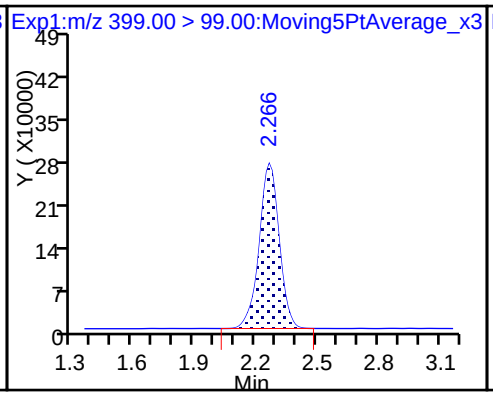
D 11 18O2 PFHxS



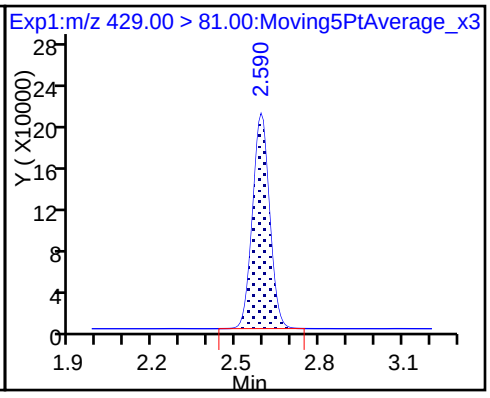
8 Perfluorohexanesulfonic acid



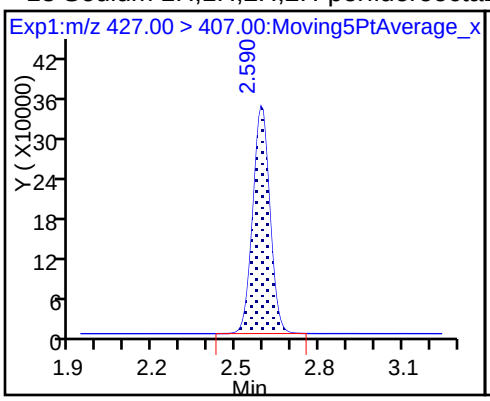
8 Perfluorohexanesulfonic acid



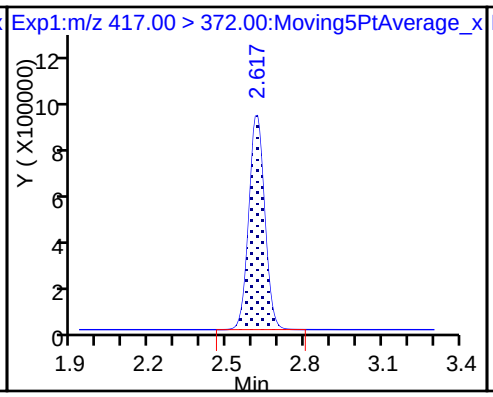
D 12 M2-6:2FTS



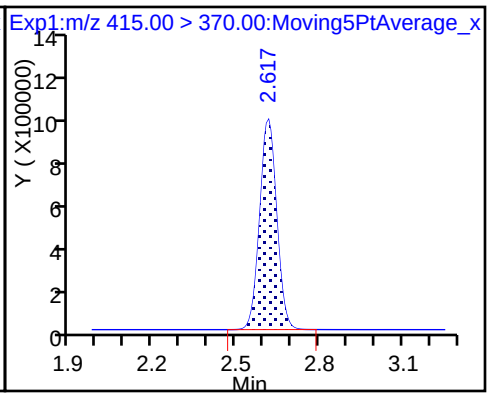
13 Sodium 1H,1H,2H,2H-perfluorooctane



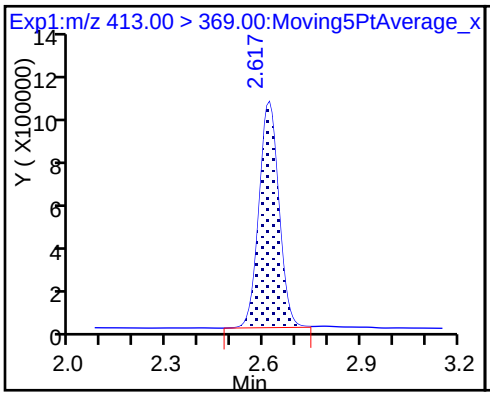
D 14 13C4 PFOA



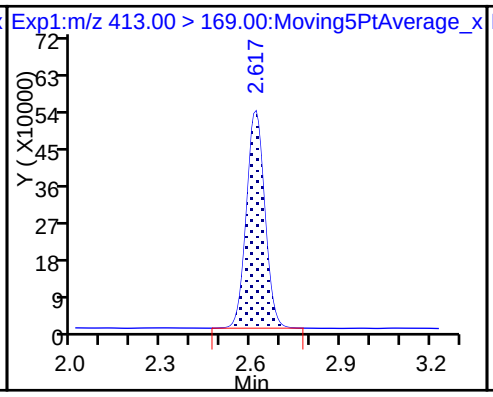
* 62 13C2-PFOA



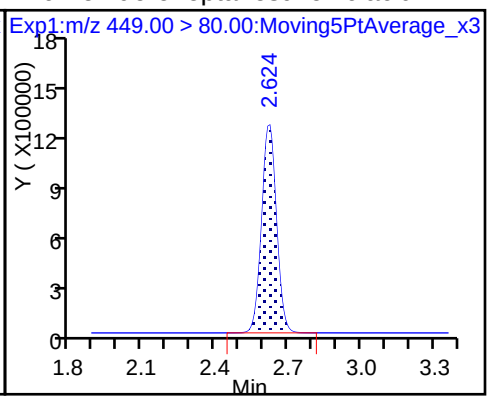
15 Perfluorooctanoic acid



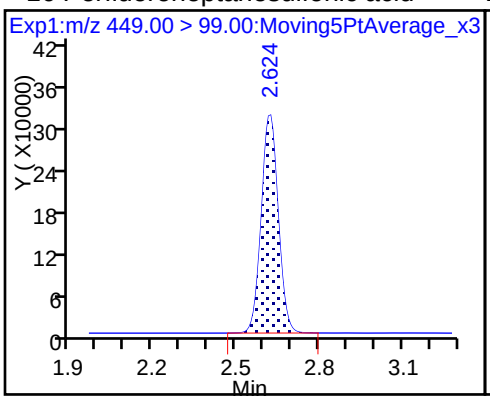
15 Perfluorooctanoic acid



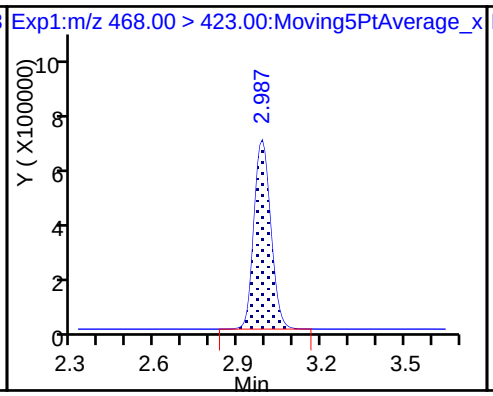
16 Perfluoroheptanesulfonic acid



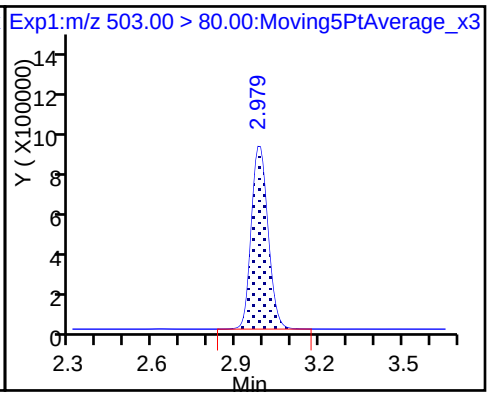
16 Perfluoroheptanesulfonic acid



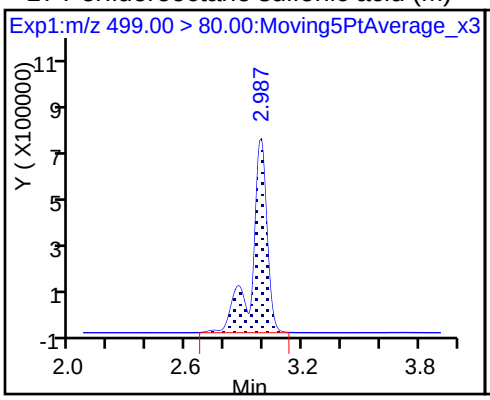
D 19 13C5 PFNA



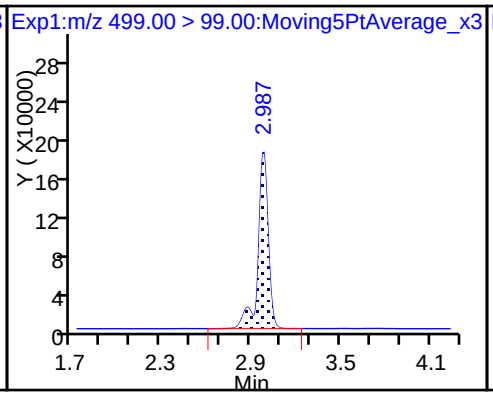
D 18 13C4 PFOS



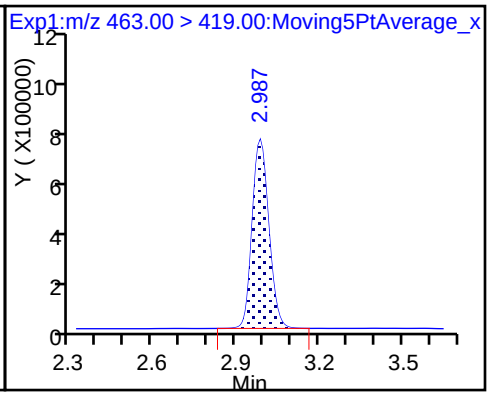
17 Perfluorooctane sulfonic acid (M)



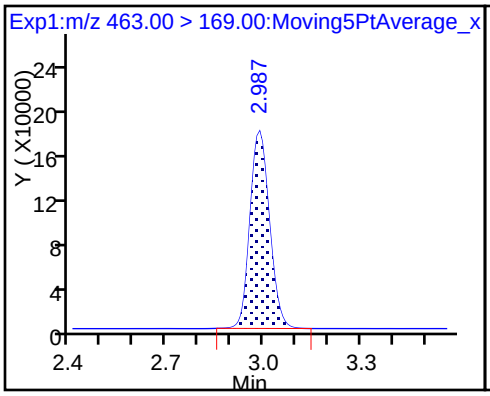
17 Perfluorooctane sulfonic acid



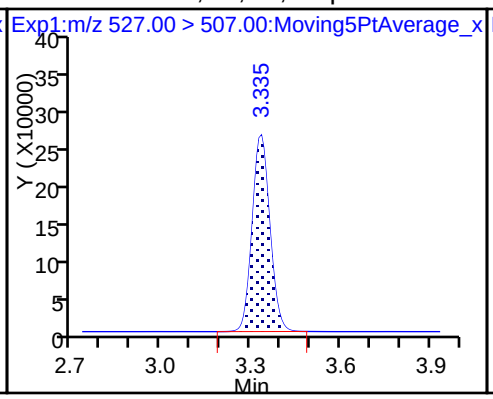
20 Perfluorononanoic acid



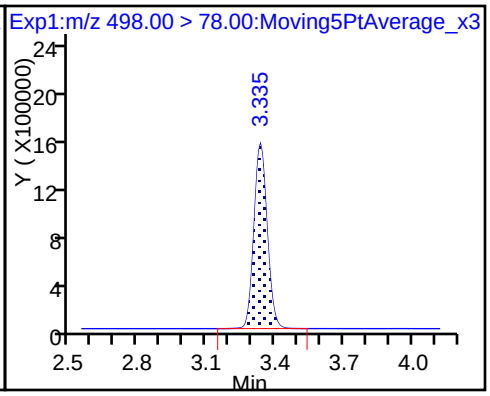
20 Perfluorononanoic acid



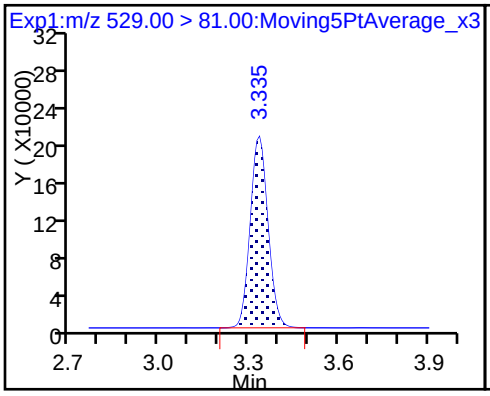
25 Sodium 1H,1H,2H,2H-perfluorodecane



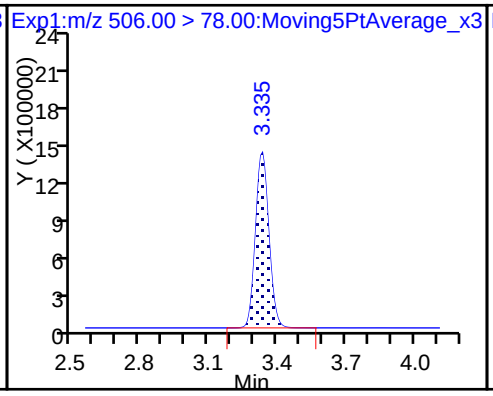
22 Perfluorooctane Sulfonamide



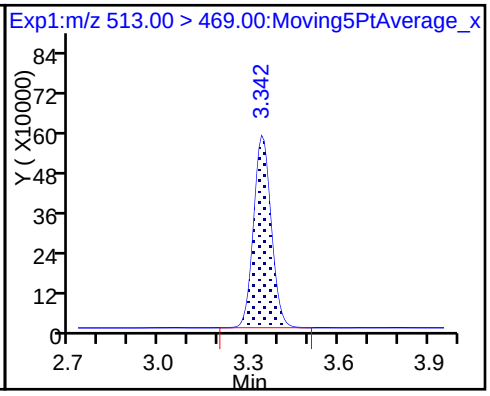
D 26 M2-8:2FTS



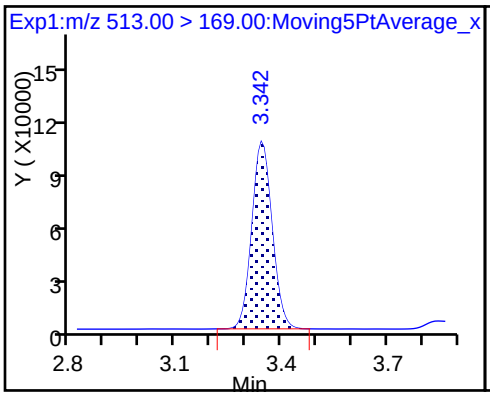
D 21 13C8 FOSA



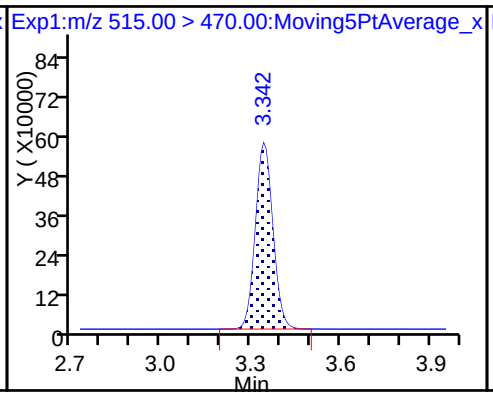
24 Perfluorodecanoic acid



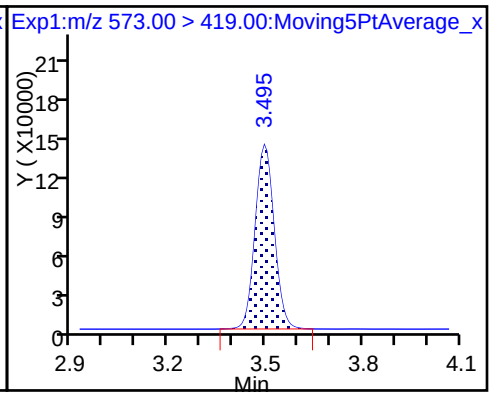
24 Perfluorodecanoic acid



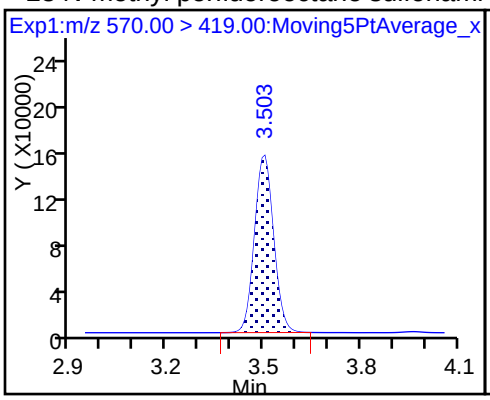
D 23 13C2 PFDA



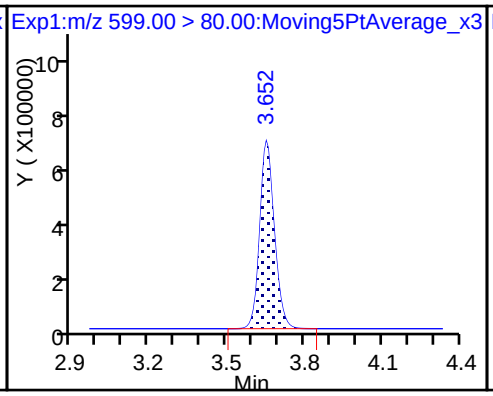
D 27 d3-NMeFOSAA



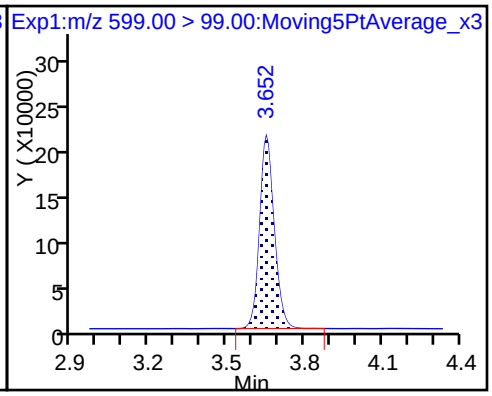
28 N-methyl perfluorooctane sulfonami



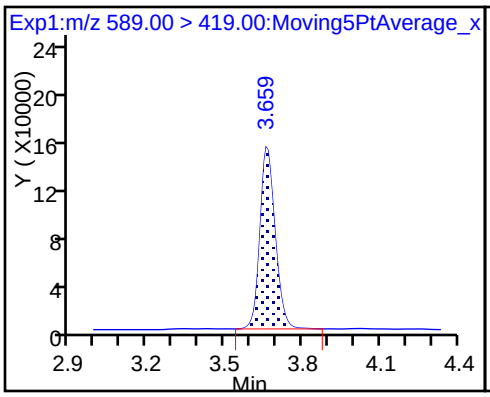
29 Perfluorodecane Sulfonic acid



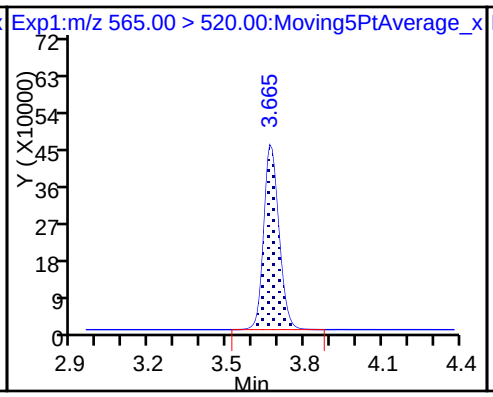
29 Perfluorodecane Sulfonic acid



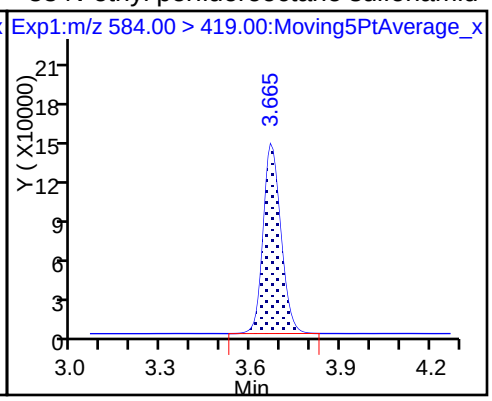
D 32 d5-NEtFOSAA



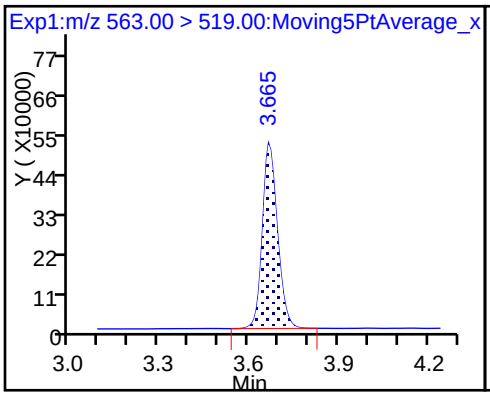
D 30 13C2 PFUnA



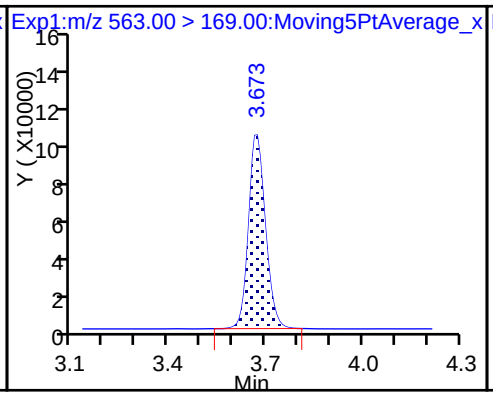
33 N-ethyl perfluorooctane sulfonamid



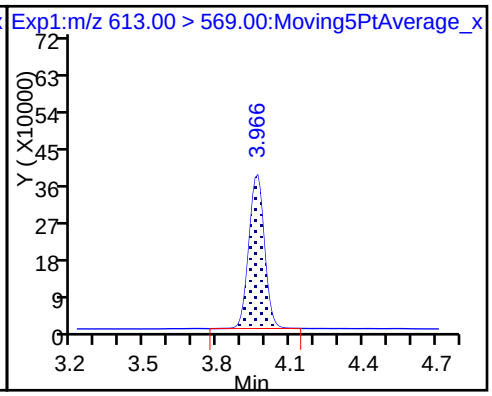
31 Perfluoroundecanoic acid



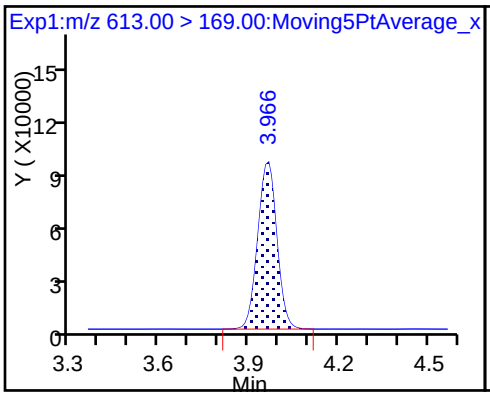
31 Perfluoroundecanoic acid



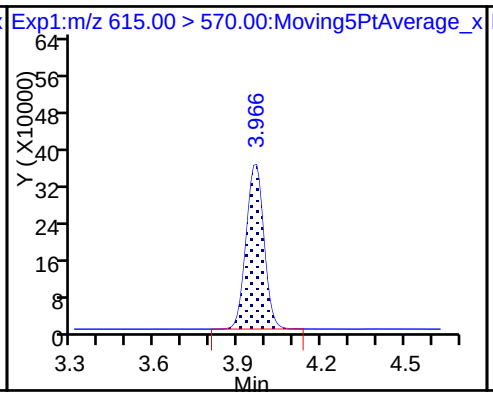
37 Perfluorododecanoic acid



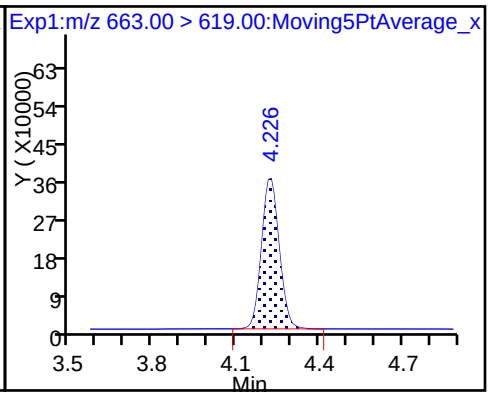
37 Perfluorododecanoic acid



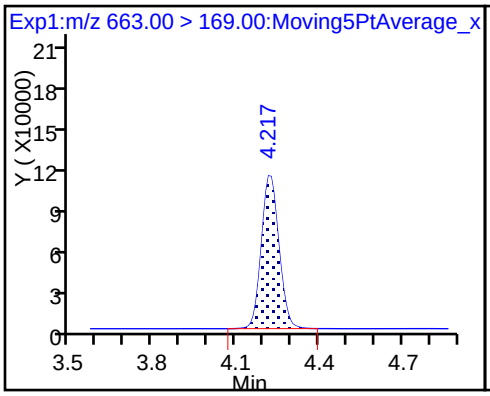
D 36 13C2 PFDoA



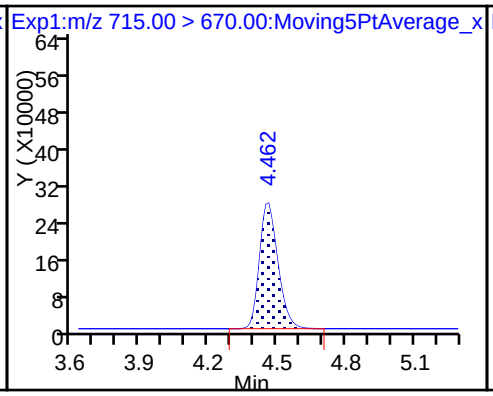
41 Perfluorotridecanoic acid



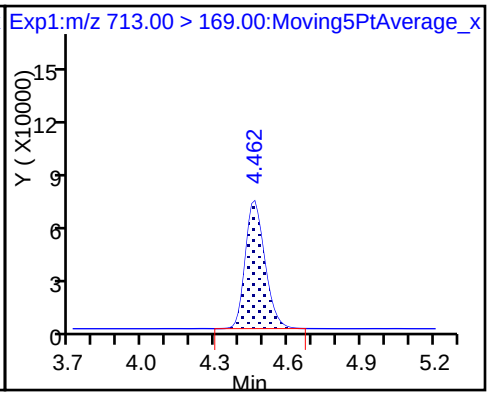
41 Perfluorotridecanoic acid



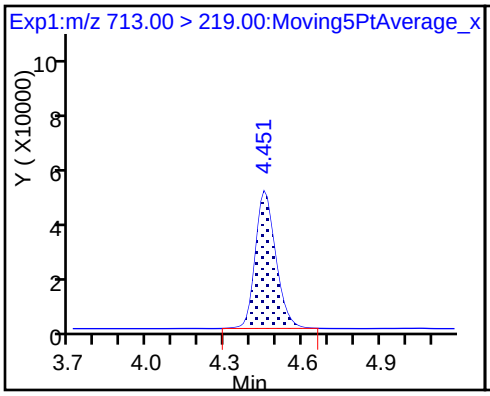
D 43 13C2-PFTeDA



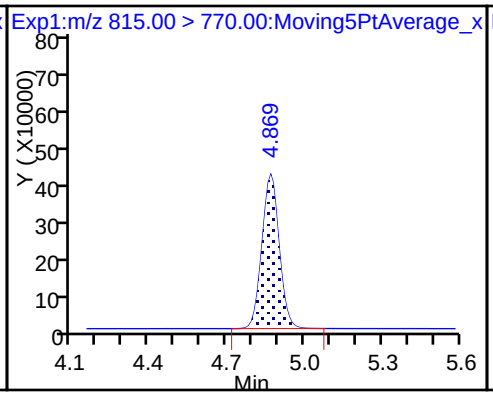
42 Perfluorotetradecanoic acid



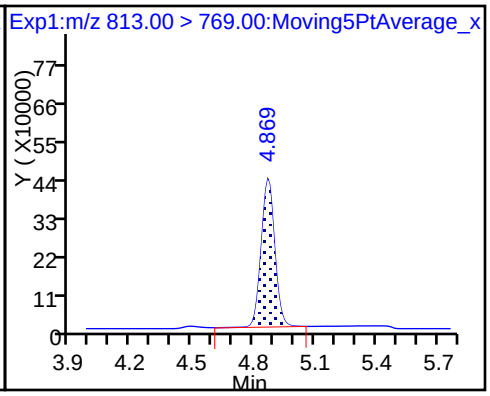
42 Perfluorotetradecanoic acid



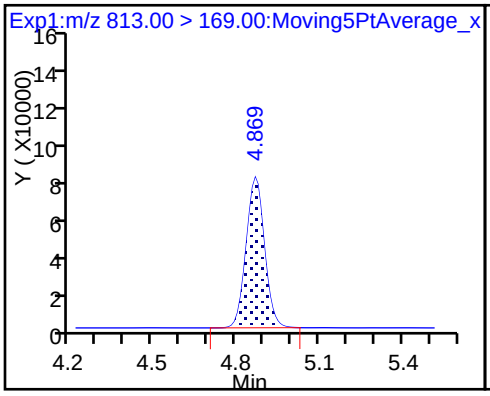
D 44 13C2-PFHxDA



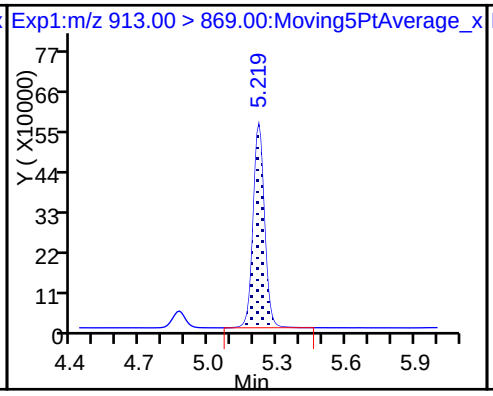
45 Perfluorohexadecanoic acid



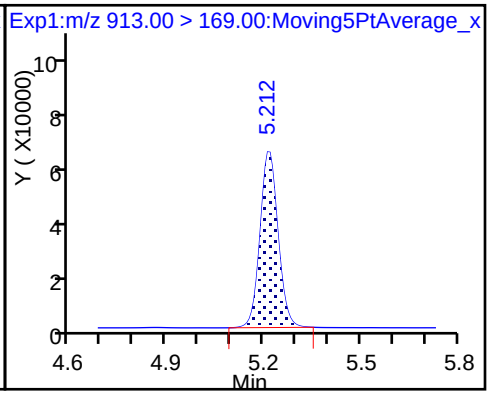
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

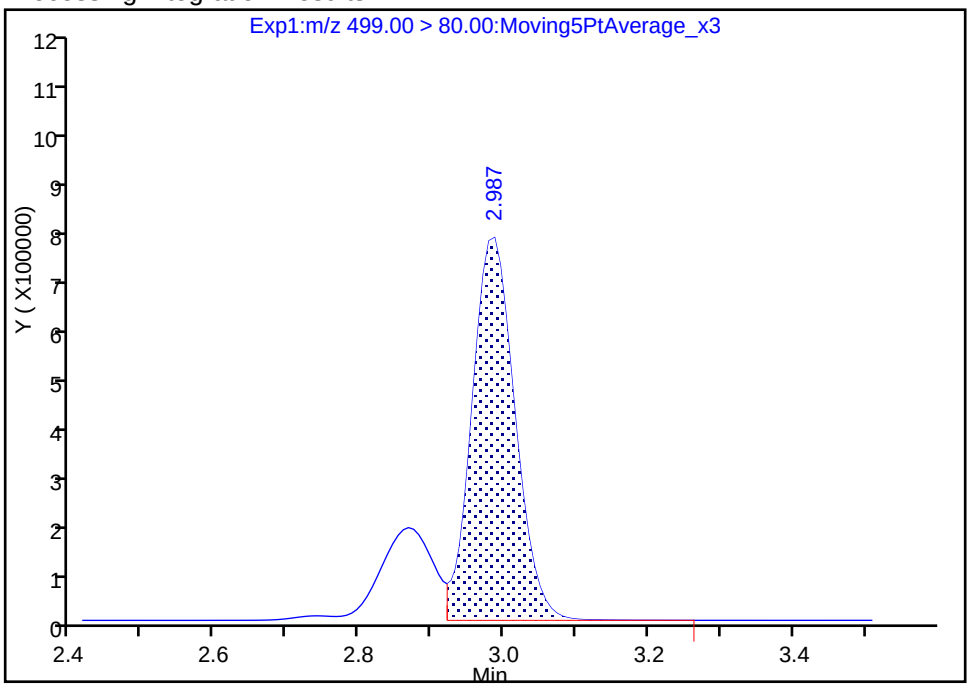
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_008.d
Injection Date: 16-Feb-2018 16:04:41 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

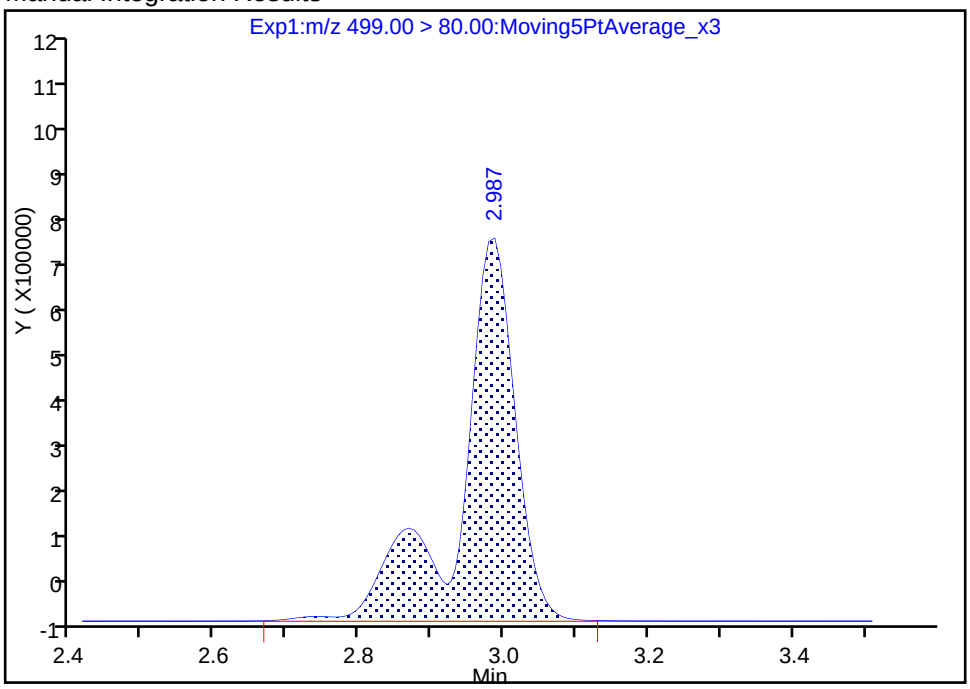
Processing Integration Results

RT: 2.99
Area: 2988925
Amount: 1.838566
Amount Units: ng/ml



Manual Integration Results

RT: 2.99
Area: 3893226
Amount: 2.394826
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 12:59:52
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/7 Calibration Date: 02/16/2018 16:51

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9352		0.999	1.00	-0.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.235		1.04	1.00	3.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	74.75		0.888	0.884	0.5	25.0
4:2 FTS	AveID	13.80	14.85		1.01	0.934	7.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9646		0.936	1.00	-6.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	1.037		0.969	1.00	-3.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.038		0.857	0.910	-5.9	25.0
6:2FTS	AveID	1.694	1.651		0.924	0.948	-2.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.114		1.01	1.00	1.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.325		0.955	0.952	0.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.020		0.991	1.00	-0.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.072		0.927	0.928	-0.1	25.0
8:2FTS	AveID	1.272	1.250		0.942	0.958	-1.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	1.006		1.03	1.00	3.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	0.9703		0.993	1.00	-0.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	1.069		0.959	1.00	-4.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.6585		0.967	0.964	0.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.9436		0.975	1.00	-2.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	0.9934		0.929	1.00	-7.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	1.070		1.06	1.00	6.1	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.999		1.06	1.00	6.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2392		0.904	1.00	-9.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9365		0.962	1.00	-3.8	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	1.011		1.02	1.00	2.1	25.0
13C4 PFBA	Ave	1.300	1.357		2.61	2.50	4.3	50.0
13C5 PFPeA	Ave	0.9279	0.9496		2.56	2.50	2.3	50.0
13C3-PFBS	Ave	0.0248	0.0251		2.36	2.33	1.3	50.0
13C2 PFHxA	Ave	0.998	1.013		2.54	2.50	1.5	50.0
13C4-PFHpA	Ave	0.9453	0.9441		2.50	2.50	-0.1	50.0
18O2 PFHxS	Ave	1.332	1.349		2.39	2.37	1.2	50.0
M2-6:2FTS	Ave	0.2372	0.2236		2.24	2.38	-5.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/7 Calibration Date: 02/16/2018 16:51

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.8929		2.46	2.50	-1.4	50.0
13C4 PFOS	Ave	0.9166	0.9163		2.39	2.39	-0.0	50.0
13C5 PFNA	Ave	0.6993	0.6992		2.50	2.50	-0.0	50.0
13C8 FOSA	Ave	1.318	1.352		2.57	2.50	2.6	50.0
M2-8:2FTS	Ave	0.2184	0.2172		2.38	2.40	-0.6	50.0
13C2 PFDA	Ave	0.5764	0.5663		2.46	2.50	-1.8	50.0
d3-NMeFOSAA	Ave	0.1687	0.1391		2.06	2.50	-17.5	50.0
d5-NEtFOSAA	Ave	0.1780	0.1425		2.00	2.50	-20.0	50.0
13C2 PFUnA	Ave	0.4407	0.4395		2.49	2.50	-0.3	50.0
13C2 PFDoA	Ave	0.4199	0.3760		2.24	2.50	-10.5	50.0
13C2-PFTeDA	Ave	0.3706	0.3513		2.37	2.50	-5.2	50.0
13C2-PFHxDA	Ave	0.5001	0.4756		2.38	2.50	-4.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_014.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 16-Feb-2018 16:51:32 ALS Bottle#: 13 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub30

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:41 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: barnettj Date: 17-Feb-2018 12:59:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.402	1.401	0.001	0.536	5931109	2.61		104	80362	
2 Perfluorobutyric acid										
212.90 > 169.00	1.402	1.402	0.0	1.000	2218762	1.00		99.9	457	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.644	1.644	0.0	1.000	2049703	1.04		104	705	
D 3 13C5-PFPeA										
267.90 > 223.00	1.644	1.652	-0.008	0.629	4150612	2.56		102	99441	
D 47 13C3-PFBS										
301.90 > 83.00	1.679	1.679	0.0	0.642	102123	2.36		101	2372	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.679	1.679	0.0	1.000	2902312	0.8885		101	38392	
298.90 > 99.00	1.679	1.679	0.0	1.000	1209467		2.40(1.25-3.74)		9441	
D 60 M2-4:2FTS										
329.00 > 81.00	1.892	1.892	0.0	0.723	742959	NC			9136	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.892	1.892	0.0	1.000	609404	1.01		108	27774	
D 7 13C2 PFHxA										
315.00 > 270.00	1.923	1.922	0.001	0.735	4426057	2.54		101	98911	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.923	1.923	0.0	1.000	1707707	0.9361		93.6	3827	
313.00 > 119.00	1.923	1.923	0.0	1.000	157097		10.87(5.03-15.10)		2147	
D 9 13C4-PFHpA										
367.00 > 322.00	2.252	2.252	0.0	0.861	4126615	2.50		99.9	97496	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.252	2.252	0.0	1.000	1712426	0.9685		96.9	2070	
363.00 > 169.00	2.252	2.252	0.0	1.000	680999		2.51(1.13-3.40)		5634	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS										
403.00 > 84.00	2.265	2.265	0.0	0.866	5576431	2.39		101	91594	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.265	2.265	0.0	1.000	2227590	0.8567		94.1	7690	
399.00 > 99.00	2.265	2.265	0.0	1.000	737574		3.02(1.50-4.49)		1584	
D 12 M2-6:2FTS										
429.00 > 81.00	2.588	2.588	0.0	0.990	928598	2.24		94.3	22294	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.588	2.588	0.0	1.000	612104	0.9240		97.5	18071	
D 14 13C4 PFOA										
417.00 > 372.00	2.615	2.614	0.001	1.000	3902748	2.46		98.6	102871	
* 62 13C2-PFOA										
415.00 > 370.00	2.615	2.615	0.0		4371136	2.50			86685	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.615	2.615	0.0	1.000	1739403	1.01		101	205	
413.00 > 169.00	2.615	2.615	0.0	1.000	928565		1.87(0.84-2.52)		306	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.622	2.622	0.0	1.000	2021229	0.9552		100	43855	
449.00 > 99.00	2.622	2.622	0.0	1.000	550789		3.67(1.94-5.82)		9340	
D 19 13C5 PFNA										
468.00 > 423.00	2.985	2.984	0.001	1.141	3056284	2.50		100.0	53154	
D 18 13C4 PFOS										
503.00 > 80.00	2.985	2.984	0.001	1.141	3828914	2.39		100.0	47163	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.985	2.985	0.0	1.000	1594410	0.9269		99.9	11721	M
499.00 > 99.00	2.985	2.985	0.0	1.000	351784		4.53(2.31-6.93)		2392	
20 Perfluorononanoic acid										
463.00 > 419.00	2.985	2.985	0.0	1.000	1246545	0.99		99.1	1486	
463.00 > 169.00	2.985	2.985	0.0	1.000	319309		3.90(1.90-5.69)		11180	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.331	3.331	0.0	1.000	454877	0.9418		98.3	28118	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.331	3.331	0.0	1.000	2377760	1.03		103	23755	
D 26 M2-8:2FTS										
529.00 > 81.00	3.331	3.332	-0.001	1.274	909520	2.38		99.4	20497	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.339	-0.008	1.274	5909958	2.57		103	36855	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.346	3.346	0.0	1.000	960700	0.99		99.3	3065	
513.00 > 169.00	3.346	3.346	0.0	1.000	178231		5.39(2.36-7.09)		1292	
D 23 13C2 PFDA										
515.00 > 470.00	3.346	3.347	-0.001	1.279	2475352	2.46		98.2	44107	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.498	3.492	0.006	1.338	608136	2.06		82.5	21657	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.498	3.498	0.0	1.000	260082	0.9588		95.9	4296	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.655	3.655	0.0	1.000	1016986	0.9668		100	26553	
599.00 > 99.00	3.655	3.655	0.0	1.000	344615		2.95(1.39-4.16)		3878	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.662	3.656	0.006	1.400	622731	2.00		80.0	1539	
D 30 13C2 PFUnA										
565.00 > 520.00	3.670	3.663	0.007	1.403	1921056	2.49		99.7	44243	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.670	3.670	0.0	1.002	235043	0.9747		97.5	6427	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.670	3.670	0.0	1.000	763360	0.9291		92.9	993	
563.00 > 169.00	3.670	3.670	0.0	1.000	149911		5.09(0.00-0.00)		6059	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.961	3.961	0.0	1.000	703388	1.06		106	1315	
613.00 > 169.00	3.961	3.961	0.0	1.000	183187		3.84(2.13-6.40)		8448	
D 36 13C2 PFDoA										
615.00 > 570.00	3.961	3.962	-0.001	1.515	1643475	2.24		89.5	16613	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.222	4.222	0.0	1.000	656839	1.06		106	2739	
663.00 > 169.00	4.222	4.222	0.0	1.000	205385		3.20(1.25-3.76)		5191	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.455	4.448	0.007	1.703	1535542	2.37		94.8	25667	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.455	4.455	0.0	1.000	146906	0.9036		90.4	5318	
713.00 > 219.00	4.455	4.455	0.0	1.000	110567		1.33(0.71-2.13)		1712	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.862	4.857	0.005	1.859	2078795	2.38		95.1	12639	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.862	4.862	0.0	1.000	778711	0.9621		96.2	130	
813.00 > 169.00	4.862	4.862	0.0	1.000	146530		5.31(2.86-8.58)		4037	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.214	5.214	0.0	1.000	840384	1.02		102	194	
913.00 > 169.00	5.214	5.214	0.0	1.000	108168		7.77(0.00-0.00)		1051	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

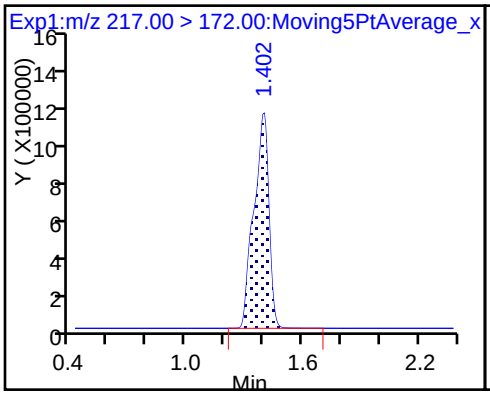
LCPFC_LL4_00003 Amount Added: 1.00 Units: mL

Report Date: 17-Feb-2018 13:11:41 Chrom Revision: 2.2 08-Feb-2018 13:38:42

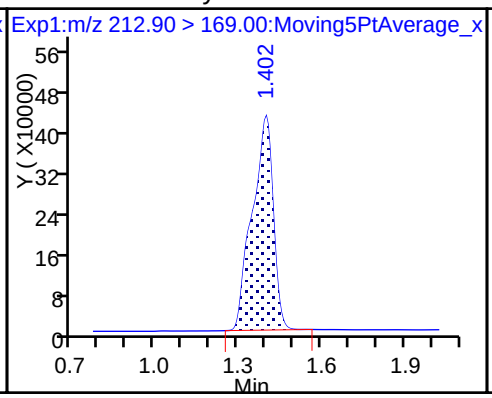
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_014.d
Injection Date: 16-Feb-2018 16:51:32 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL

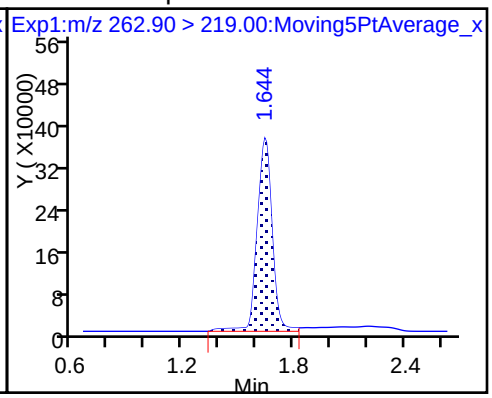
D 1 13C4 PFBA



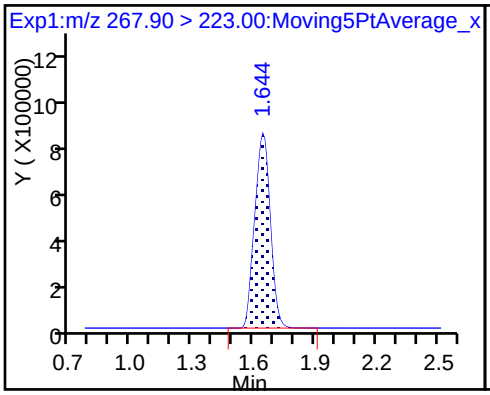
2 Perfluorobutyric acid



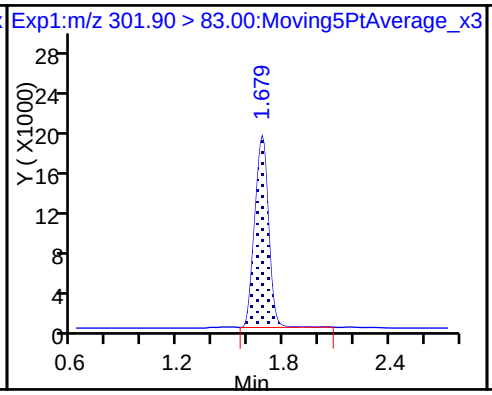
4 Perfluoropentanoic acid



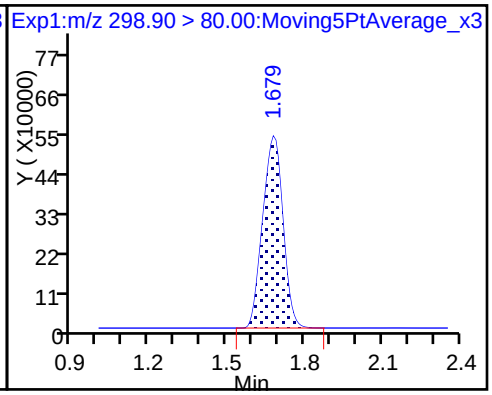
D 3 13C5-PFPeA



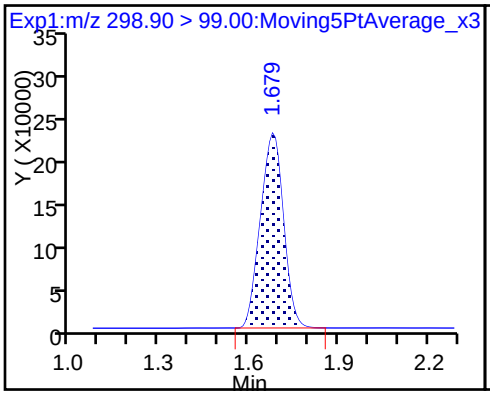
D 47 13C3-PFBS



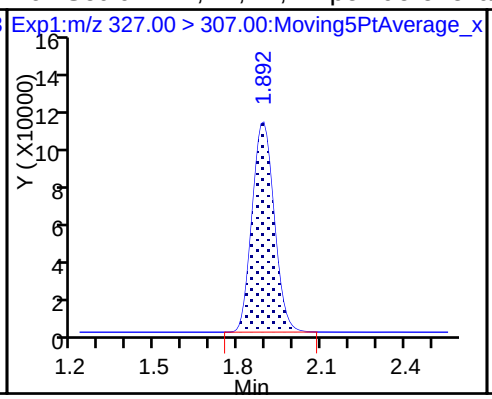
5 Perfluorobutanesulfonic acid



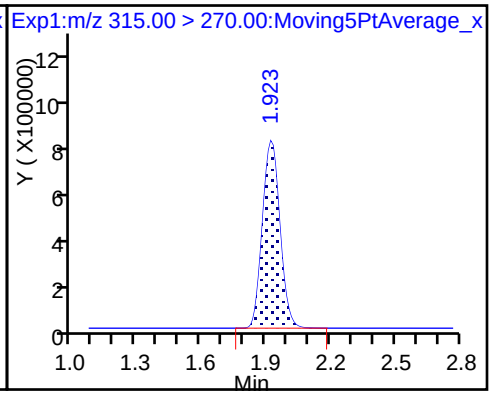
5 Perfluorobutanesulfonic acid



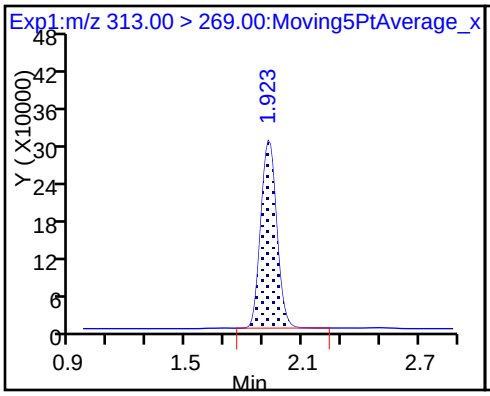
61 Sodium 1H,1H,2H,2H-perfluorohexa



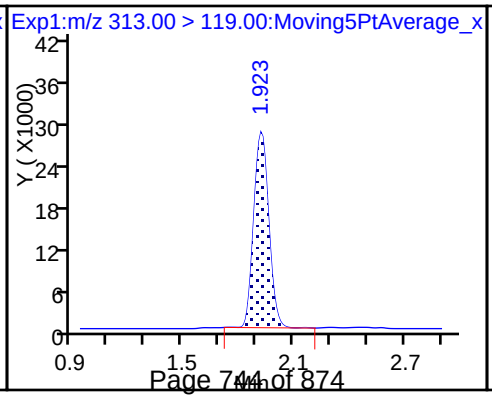
D 7 13C2 PFHxA



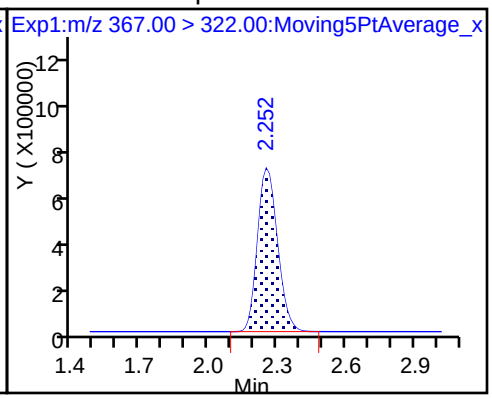
6 Perfluorohexanoic acid



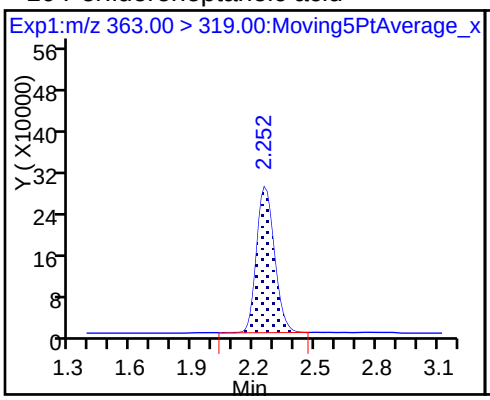
6 Perfluorohexanoic acid



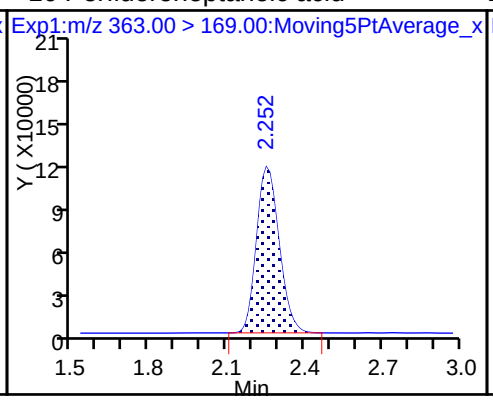
D 9 13C4-PFHpA



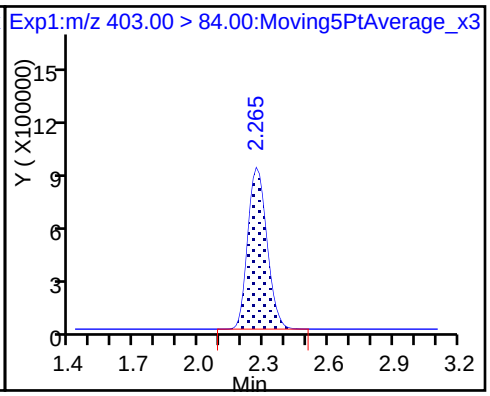
10 Perfluoroheptanoic acid



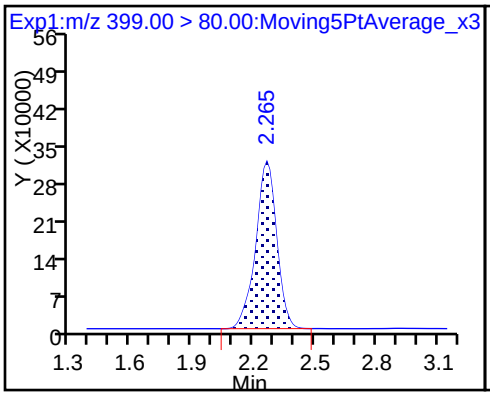
10 Perfluoroheptanoic acid



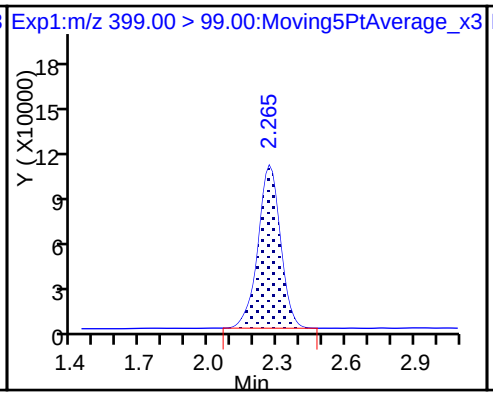
D 11 18O2 PFHxS



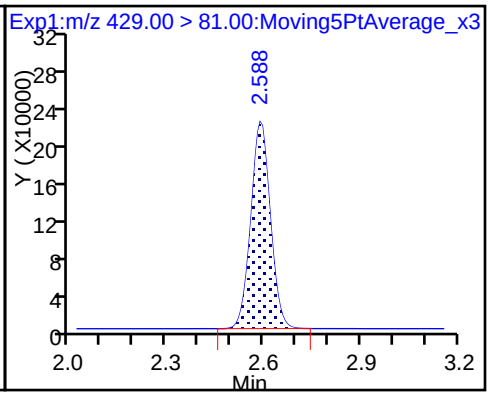
8 Perfluorohexanesulfonic acid



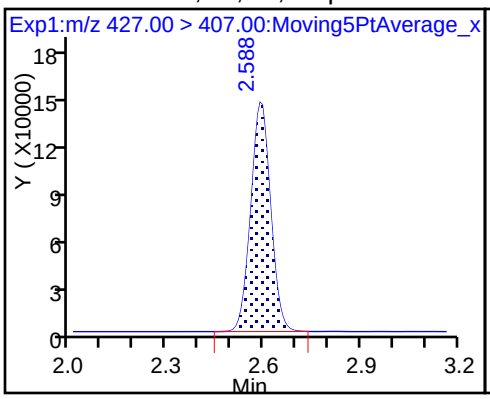
8 Perfluorohexanesulfonic acid



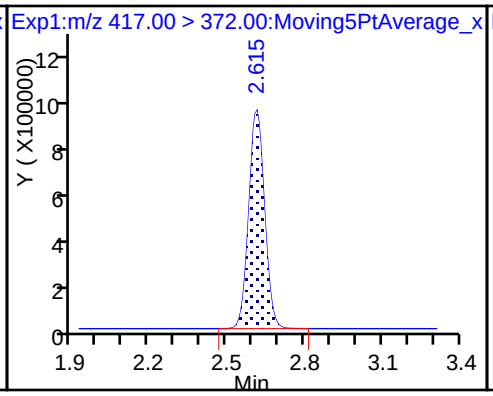
D 12 M2-6:2FTS



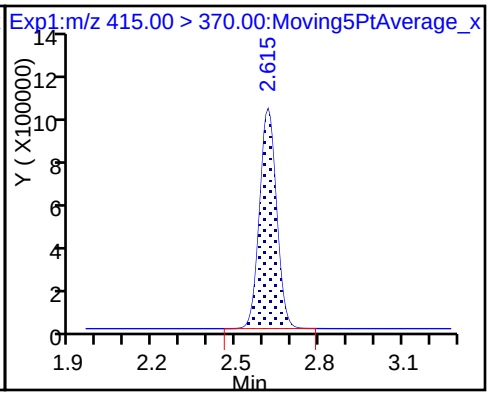
13 Sodium 1H,1H,2H,2H-perfluorooctane



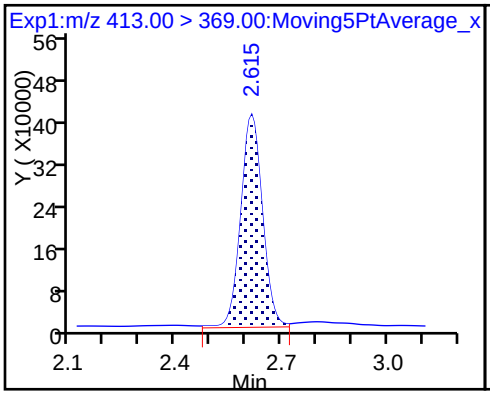
D 14 13C4 PFOA



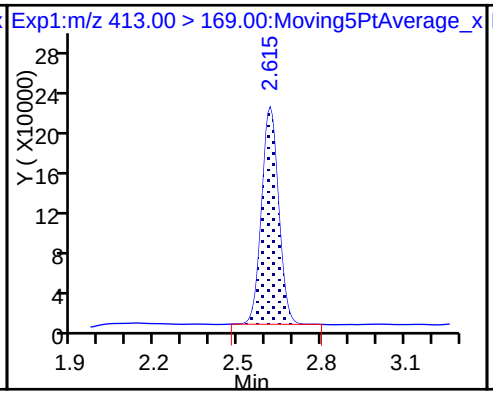
* 62 13C2-PFOA



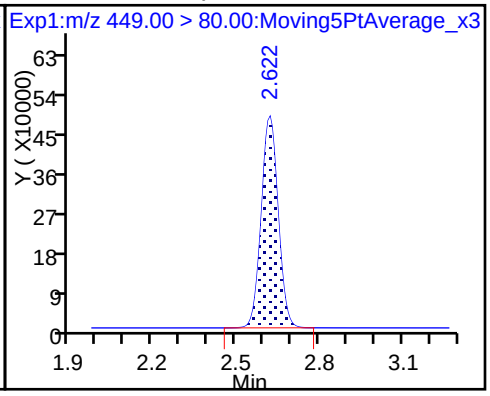
15 Perfluorooctanoic acid



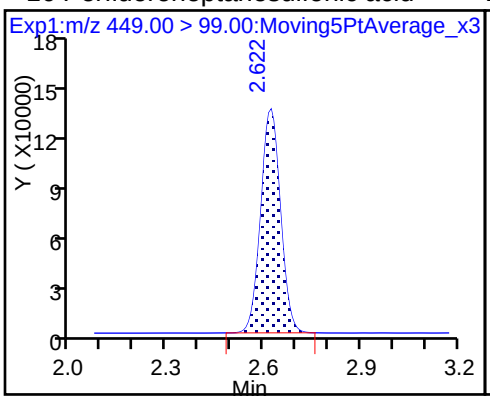
15 Perfluorooctanoic acid



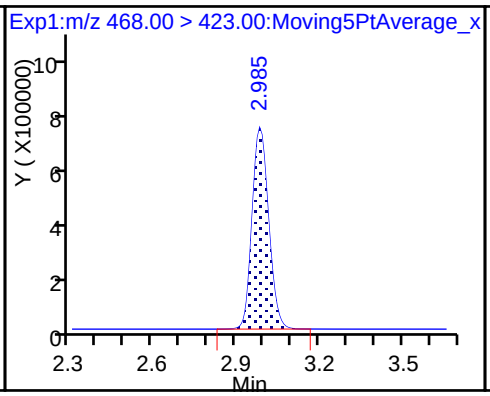
16 Perfluoroheptanesulfonic acid



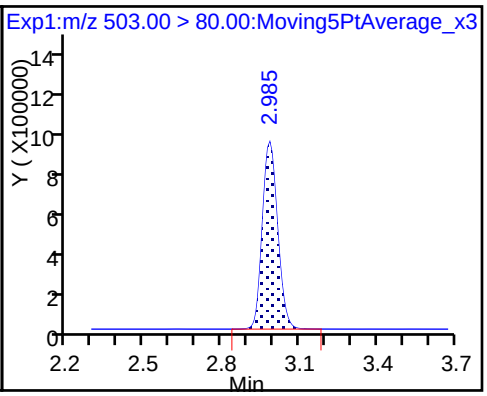
16 Perfluoroheptanesulfonic acid



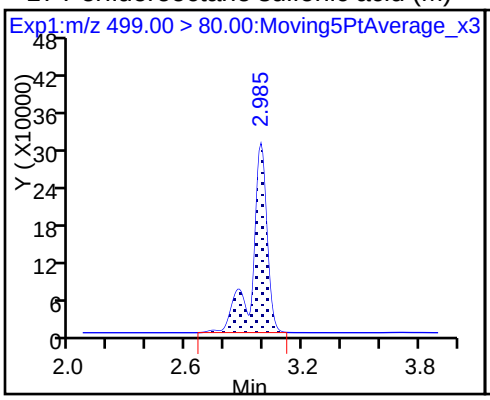
D 19 13C5 PFNA



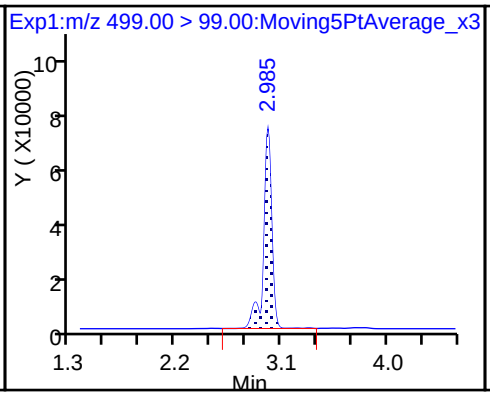
D 18 13C4 PFOS



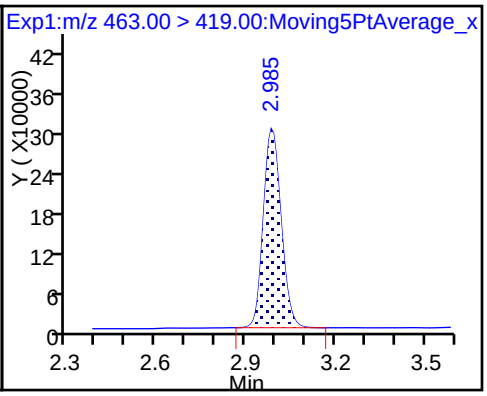
17 Perfluorooctane sulfonic acid (M)



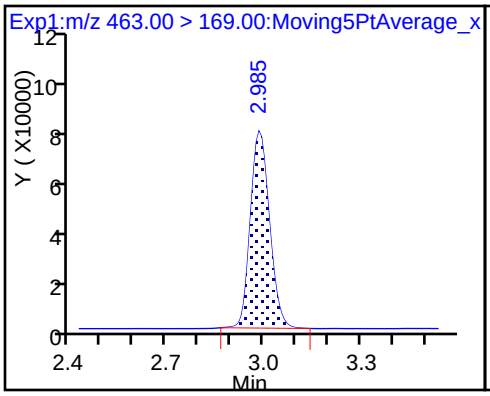
17 Perfluorooctane sulfonic acid



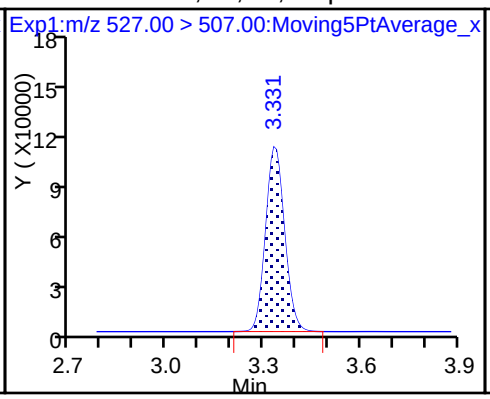
20 Perfluorononanoic acid



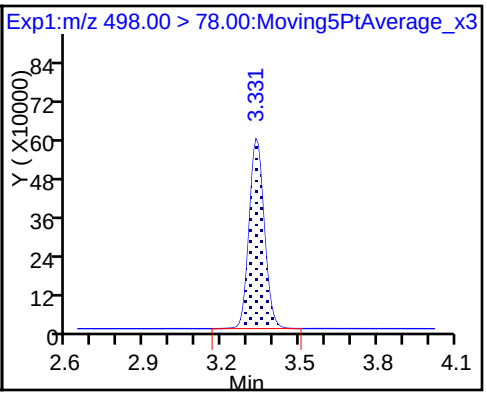
20 Perfluorononanoic acid



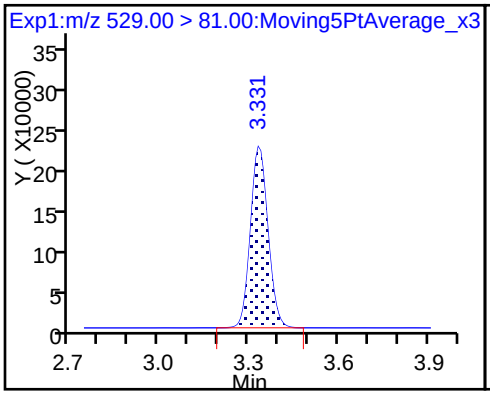
25 Sodium 1H,1H,2H,2H-perfluorodecane



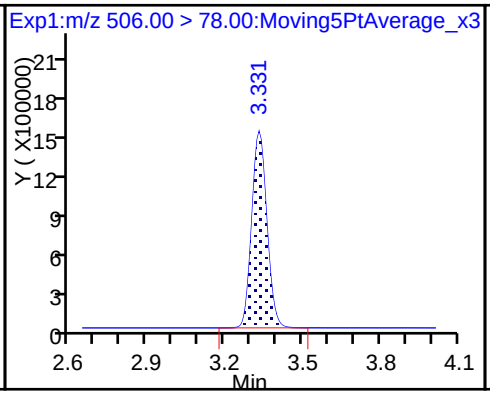
22 Perfluorooctane Sulfonamide



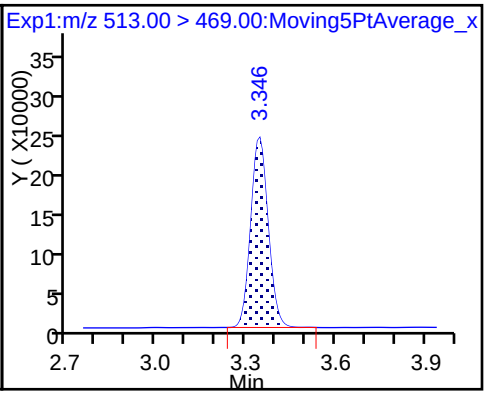
D 26 M2-8:2FTS



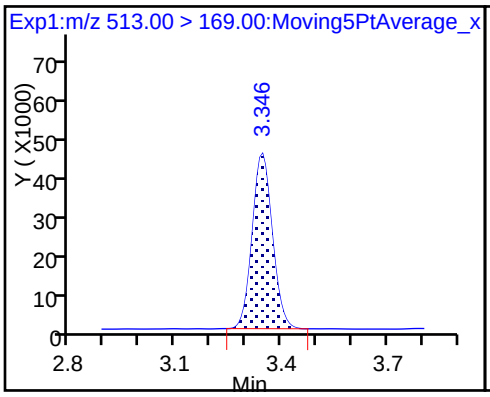
D 21 13C8 FOSA



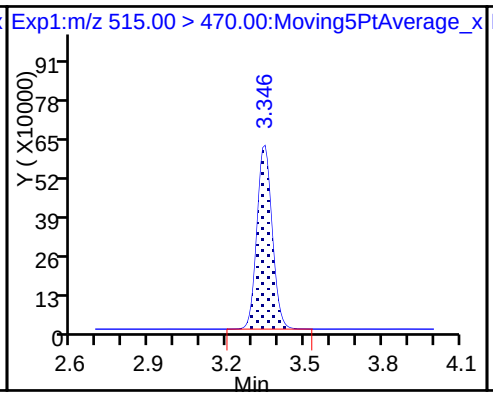
24 Perfluorodecanoic acid



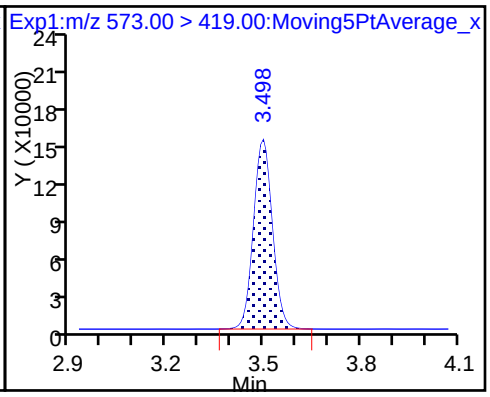
24 Perfluorodecanoic acid



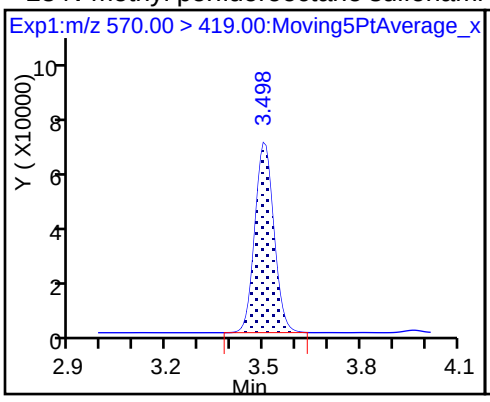
D 23 13C2 PFDA



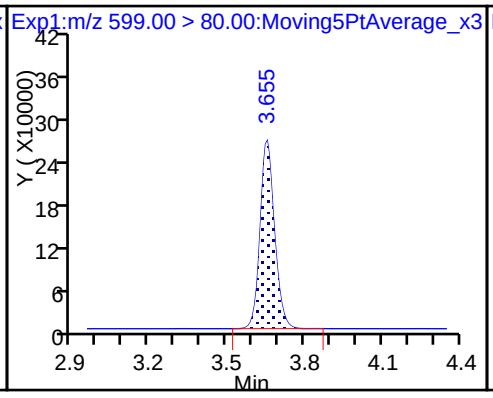
D 27 d3-NMeFOSAA



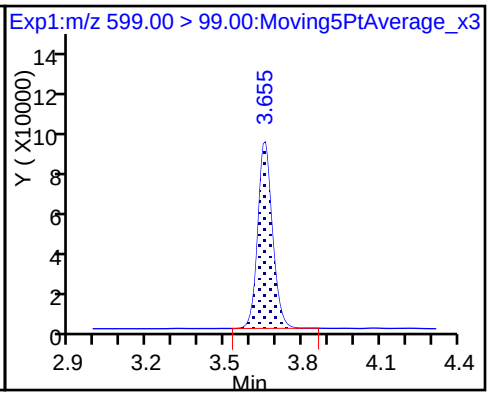
28 N-methyl perfluorooctane sulfonami



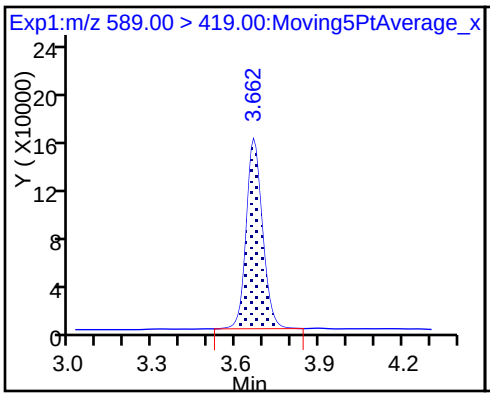
29 Perfluorodecane Sulfonic acid



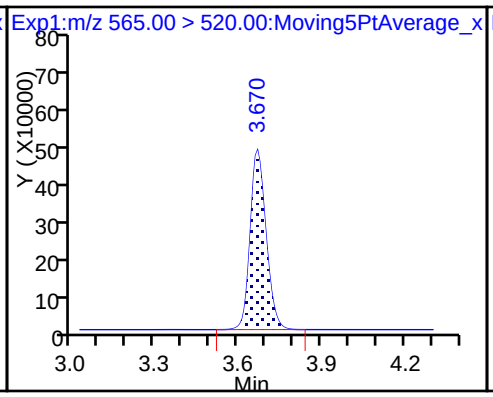
29 Perfluorodecane Sulfonic acid



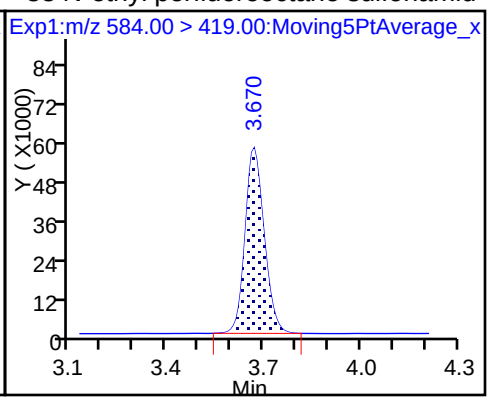
D 32 d5-NEtFOSAA



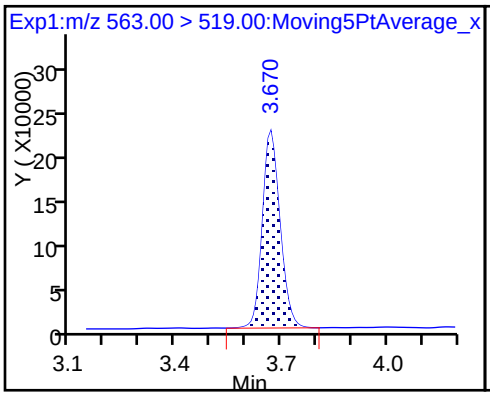
D 30 13C2 PFUnA



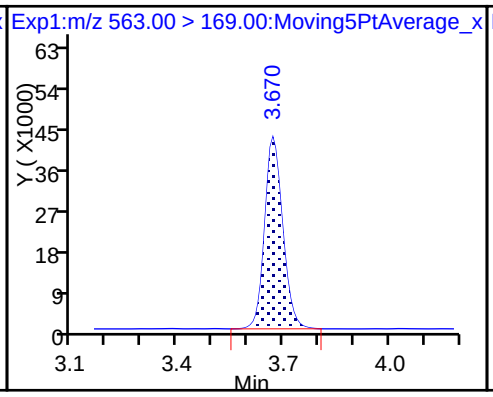
33 N-ethyl perfluorooctane sulfonamid



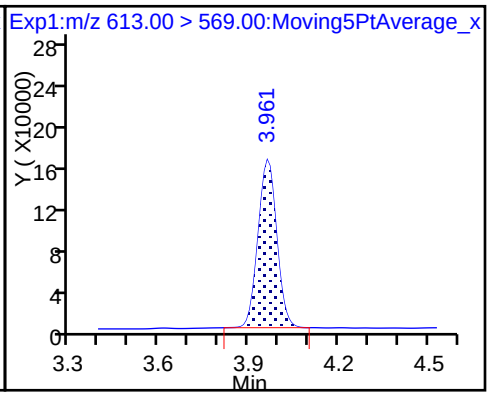
31 Perfluoroundecanoic acid



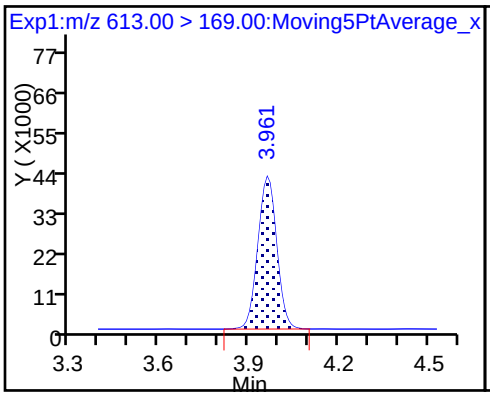
31 Perfluoroundecanoic acid



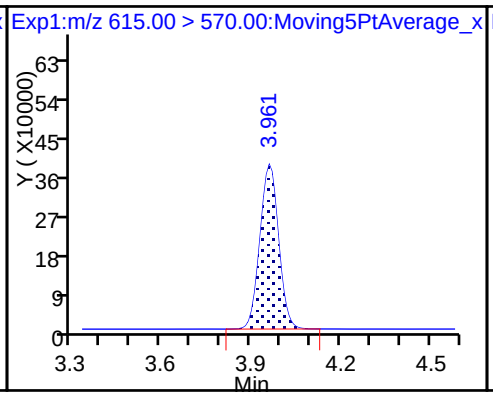
37 Perfluorododecanoic acid



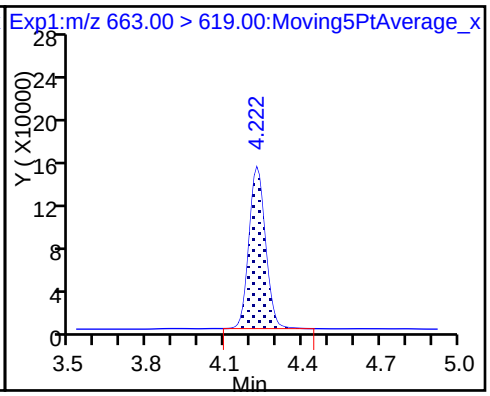
37 Perfluorododecanoic acid



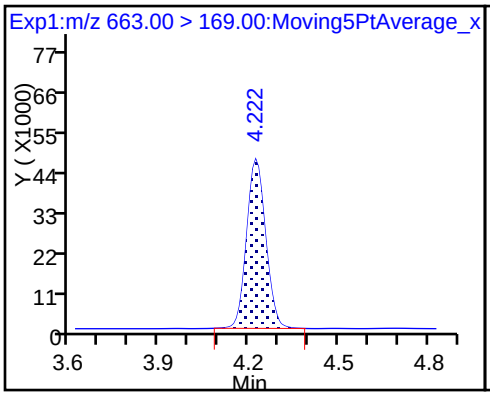
D 36 13C2 PFDoA



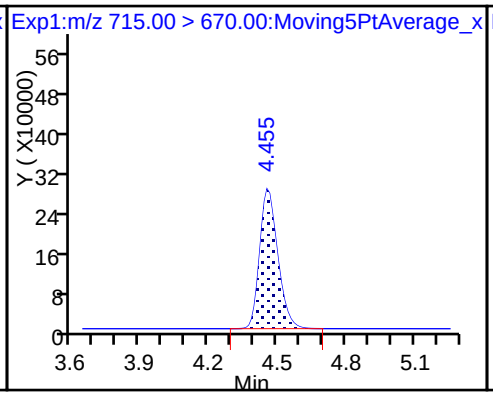
41 Perfluorotridecanoic acid



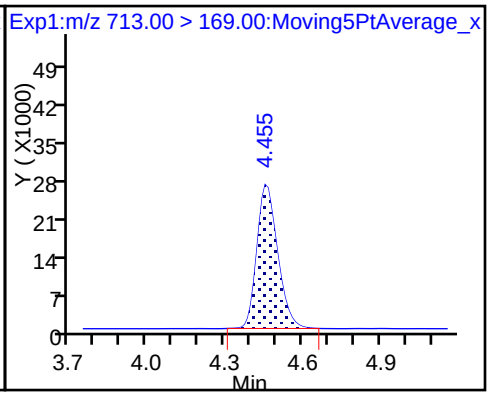
41 Perfluorotridecanoic acid



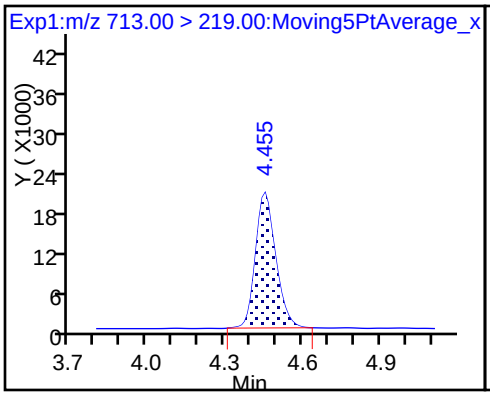
D 43 13C2-PFTeDA



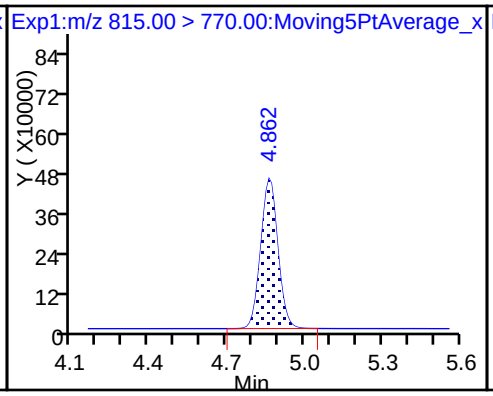
42 Perfluorotetradecanoic acid



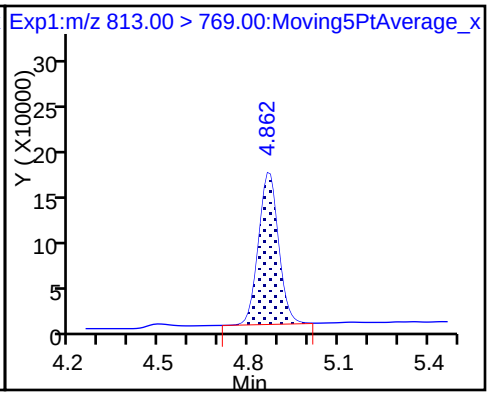
42 Perfluorotetradecanoic acid



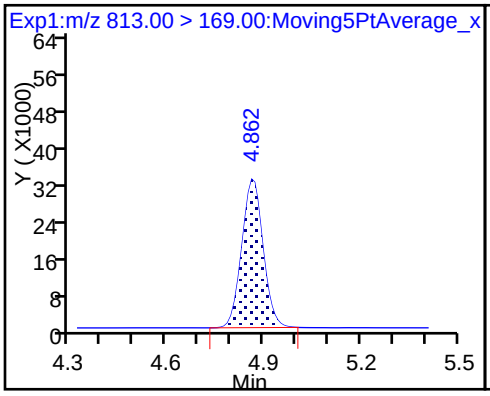
D 44 13C2-PFHxDA



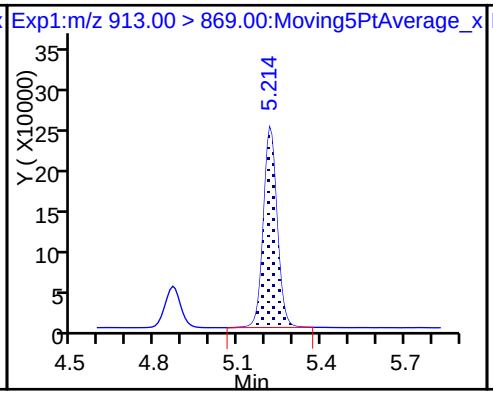
45 Perfluorohexadecanoic acid



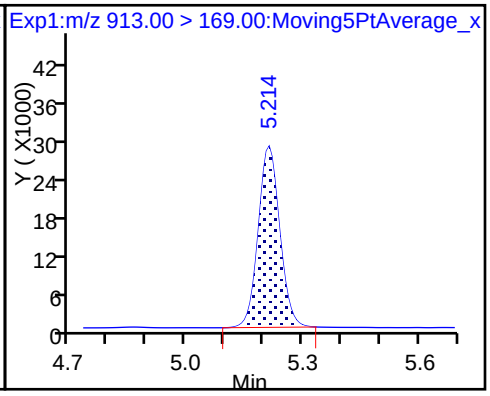
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

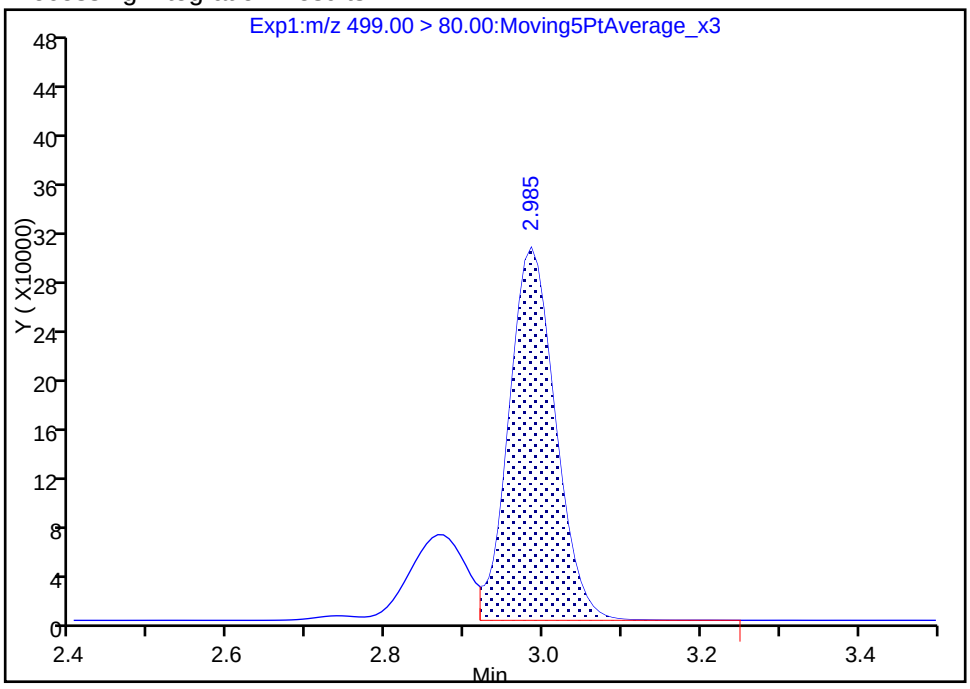
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_014.d
Injection Date: 16-Feb-2018 16:51:32 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

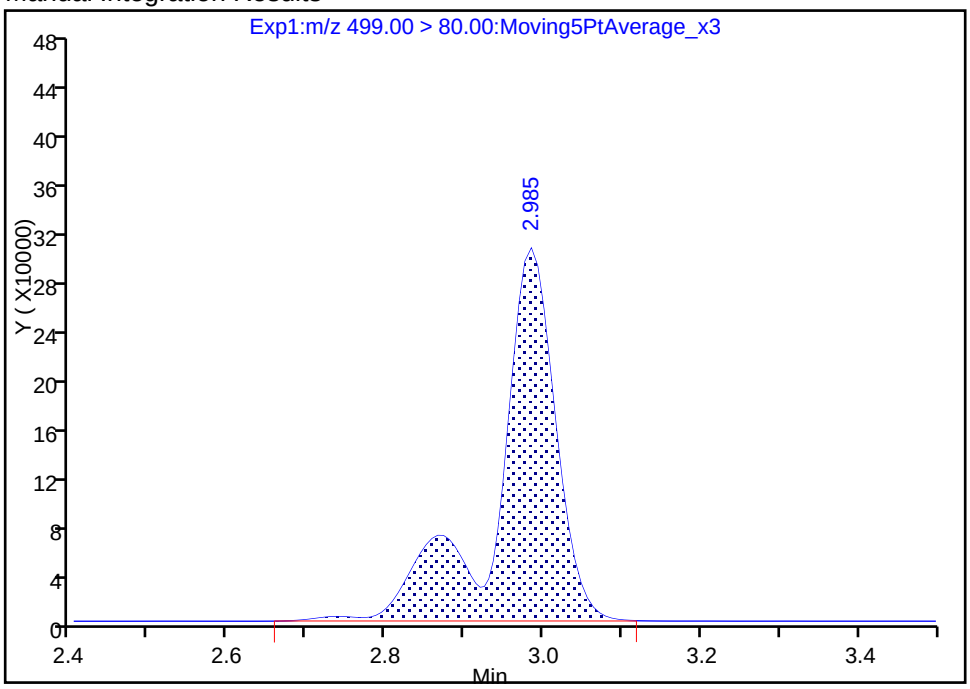
Processing Integration Results

RT: 2.98
Area: 1242276
Amount: 0.722226
Amount Units: ng/ml



Manual Integration Results

RT: 2.98
Area: 1594410
Amount: 0.926947
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 12:59:14
Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-207074/1-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_037.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:17

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.5	U	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.0	U	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	1.0	U M	2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	1.5	U	2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	U	2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.0	U	2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-207074/1-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_037.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:17

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	89		25-150
STL00992	13C4 PFBA	103	M	25-150
STL00993	13C2 PFHxA	101		25-150
STL00990	13C4 PFOA	99		25-150
STL00995	13C5 PFNA	95		25-150
STL00996	13C2 PFDA	107		25-150
STL00997	13C2 PFUnA	103		25-150
STL00998	13C2 PFDoA	94		25-150
STL00994	18O2 PFHxS	100		25-150
STL00991	13C4 PFOS	96		25-150
STL02116	13C2-PFTeDA	108		25-150
STL01892	13C4-PFHpA	101		25-150
STL01893	13C5 PFPeA	96		25-150
STL02337	13C3-PFBS	96		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_037.d
Lims ID: MB 320-207074/1-A
Client ID:
Sample Type: MB
Inject. Date: 07-Feb-2018 13:17:48 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-207074/1-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:42:42 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:15:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
217.00 > 172.00	1.420	1.412	0.008	0.543	7200895	2.57		103	18277	M
2 Perfluorobutyric acid										
212.90 > 169.00	1.420	1.412	0.008	1.000	5354	0.001962			1.2	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.672	1.660	0.012	1.000	6772	0.003477			4.5	
D 3 13C5-PFPeA										
267.90 > 223.00	1.672	1.660	0.012	0.639	4094629	2.41		96.4	39854	
D 47 13C3-PFBS										
301.90 > 83.00	1.708	1.695	0.013	0.652	85018	2.24		96.2	2221	
D 7 13C2 PFHxA										
315.00 > 270.00	1.955	1.930	0.025	0.747	4622547	2.52		101	46609	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.945	1.940	0.005	0.995	4877	0.002550			9.7	M
313.00 > 119.00	1.935	1.940	-0.005	0.989	389		12.54(5.03-15.10)		11.0	M
D 9 13C4-PFHpA										
367.00 > 322.00	2.267	2.262	0.005	0.866	4484634	2.52		101	34326	
D 11 18O2 PFHxS										
403.00 > 84.00	2.280	2.275	0.005	0.871	5175524	2.36		99.6	43259	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.293	2.275	0.018	1.006	14973	0.006018			101	
399.00 > 99.00	2.293	2.275	0.018	1.006	5478		2.73(1.50-4.49)		41.1	
D 12 M2-6:2FTS										
429.00 > 81.00	2.597	2.588	0.009	0.992	977961	2.59		109	26577	
D 14 13C4 PFOA										
417.00 > 372.00	2.617	2.606	0.011	1.000	4323638	2.48		99.4	36480	
* 62 13C2-PFOA										
415.00 > 370.00	2.617	2.606	0.011		4844870	2.50			43410	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.617	2.606	0.011	1.000	20322	0.0103			8.1	
413.00 > 169.00	2.617	2.606	0.011	1.000	10597		1.92(0.84-2.52)		91.8	
D 18 13C4 PFOS										
503.00 > 80.00	2.987	2.976	0.011	1.141	3328377	2.31		96.5	23757	
D 19 13C5 PFNA										
468.00 > 423.00	2.987	2.976	0.011	1.141	3382523	2.39		95.5	30252	
D 26 M2-8:2FTS										
529.00 > 81.00	3.335	3.316	0.019	1.274	1183427	2.81		118	22973	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.331	0.004	1.274	4464703	2.24		89.4	20257	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.335	3.331	0.004	1.000	3811	0.002155			33.4	
D 23 13C2 PFDA										
515.00 > 470.00	3.342	3.331	0.011	1.277	3250956	2.66		107	30124	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.494	3.483	0.011	1.335	1622990	2.46		98.5	11360	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.509	3.491	0.018	1.004	4820	0.006927			44.7	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.659	3.648	0.011	1.398	1685008	2.49		99.7	9175	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.666	3.655	0.011	1.002	4418	0.007061			87.3	
D 30 13C2 PFUnA										
565.00 > 520.00	3.666	3.655	0.011	1.401	2420031	2.56		103	33523	
D 36 13C2 PFDoA										
615.00 > 570.00	3.966	3.952	0.014	1.516	2278821	2.36		94.5	20745	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.443	0.019	1.705	3214622	2.70		108	22974	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.887	4.862	0.025	1.002	45246	0.0101			47.8	
813.00 > 169.00	4.878	4.862	0.016	1.000	8049		5.62(2.86-8.58)		199	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.878	4.862	0.016	1.864	4868689	2.37		94.7	10475	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 08-Feb-2018 16:42:44 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_037.d

Injection Date: 07-Feb-2018 13:17:48 Instrument ID: A8_N

Lims ID: MB 320-207074/1-A

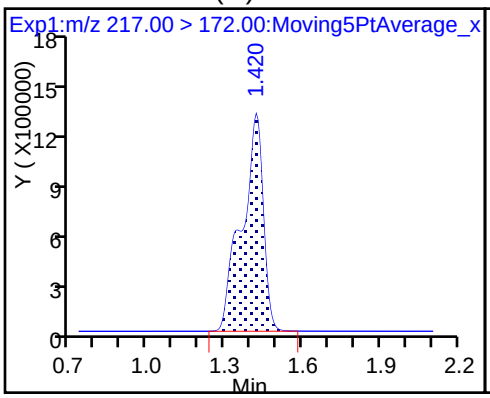
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2

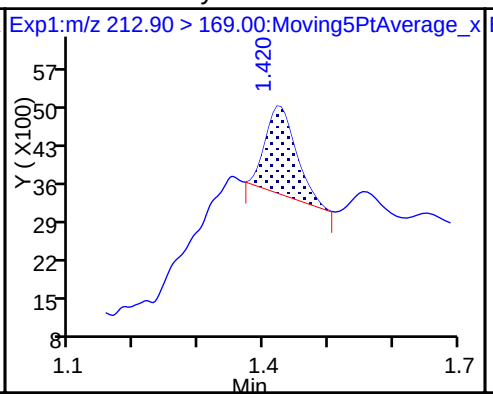
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

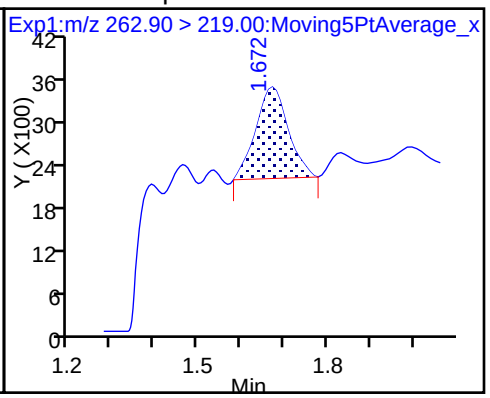
D 1 13C4 PFBA (M)



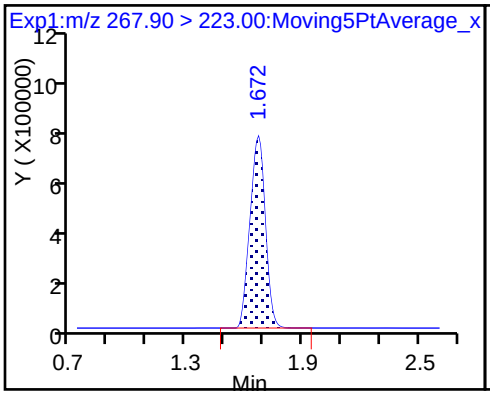
2 Perfluorobutyric acid



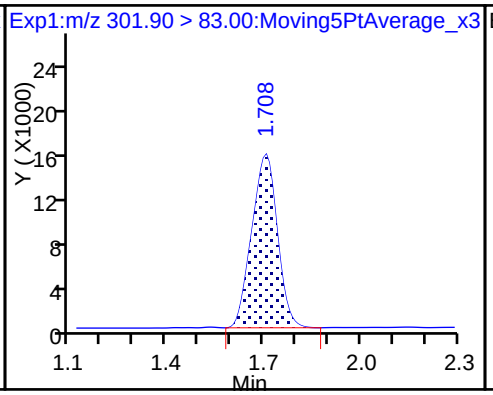
4 Perfluoropentanoic acid



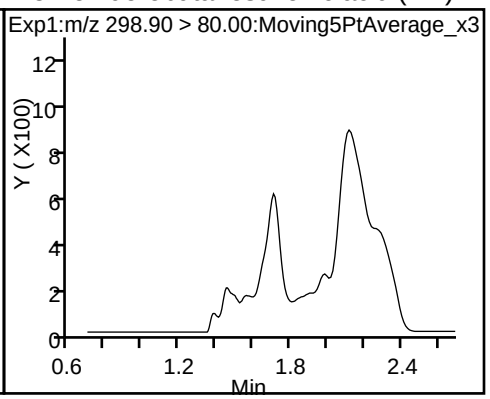
D 3 13C5-PFPeA



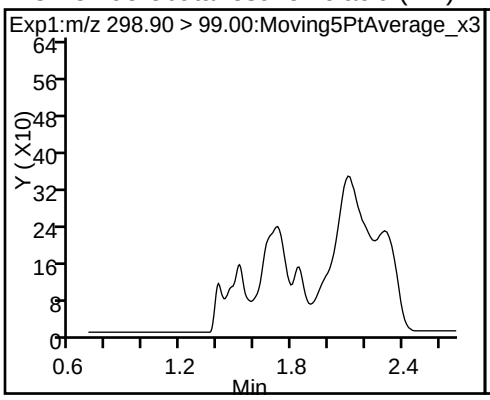
D 47 13C3-PFBS



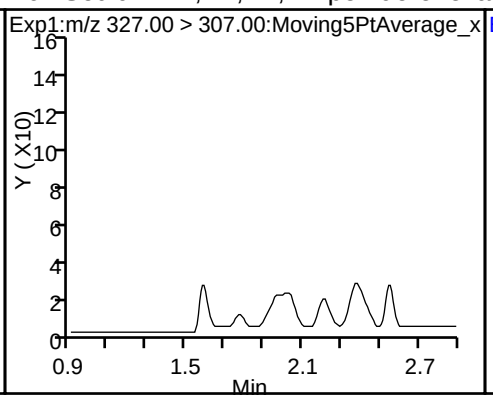
5 Perfluorobutanesulfonic acid (ND)



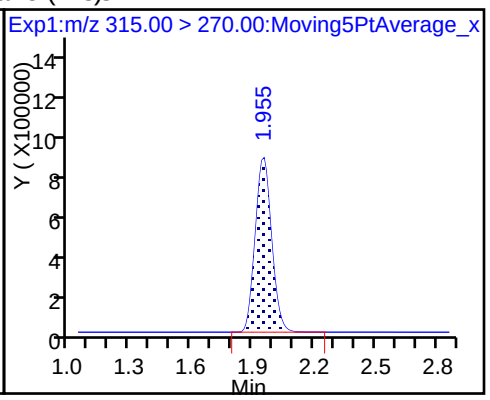
5 Perfluorobutanesulfonic acid (ND)



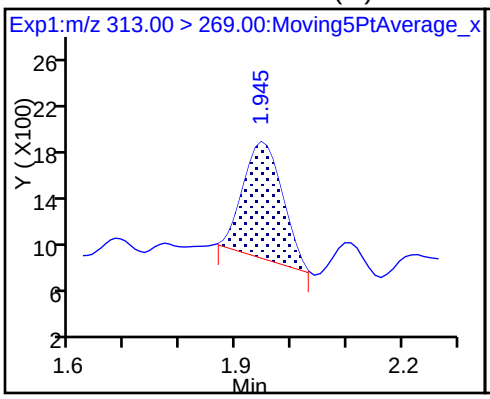
61 Sodium 1H,1H,2H,2H-perfluorohexane (ND)



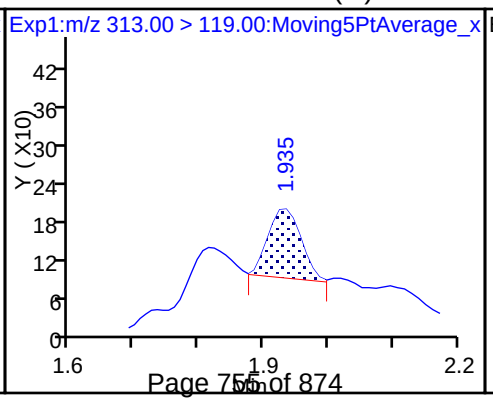
D 13C2 PFHxA



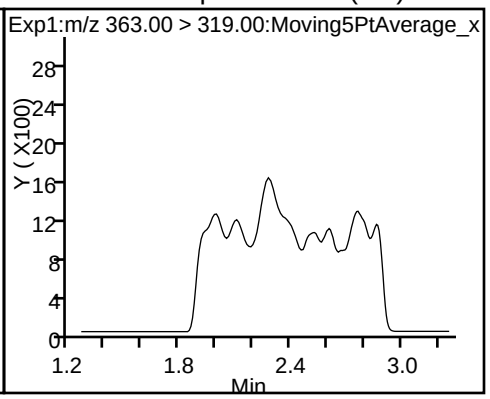
6 Perfluorohexanoic acid (M)



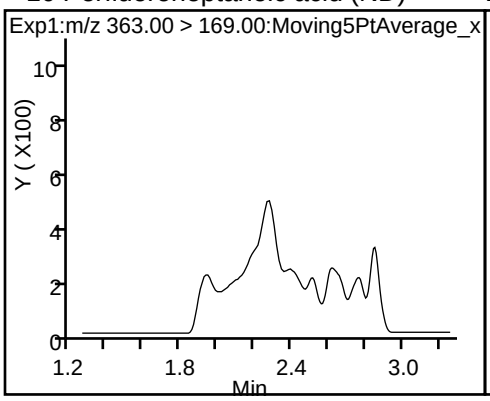
6 Perfluorohexanoic acid (M)



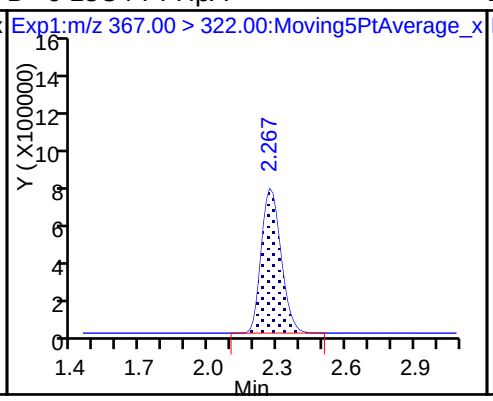
10 Perfluoroheptanoic acid (ND)



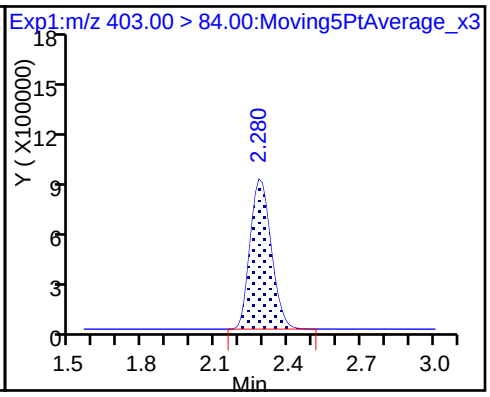
10 Perfluoroheptanoic acid (ND)



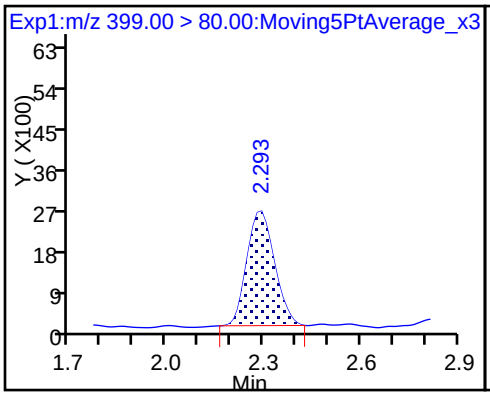
D 9 13C4-PFHpA



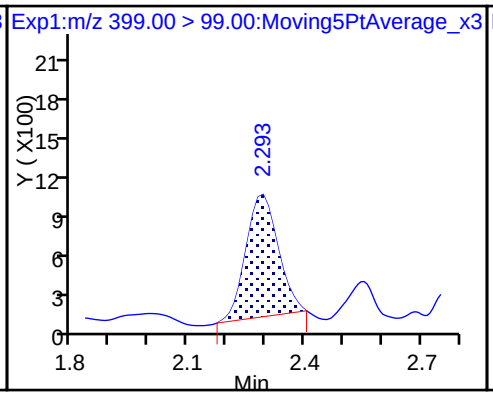
D 11 18O2 PFHxS



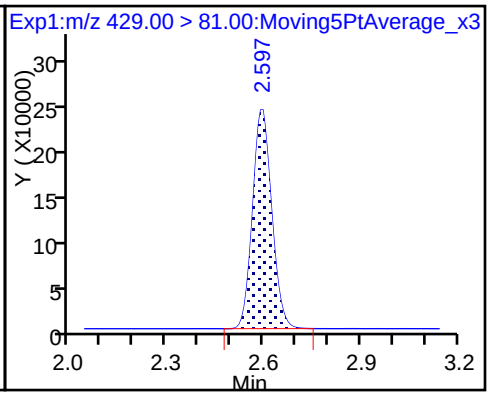
8 Perfluorohexanesulfonic acid



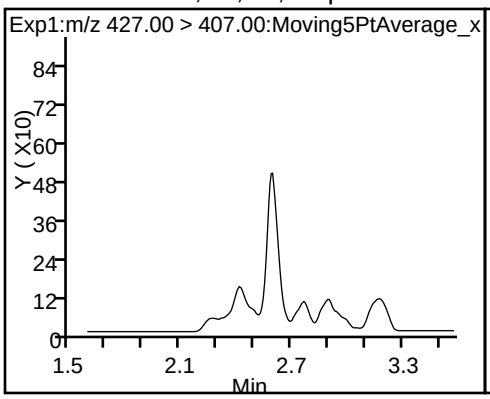
8 Perfluorohexanesulfonic acid



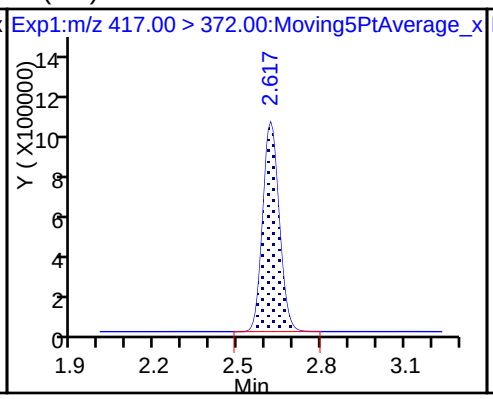
D 12 M2-6:2FTS



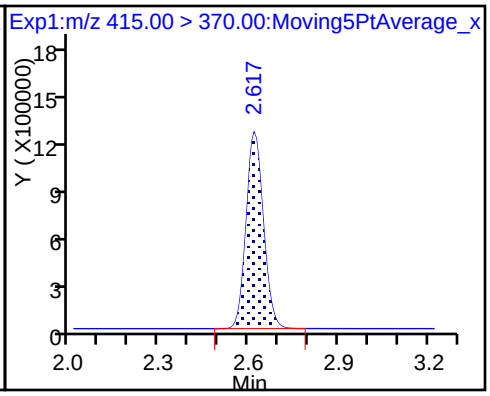
13 Sodium 1H,1H,2H,2H-perfluorooctane [41]



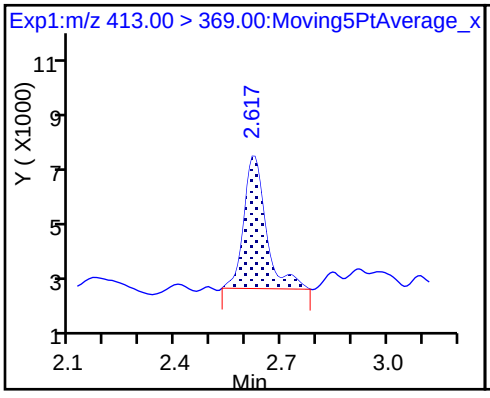
D 14 13C4 PFOA



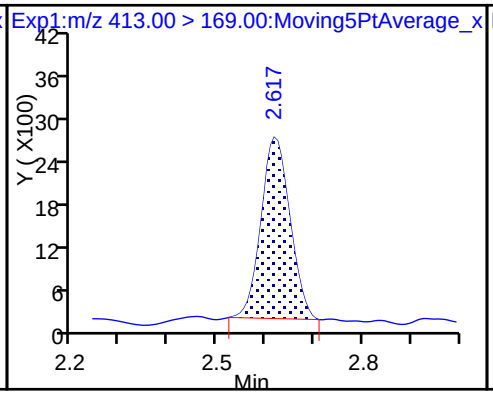
* 62 13C2-PFOA



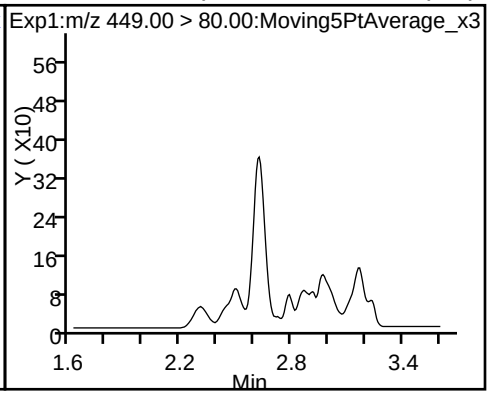
15 Perfluorooctanoic acid



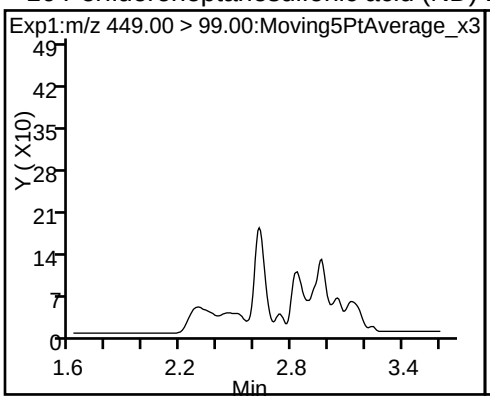
15 Perfluorooctanoic acid



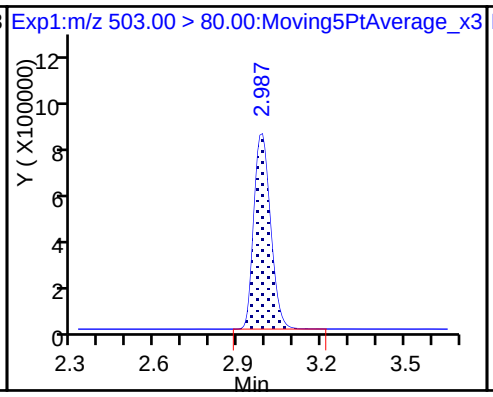
16 Perfluoroheptanesulfonic acid (ND)



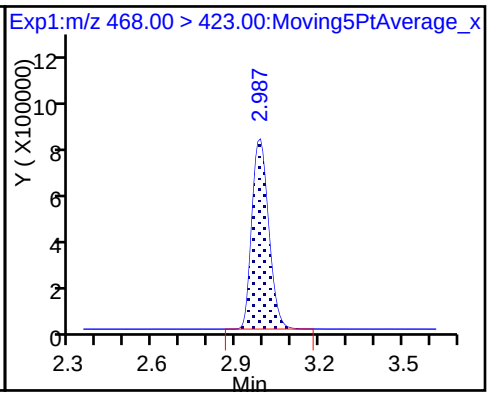
16 Perfluoroheptanesulfonic acid (ND)



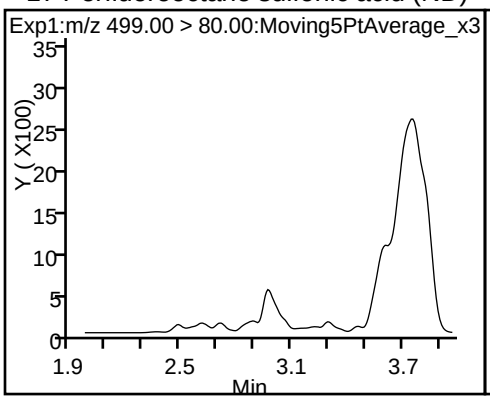
D 18 13C4 PFOS



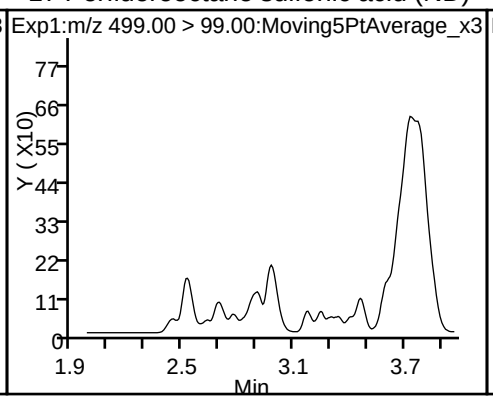
D 19 13C5 PFNA



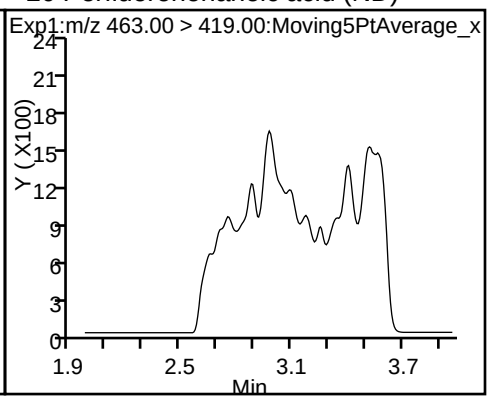
17 Perfluorooctane sulfonic acid (ND)



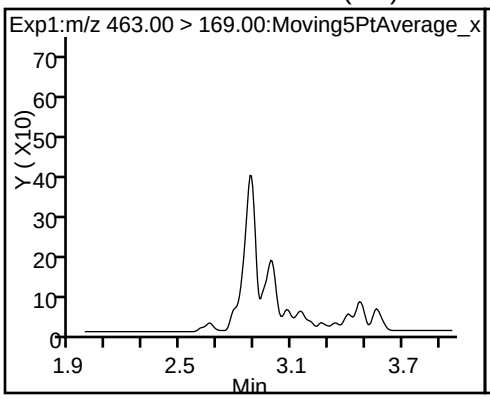
17 Perfluorooctane sulfonic acid (ND)



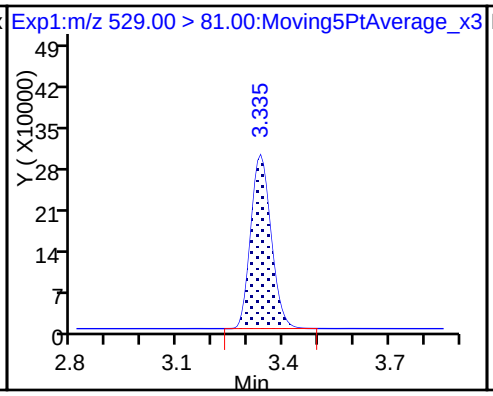
20 Perfluorononanoic acid (ND)



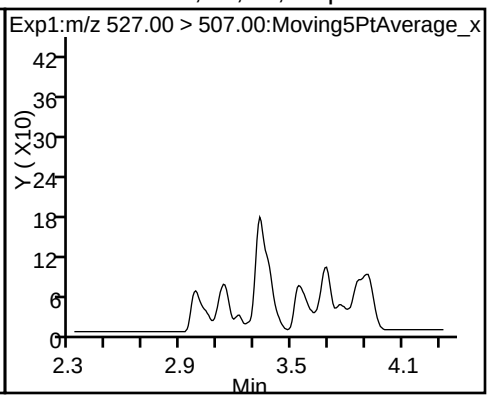
20 Perfluorononanoic acid (ND)



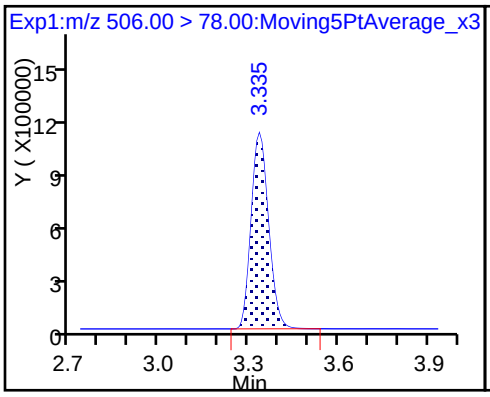
D 26 M2-8:2FTS



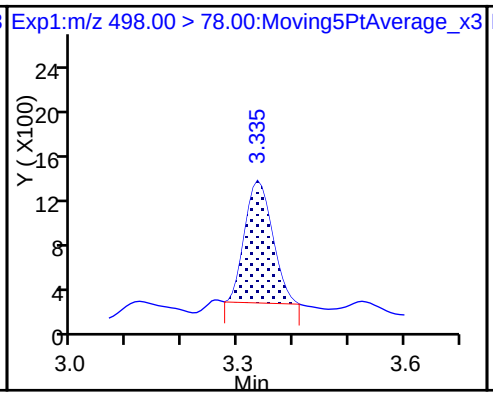
25 Sodium 1H,1H,2H,2H-perfluorodecane (ND)



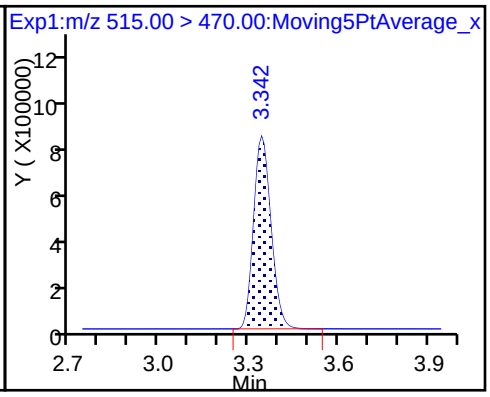
D 21 13C8 FOSA



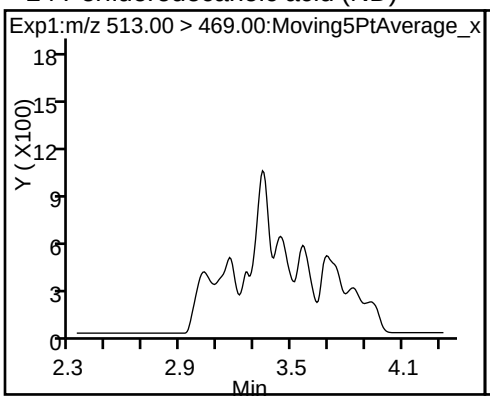
22 Perfluorooctane Sulfonamide



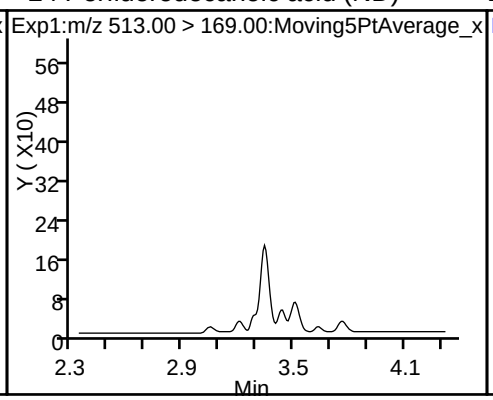
D 23 13C2 PFDA



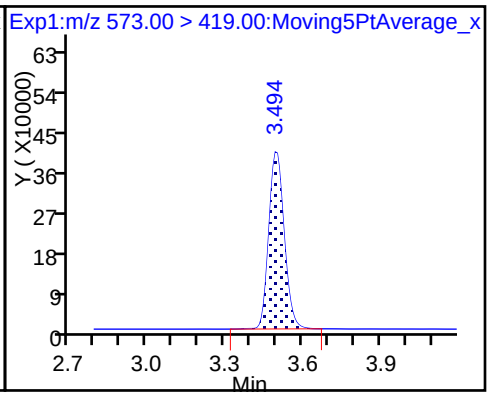
24 Perfluorodecanoic acid (ND)



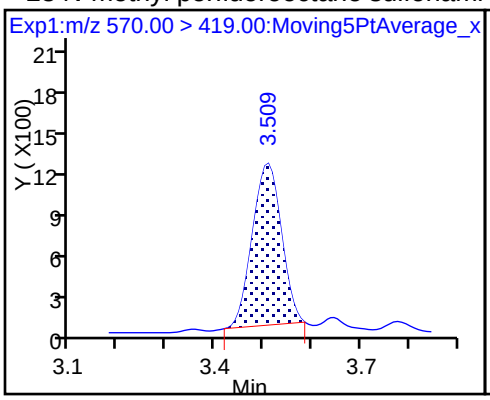
24 Perfluorodecanoic acid (ND)



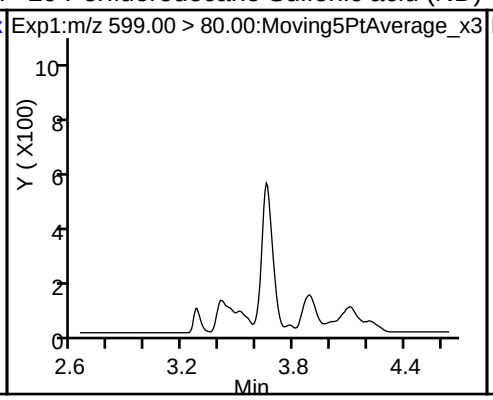
D 27 d3-NMeFOSAA



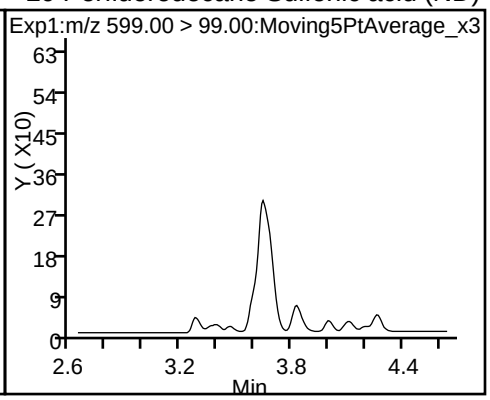
28 N-methyl perfluorooctane sulfonami



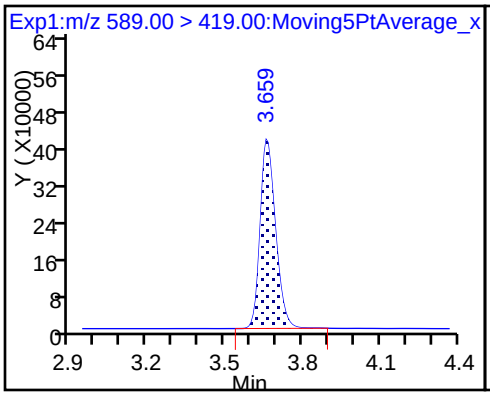
29 Perfluorodecane Sulfonic acid (ND)



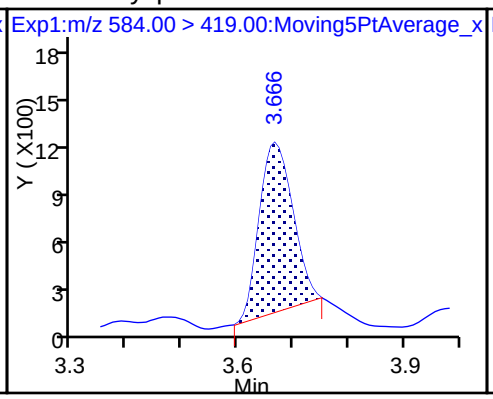
29 Perfluorodecane Sulfonic acid (ND)



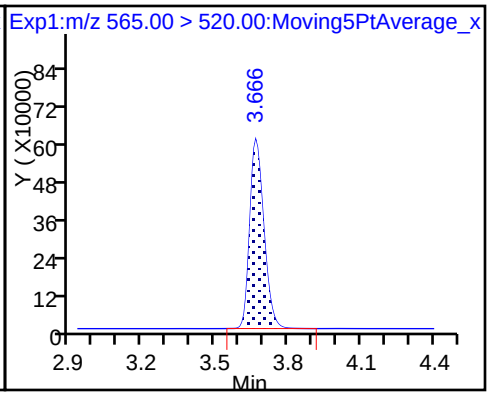
D 32 d5-NEtFOSAA



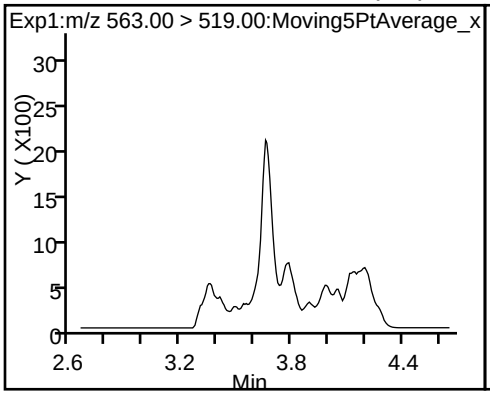
33 N-ethyl perfluorooctane sulfonamid



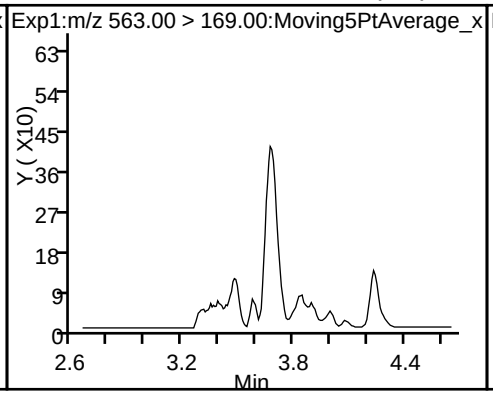
D 30 13C2 PFUnA



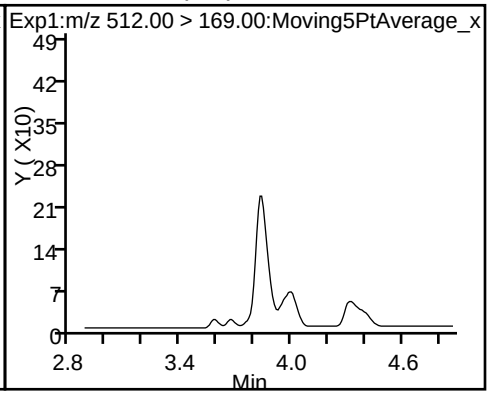
31 Perfluoroundecanoic acid (ND)



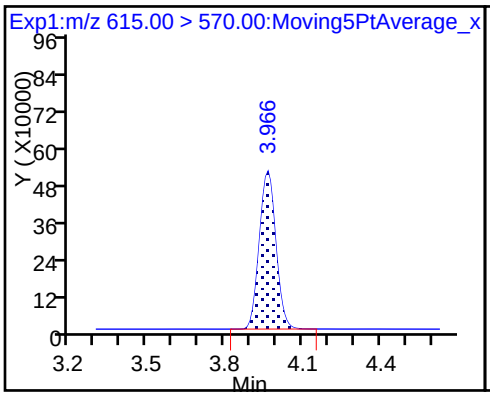
31 Perfluoroundecanoic acid (ND)



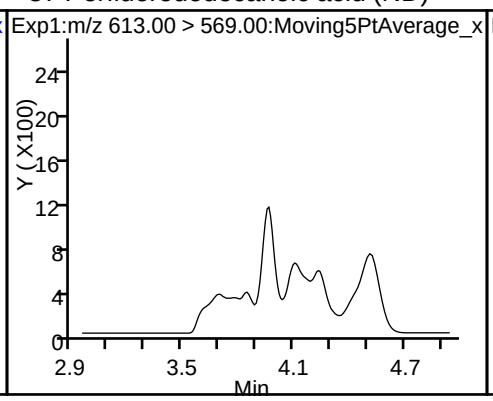
35 MeFOSA (ND)



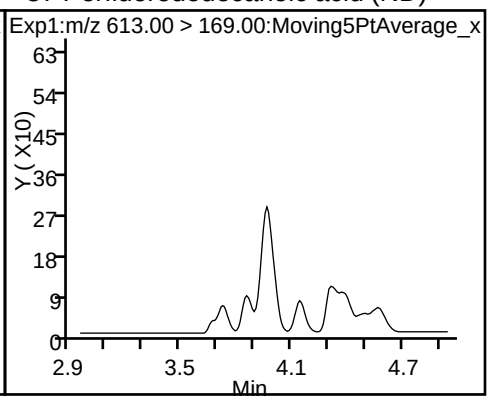
D 36 13C2 PFDoA



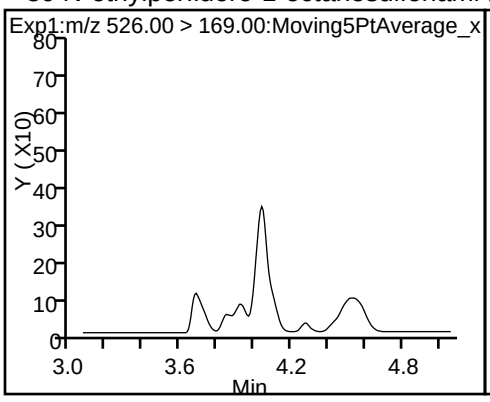
37 Perfluorododecanoic acid (ND)



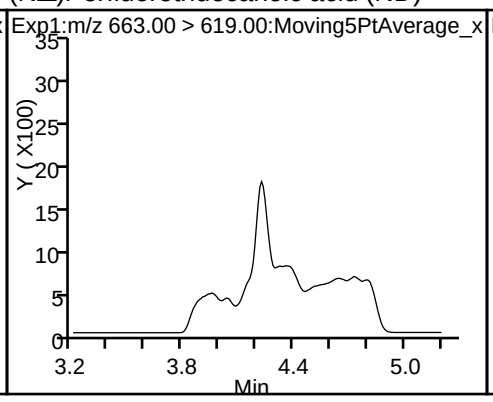
37 Perfluorododecanoic acid (ND)



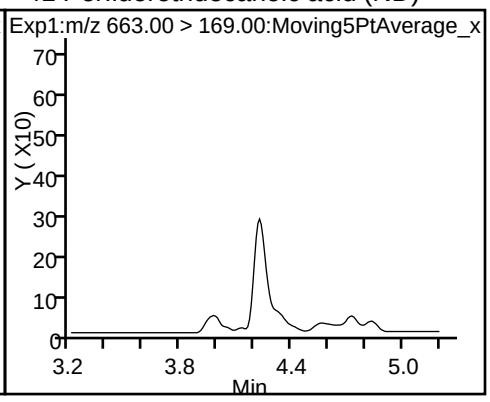
39 N-ethylperfluoro-1-octanesulfonami (ND)



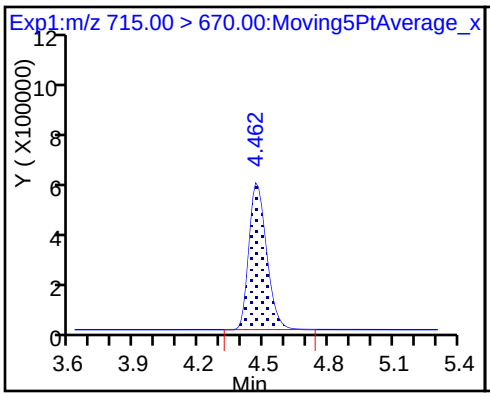
41 Perfluorotridecanoic acid (ND)



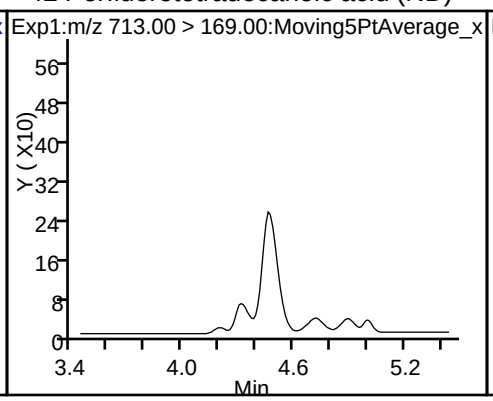
41 Perfluorotridecanoic acid (ND)



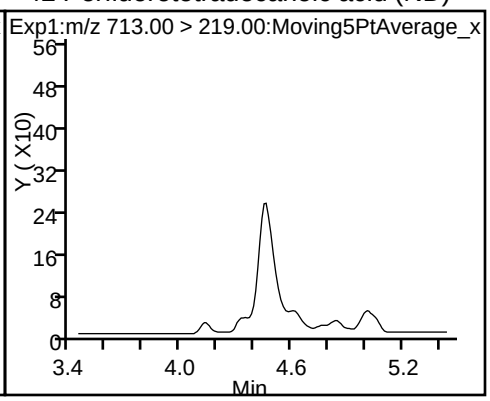
D 43 13C2-PFTeDA



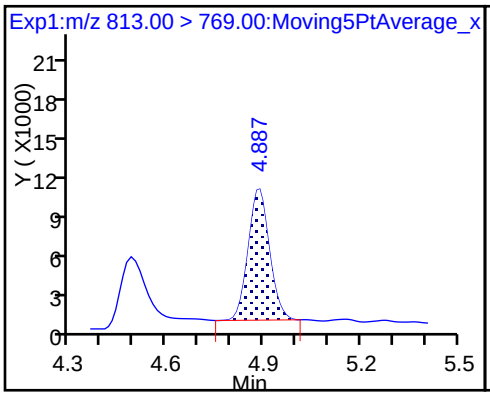
42 Perfluorotetradecanoic acid (ND)



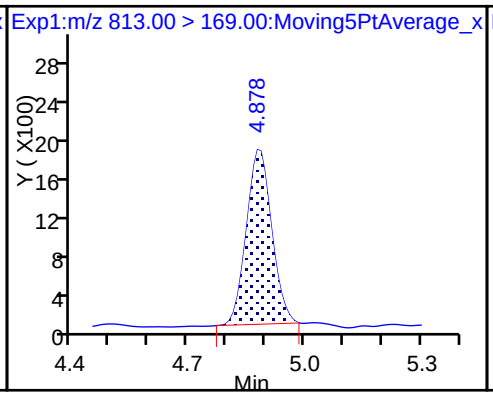
42 Perfluorotetradecanoic acid (ND)



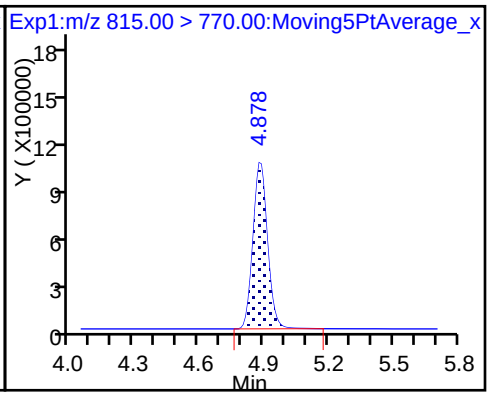
45 Perfluorohexadecanoic acid



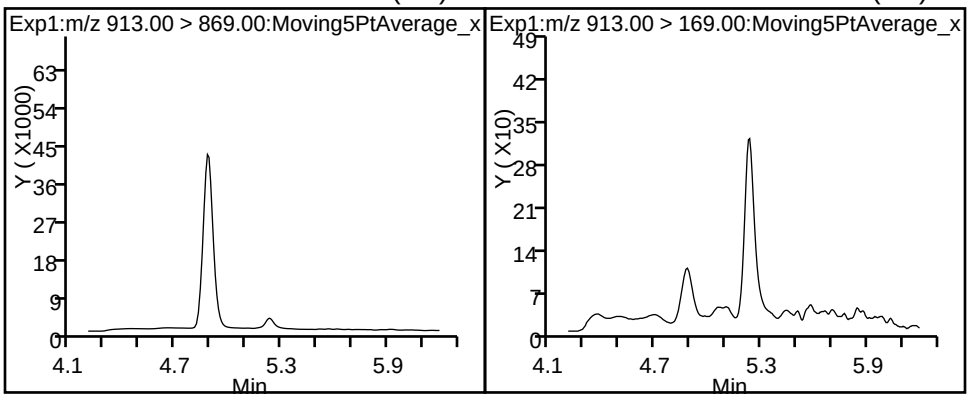
45 Perfluorohexadecanoic acid



D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid (ND) 46 Perfluorooctadecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

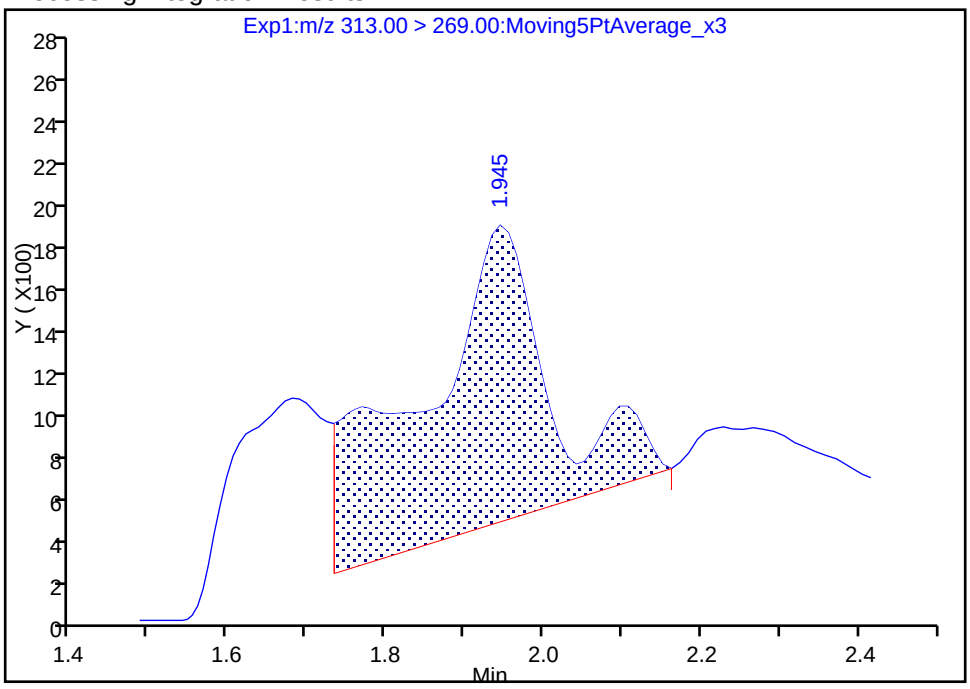
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_037.d
Injection Date: 07-Feb-2018 13:17:48 Instrument ID: A8_N
Lims ID: MB 320-207074/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

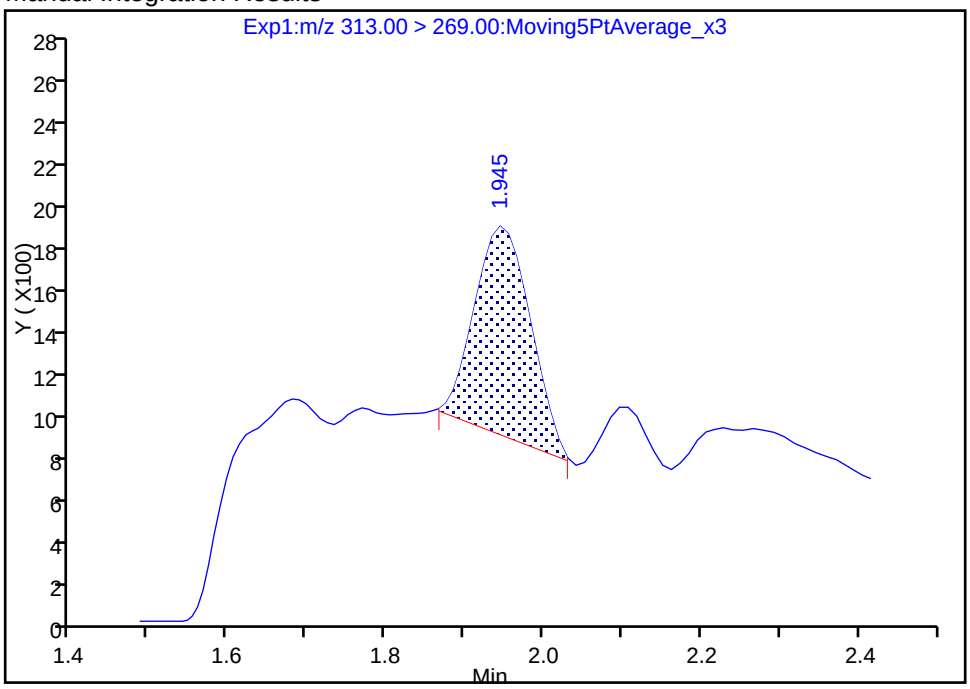
Processing Integration Results

RT: 1.95
Area: 16073
Amount: 0.008405
Amount Units: ng/ml



Manual Integration Results

RT: 1.95
Area: 4877
Amount: 0.002550
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:14:34
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

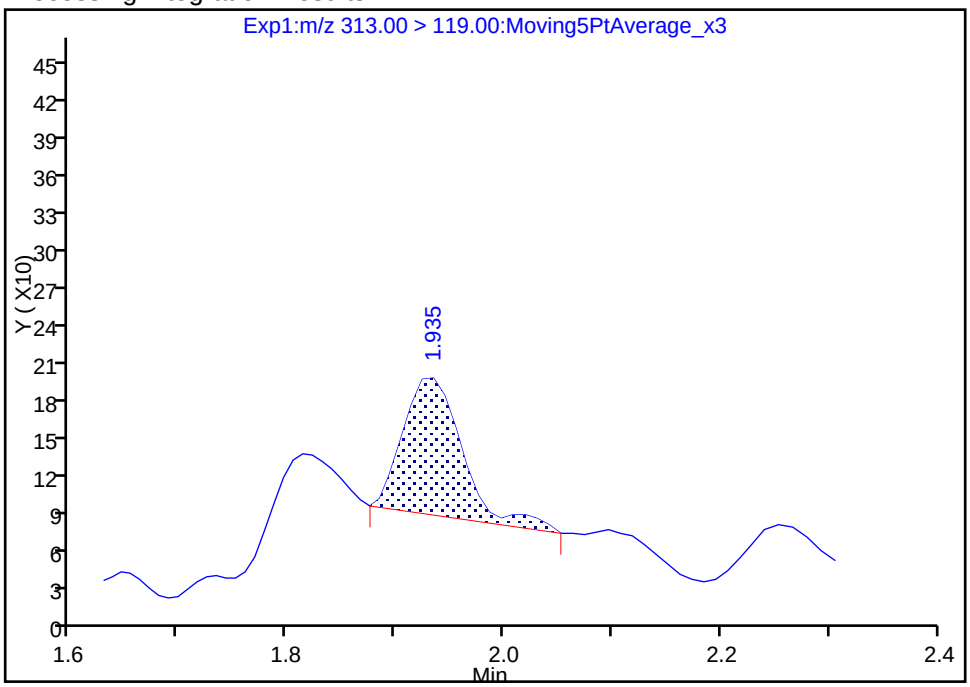
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_037.d
Injection Date: 07-Feb-2018 13:17:48 Instrument ID: A8_N
Lims ID: MB 320-207074/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 2

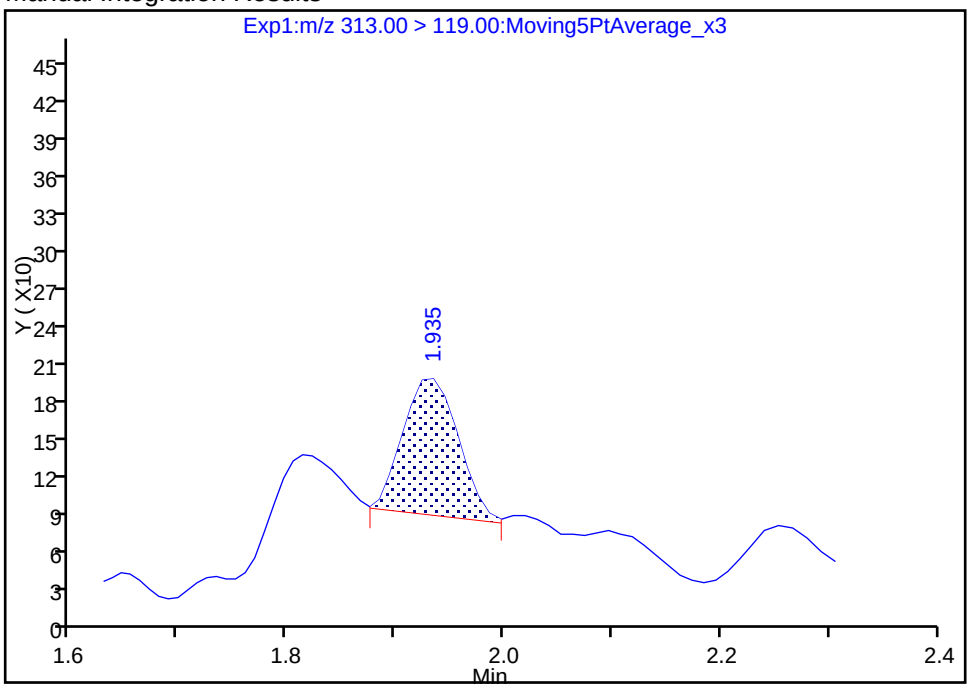
Processing Integration Results

RT: 1.93
Area: 418
Amount: 0.008405
Amount Units: ng/ml



Manual Integration Results

RT: 1.93
Area: 389
Amount: 0.002550
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:14:43
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

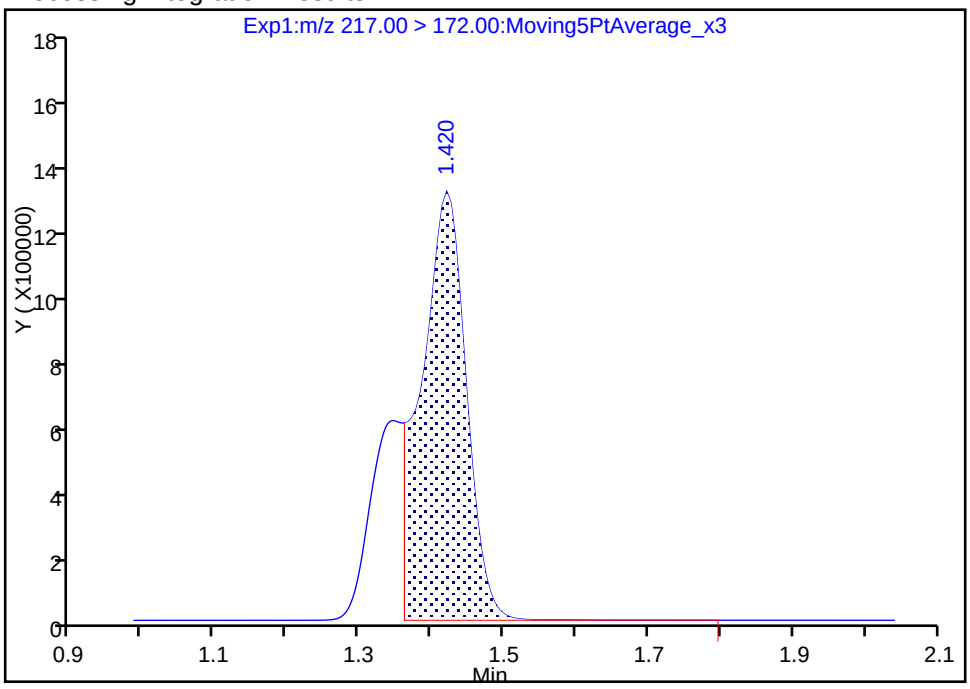
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_037.d
Injection Date: 07-Feb-2018 13:17:48 Instrument ID: A8_N
Lims ID: MB 320-207074/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

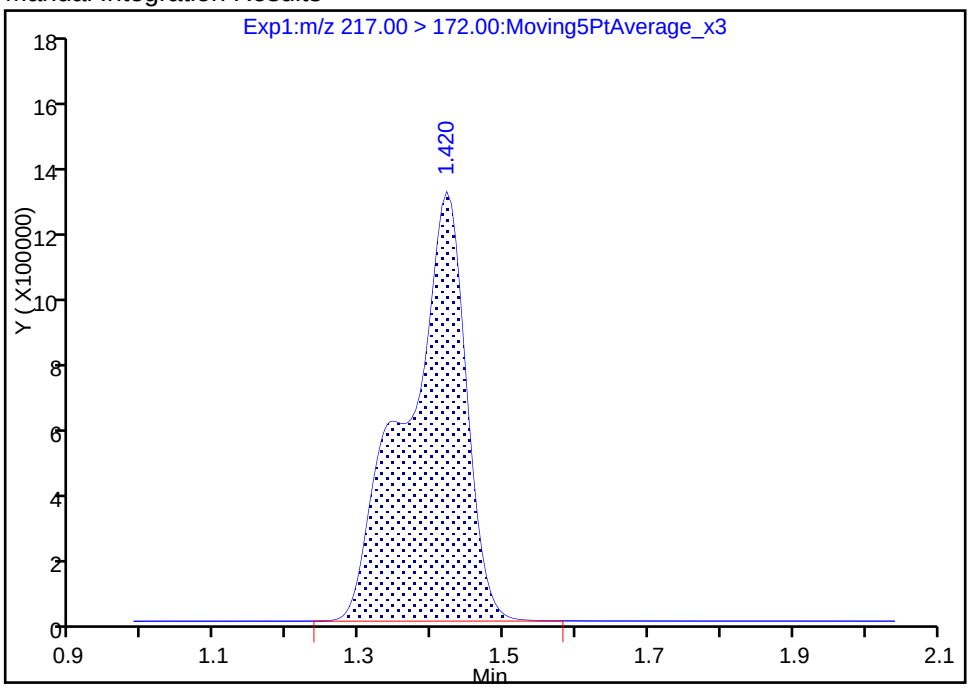
Processing Integration Results

RT: 1.42
Area: 5371546
Amount: 1.919096
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 7200895
Amount: 2.572668
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:14:11
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-208463/1-A

Matrix: Water | Lab File ID: 2018.02.16LLA_009.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:12

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.5	U	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.0	U M	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	1.0	U M	2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	1.5	U M	2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	U	2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.0	U	2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-208463/1-A

Matrix: Water | Lab File ID: 2018.02.16LLA_009.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:12

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	66		25-150
STL00992	13C4 PFBA	70	M	25-150
STL00993	13C2 PFHxA	71		25-150
STL00990	13C4 PFOA	70		25-150
STL00995	13C5 PFNA	70		25-150
STL00996	13C2 PFDA	72		25-150
STL00997	13C2 PFUnA	72		25-150
STL00998	13C2 PFDoA	62		25-150
STL00994	18O2 PFHxS	72		25-150
STL00991	13C4 PFOS	67		25-150
STL02116	13C2-PFTeDA	77		25-150
STL01892	13C4-PFHpA	74		25-150
STL01893	13C5 PFPeA	74		25-150
STL02337	13C3-PFBS	70		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_009.d
Lims ID: MB 320-208463/1-A
Client ID:
Sample Type: MB
Inject. Date: 16-Feb-2018 16:12:29 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-208463/1-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:25 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: barnettj Date: 17-Feb-2018 13:04:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
217.00 > 172.00	1.406	1.401	0.005	0.538	5028211	1.76		70.4	43692	M
2 Perfluorobutyric acid										
212.90 > 169.00	1.406	1.402	0.004	1.000	6395	0.003395			1.8	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.643	1.644	-0.001	0.995	8856	0.004908			1.6	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.651	1.652	-0.001	0.632	3788208	1.86		74.4	61083	
D 47 13C3-PFBS										
301.90 > 83.00	1.678	1.679	-0.001	0.642	89026	1.63		70.3	1314	
D 7 13C2 PFHxA										
315.00 > 270.00	1.930	1.922	0.008	0.739	3916366	1.79		71.5	83969	
D 9 13C4-PFHpA										
367.00 > 322.00	2.249	2.252	-0.003	0.860	3822987	1.84		73.7	89487	
D 11 18O2 PFHxS										
403.00 > 84.00	2.262	2.265	-0.003	0.866	5014757	1.71		72.5	91003	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.275	2.265	0.010	1.006	18631	0.007968			76.1	
399.00 > 99.00	2.262	2.265	-0.003	1.000	6952		2.68(1.50-4.49)		15.3	
D 12 M2-6:2FTS										
429.00 > 81.00	2.588	2.588	0.0	0.990	916684	1.76		74.1	16642	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.588	2.588	0.0	1.000	17024	0.0260			517	
D 14 13C4 PFOA										
417.00 > 372.00	2.613	2.614	-0.001	1.000	3503819	1.76		70.4	120111	
* 62 13C2-PFOA										
415.00 > 370.00	2.613	2.615	-0.002		5490871	2.50			101381	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.613	2.615	-0.002	1.000	6839	0.004425			1.0	M
413.00 > 169.00	2.613	2.615	-0.002	1.000	3216		2.13(0.84-2.52)		1.4	M
D 19 13C5 PFNA										
468.00 > 423.00	2.984	2.984	0.0	1.142	2678345	1.74		69.8	54591	
D 18 13C4 PFOS										
503.00 > 80.00	2.976	2.984	-0.008	1.139	3242375	1.61		67.4	56531	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.331	3.331	0.0	1.000	4948	0.002677			60.2	
D 26 M2-8:2FTS										
529.00 > 81.00	3.331	3.332	-0.001	1.275	858404	1.79		74.7	15245	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.339	-0.008	1.275	4739336	1.64		65.5	31883	
D 23 13C2 PFDA										
515.00 > 470.00	3.339	3.347	-0.008	1.278	2264211	1.79		71.5	52361	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.491	3.492	-0.001	1.336	533689	1.44		57.6	18932	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.662	3.656	0.006	1.401	576111	1.47		58.9	1247	
D 30 13C2 PFUnA										
565.00 > 520.00	3.662	3.663	-0.001	1.401	1735010	1.79		71.7	43835	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.670	3.670	0.0	1.002	2454	0.0110			43.0	
D 36 13C2 PFDoA										
615.00 > 570.00	3.962	3.962	0.0	1.516	1439321	1.56		62.4	14414	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.459	4.448	0.011	1.706	1576663	1.94		77.5	32469	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.865	4.857	0.008	1.862	1867632	1.70		68.0	12457	
45 Perfluorohexadecanoic acid										M
813.00 > 769.00	4.874	4.862	0.012	1.002	19623	0.007193			3.1	M
813.00 > 169.00	4.865	4.862	0.003	1.000	3805		5.16(2.86-8.58)		120	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 17-Feb-2018 13:11:29 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_009.d

Injection Date: 16-Feb-2018 16:12:29 Instrument ID: A8_N

Lims ID: MB 320-208463/1-A

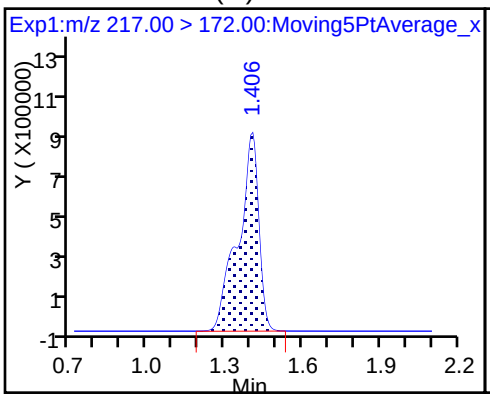
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2

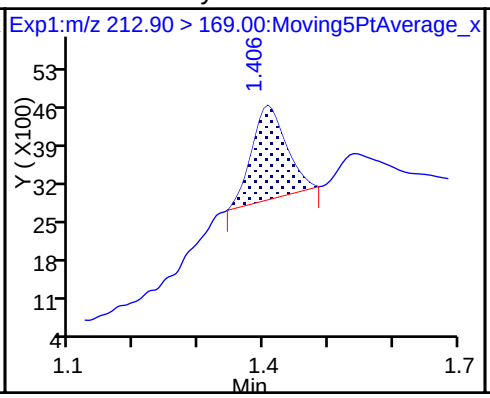
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

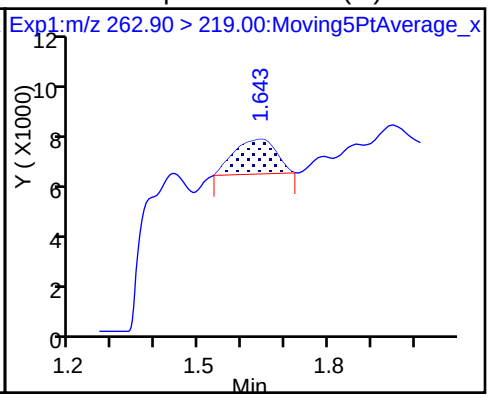
D 1 13C4 PFBA (M)



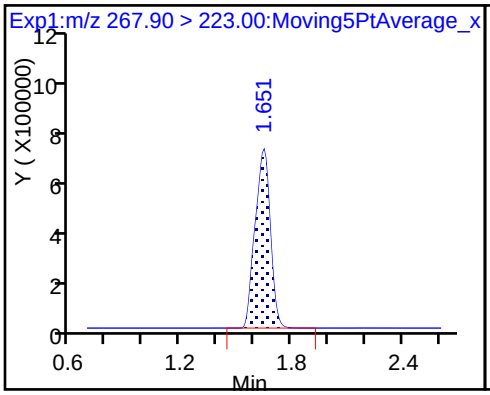
2 Perfluorobutyric acid



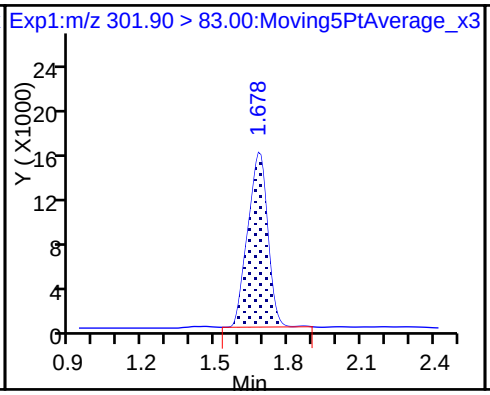
4 Perfluoropentanoic acid (M)



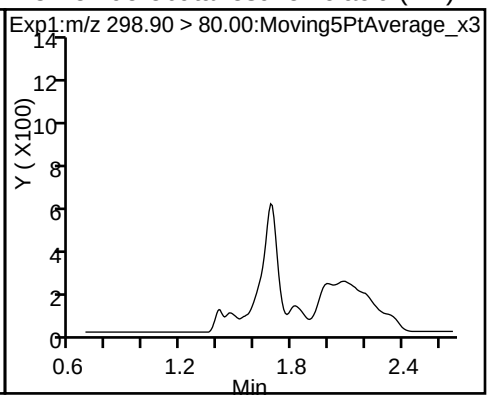
D 3 13C5-PFPeA



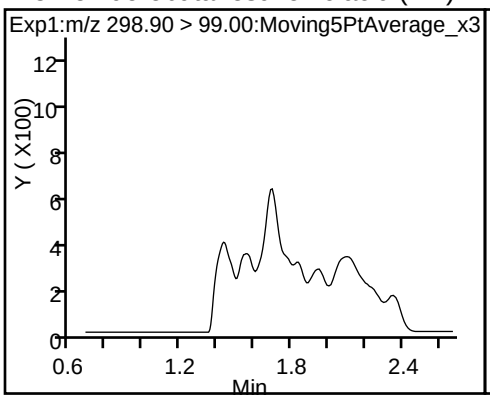
D 47 13C3-PFBS



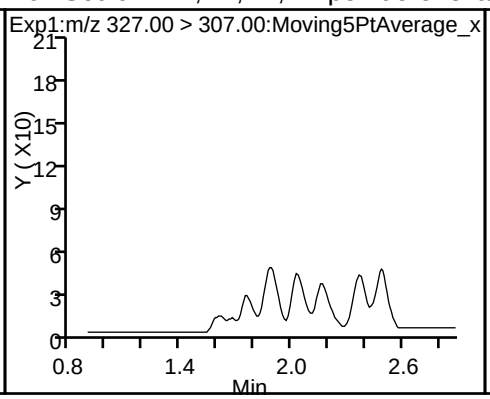
5 Perfluorobutanesulfonic acid (ND)



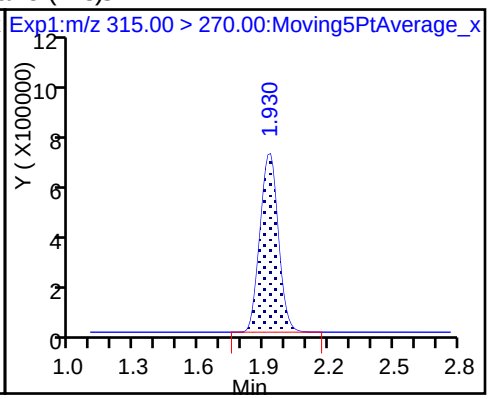
5 Perfluorobutanesulfonic acid (ND)



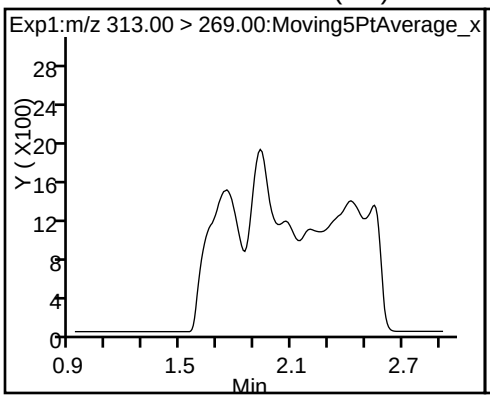
61 Sodium 1H,1H,2H,2H-perfluorohexane (ND)



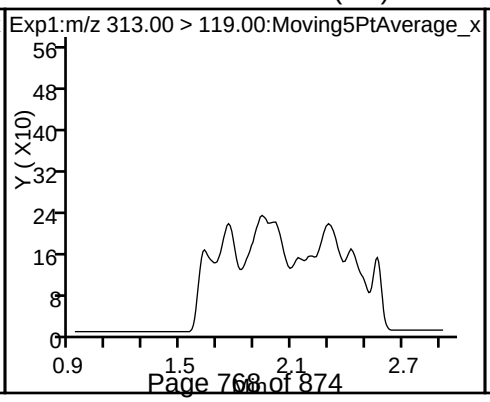
D 13C2 PFHxA



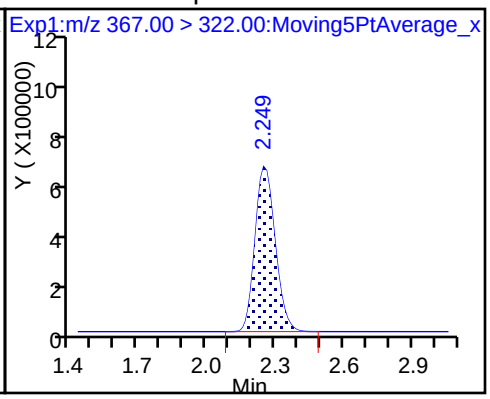
6 Perfluorohexanoic acid (ND)



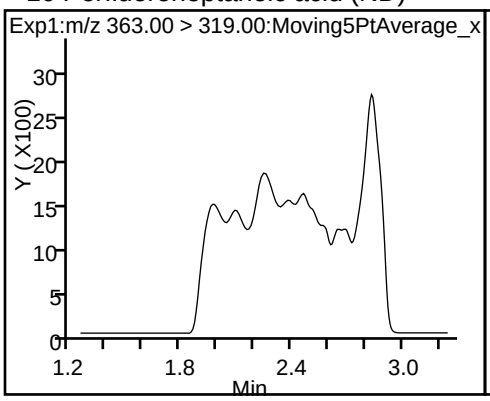
6 Perfluorohexanoic acid (ND)



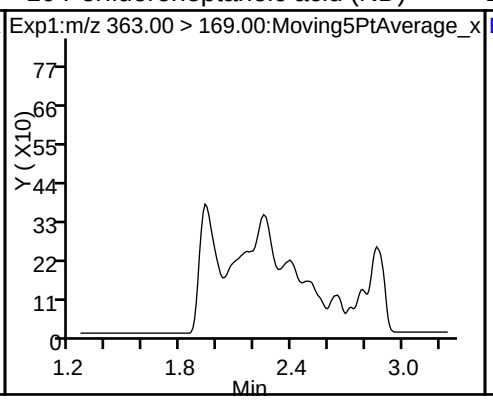
D 9 13C4-PFHpA



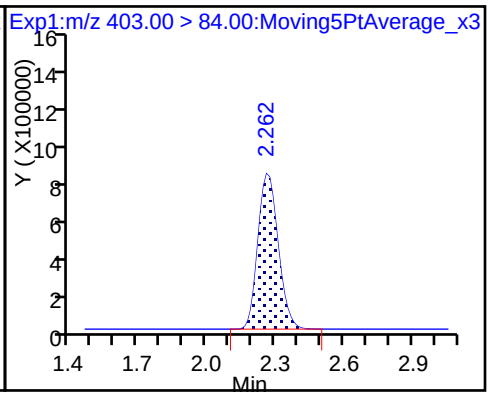
10 Perfluoroheptanoic acid (ND)



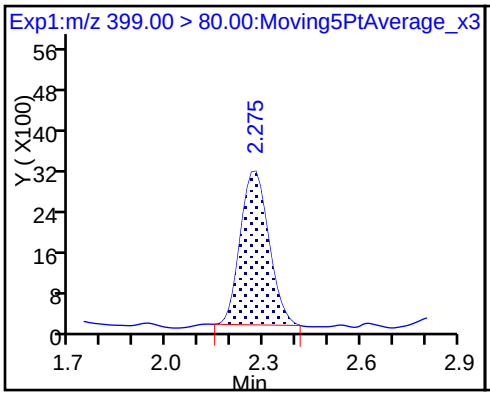
10 Perfluoroheptanoic acid (ND)



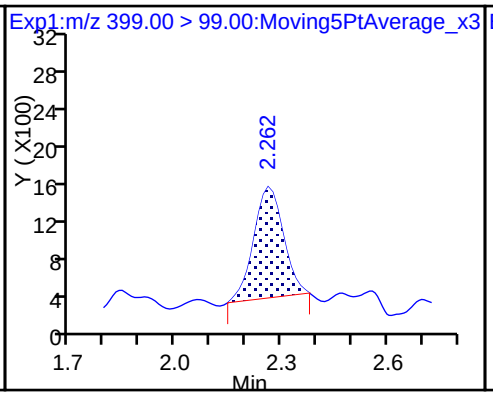
D 11 18O2 PFHxS



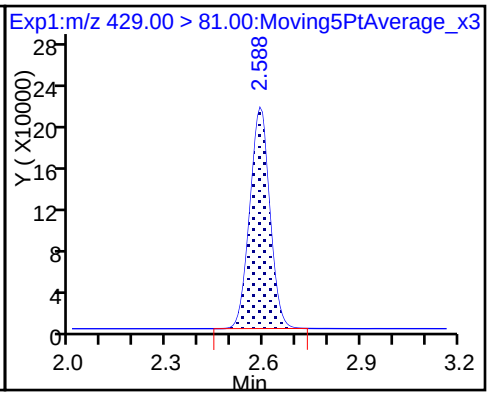
8 Perfluorohexanesulfonic acid



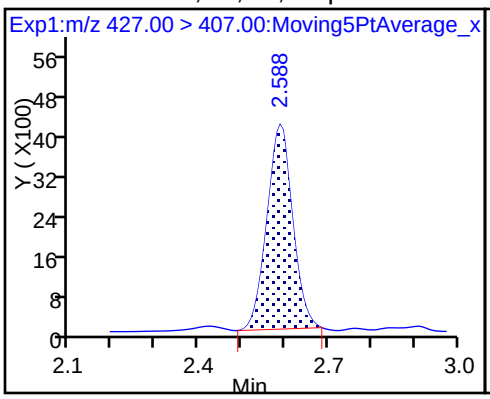
8 Perfluorohexanesulfonic acid



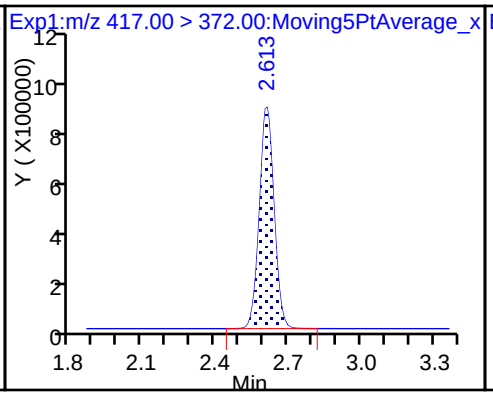
D 12 M2-6:2FTS



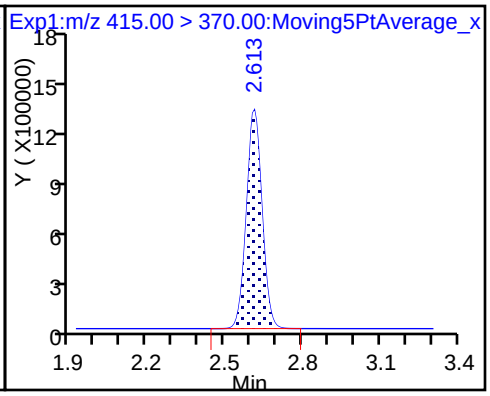
13 Sodium 1H,1H,2H,2H-perfluorooctane



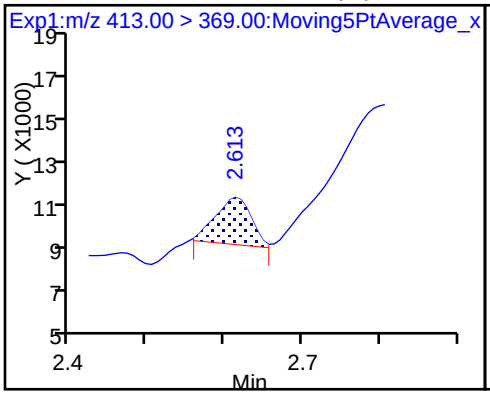
D 14 13C4 PFOA



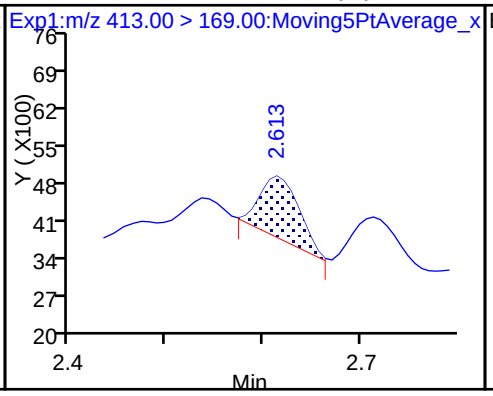
* 62 13C2-PFOA



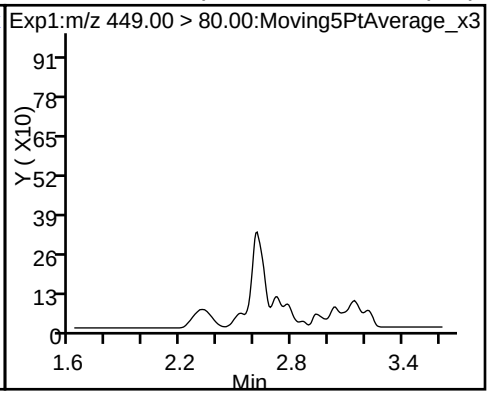
15 Perfluorooctanoic acid (M)



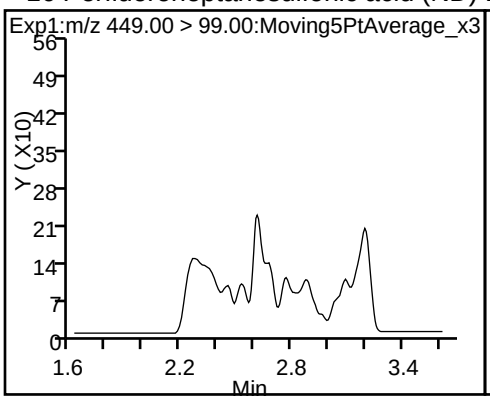
15 Perfluorooctanoic acid (M)



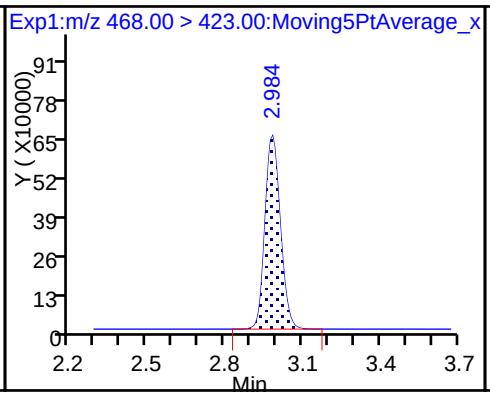
16 Perfluoroheptanesulfonic acid (ND)



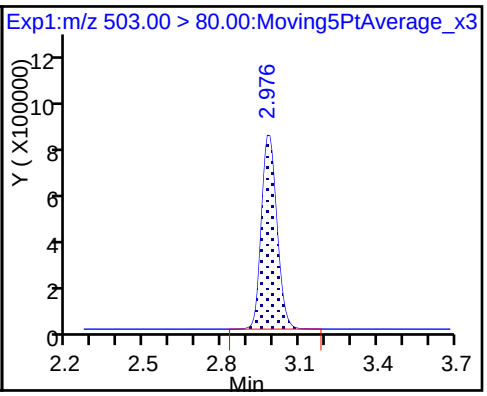
16 Perfluoroheptanesulfonic acid (ND)



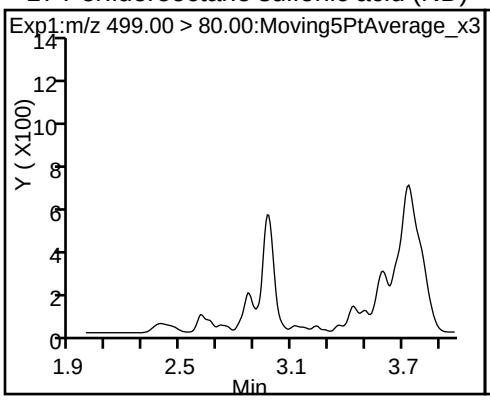
D 19 13C5 PFNA



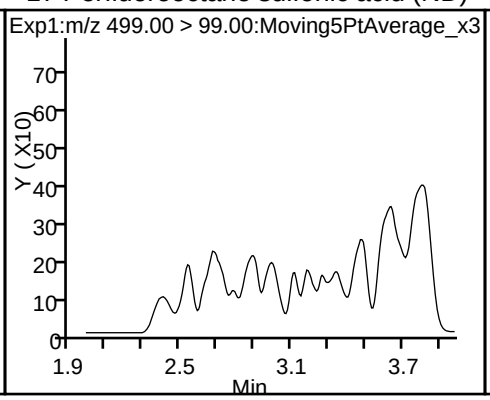
D 18 13C4 PFOS



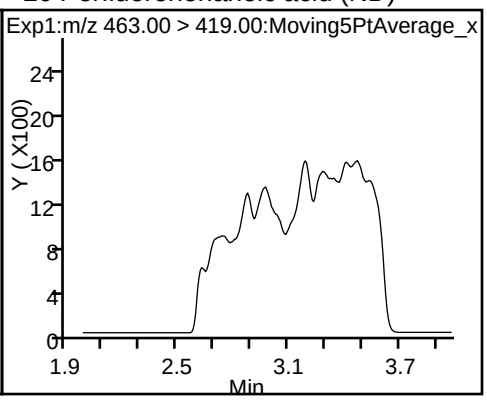
17 Perfluorooctane sulfonic acid (ND)



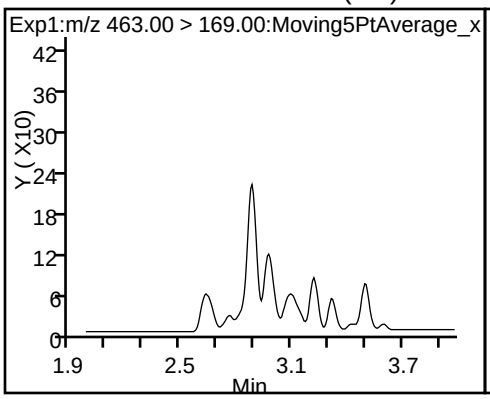
17 Perfluorooctane sulfonic acid (ND)



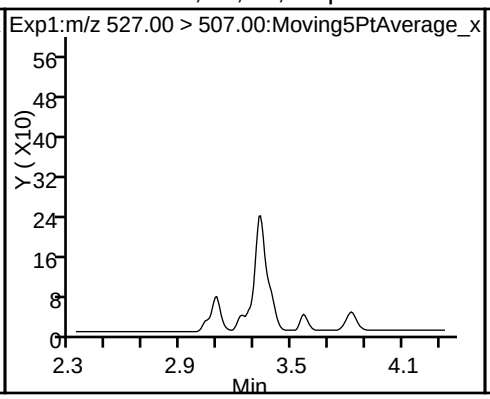
20 Perfluorononanoic acid (ND)



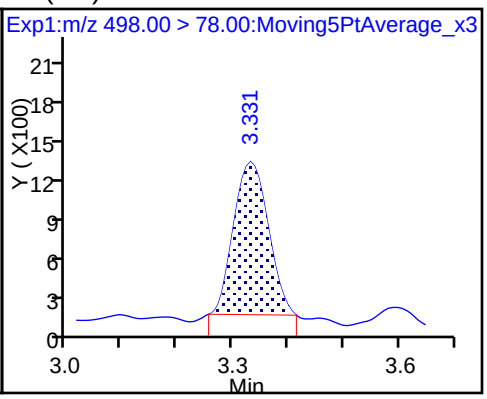
20 Perfluorononanoic acid (ND)



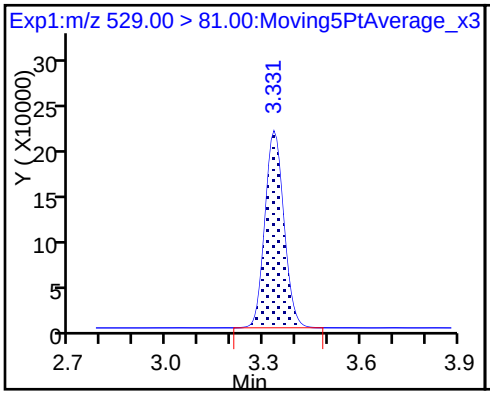
25 Sodium 1H,1H,2H,2H-perfluorodecane Sulfonate



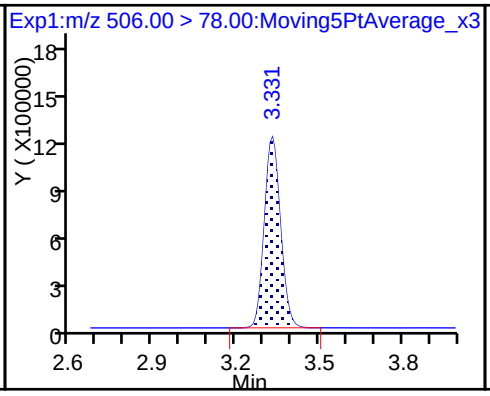
27 Perfluorooctane Sulfonamide



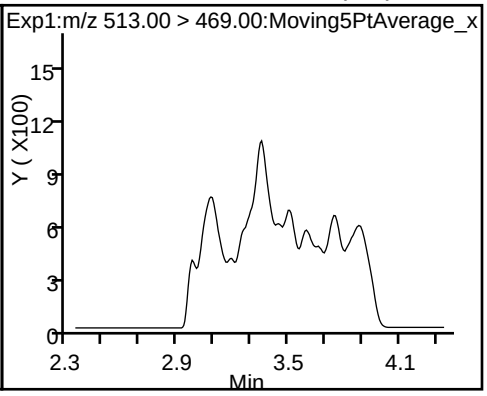
D 26 M2-8:2FTS



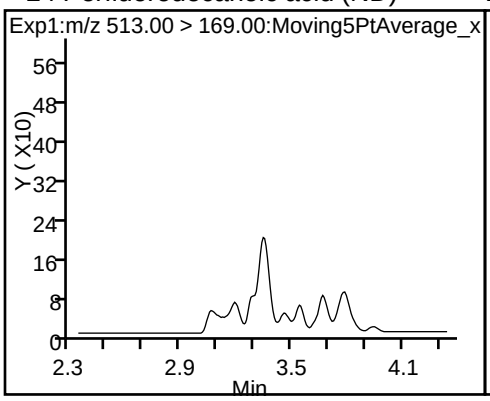
D 21 13C8 FOSA



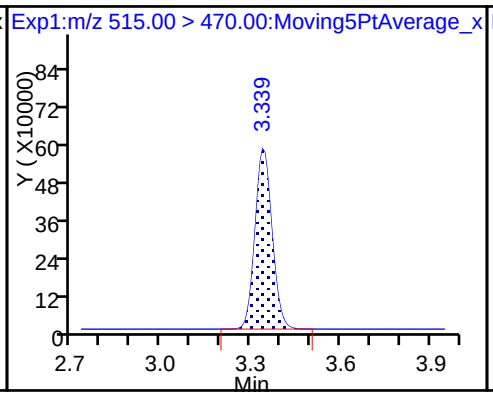
24 Perfluorodecanoic acid (ND)



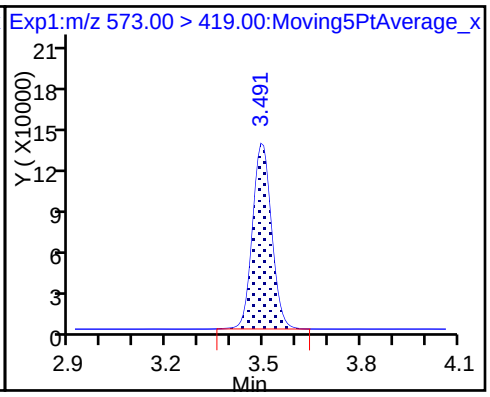
24 Perfluorodecanoic acid (ND)



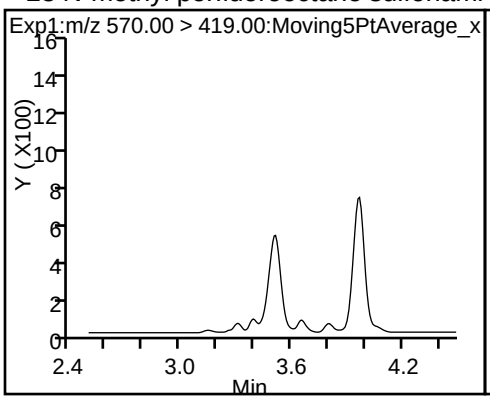
D 23 13C2 PFDA



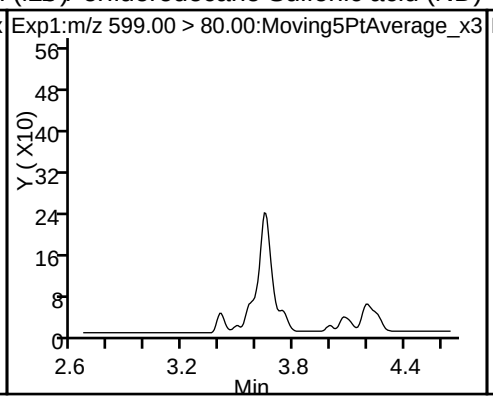
D 27 d3-NMeFOSAA



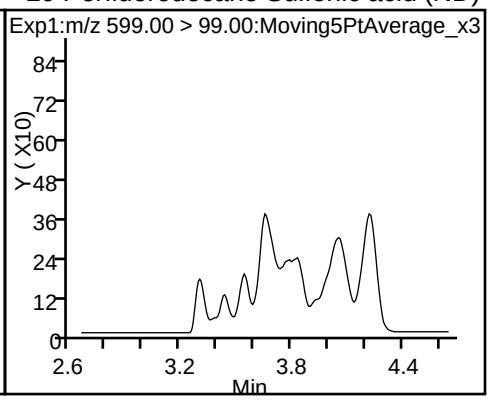
28 N-methyl perfluorooctane sulfonami (ND)



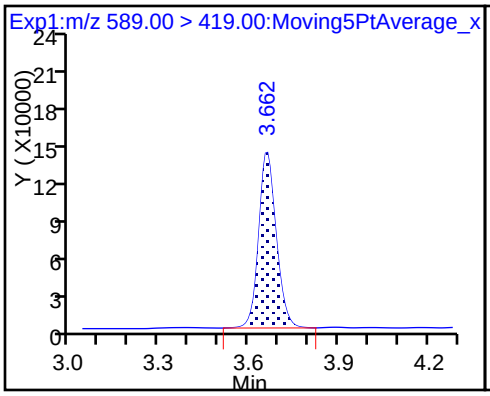
29 Perfluorodecane Sulfonic acid (ND)



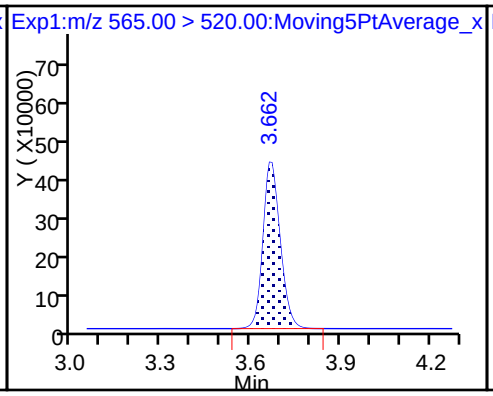
29 Perfluorodecane Sulfonic acid (ND)



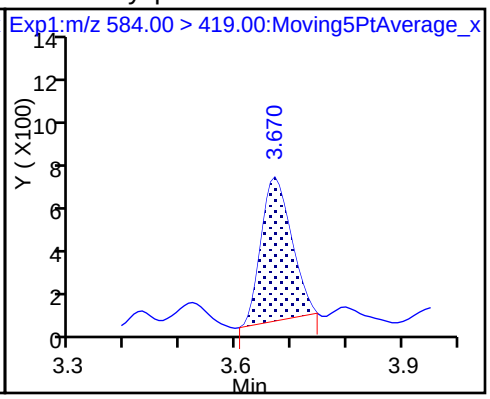
D 32 d5-NEtFOSAA



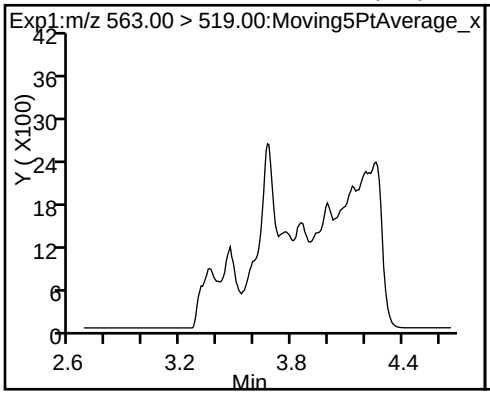
D 30 13C2 PFUnA



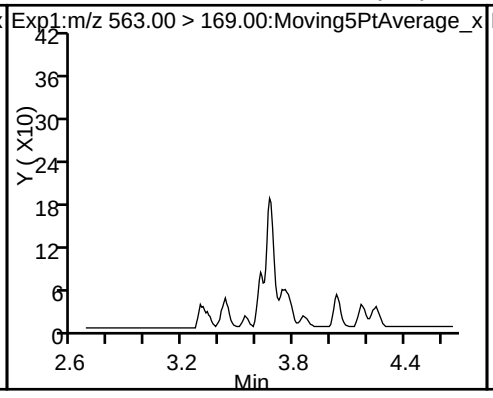
33 N-ethyl perfluorooctane sulfonamid



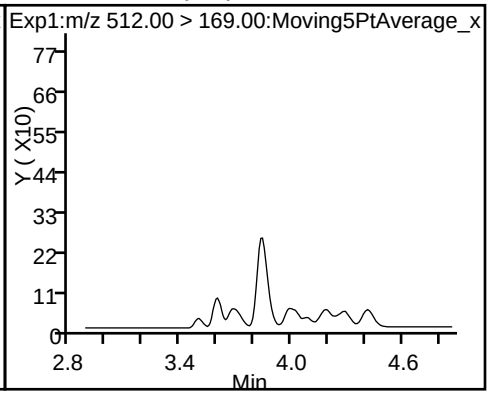
31 Perfluoroundecanoic acid (ND)



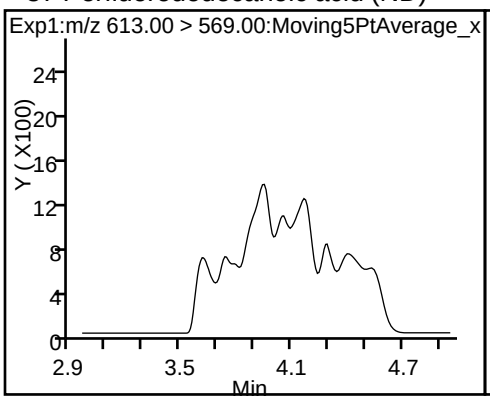
31 Perfluoroundecanoic acid (ND)



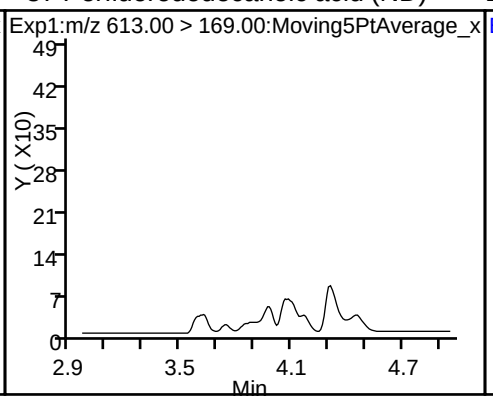
35 MeFOSA (ND)



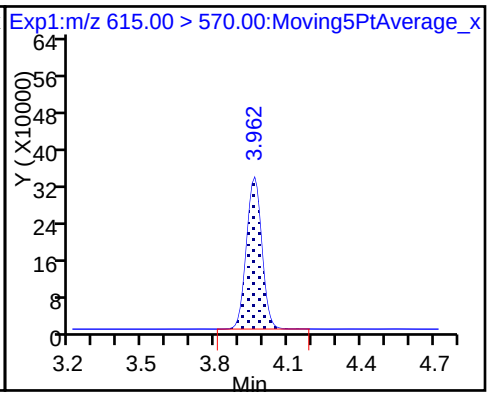
37 Perfluorododecanoic acid (ND)



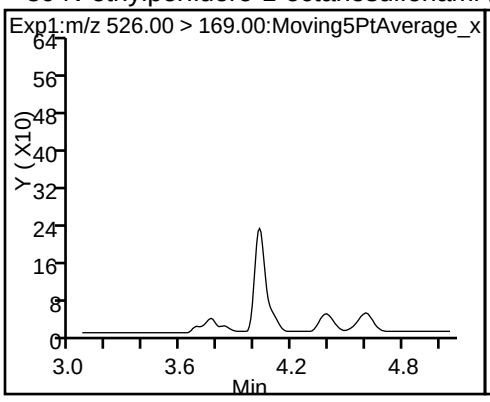
37 Perfluorododecanoic acid (ND)



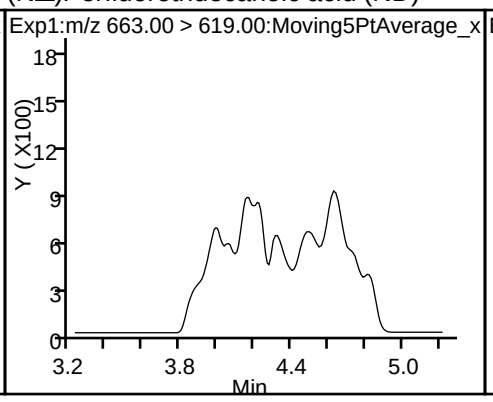
D 36 13C2 PFDoA



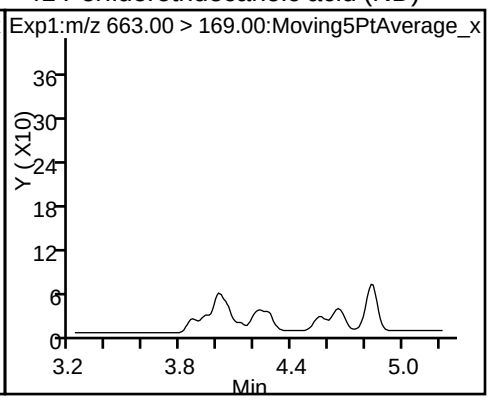
39 N-ethylperfluoro-1-octanesulfonami (ND)



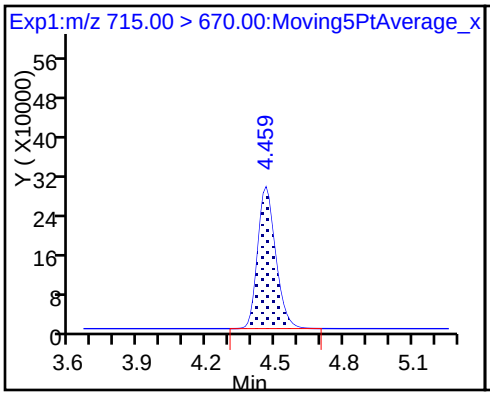
41 Perfluorotridecanoic acid (ND)



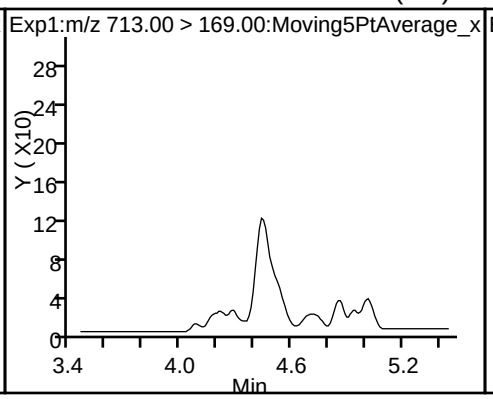
41 Perfluorotridecanoic acid (ND)



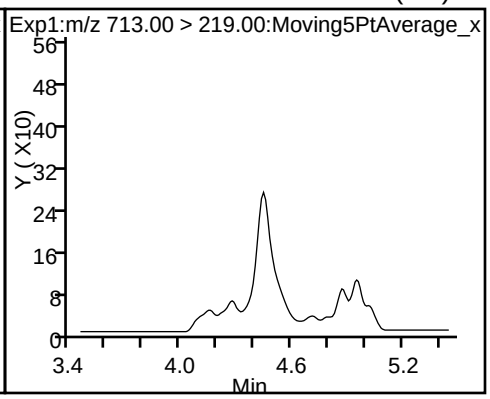
D 43 13C2-PFTeDA



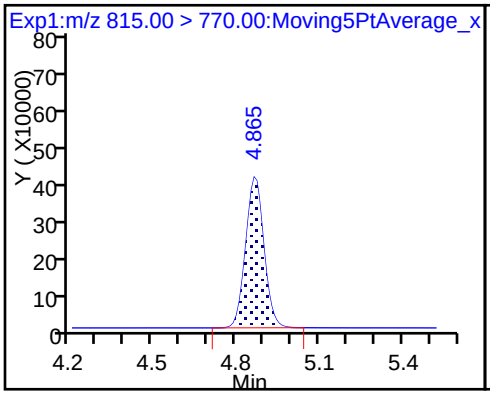
42 Perfluorotetradecanoic acid (ND)



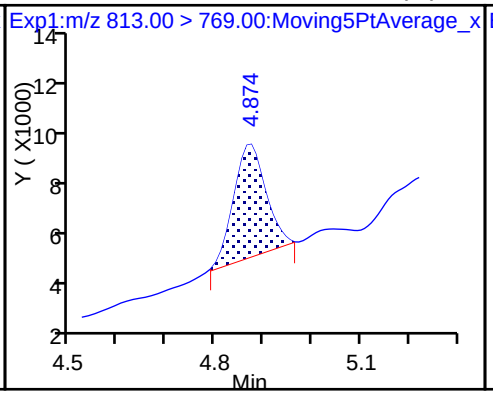
42 Perfluorotetradecanoic acid (ND)



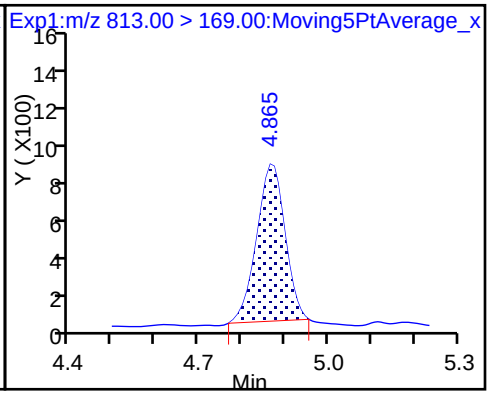
D 44 13C2-PFHxDA



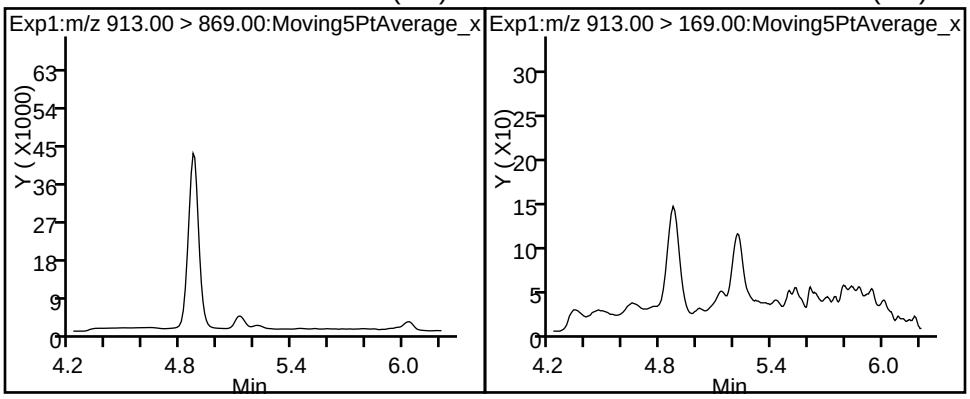
45 Perfluorohexadecanoic acid (M)



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (ND) 46 Perfluorooctadecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

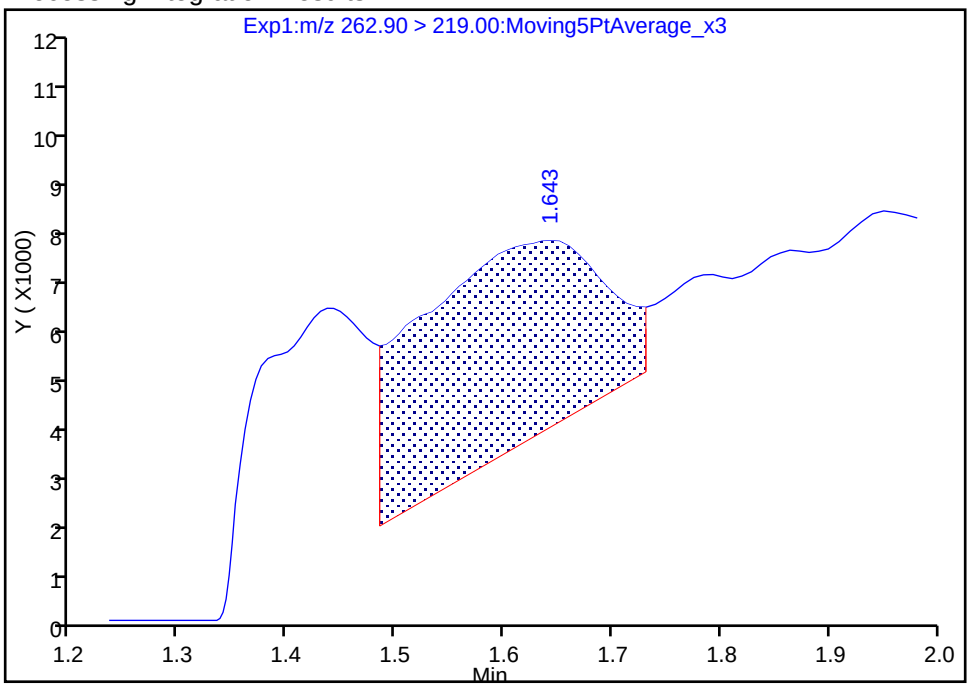
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_009.d
Injection Date: 16-Feb-2018 16:12:29 Instrument ID: A8_N
Lims ID: MB 320-208463/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

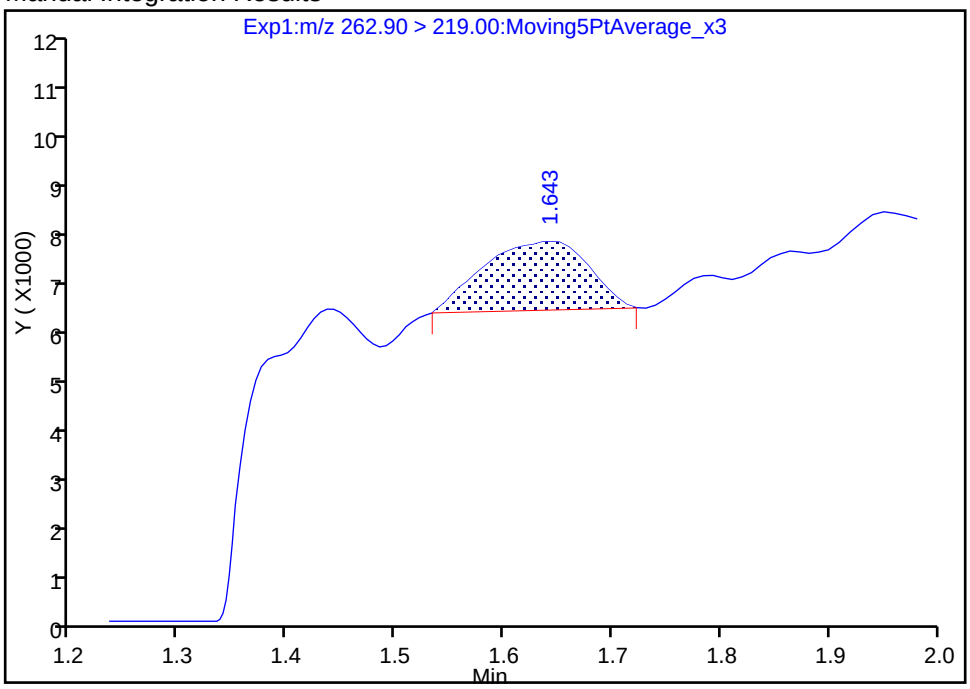
Processing Integration Results

RT: 1.64
Area: 47170
Amount: 0.026143
Amount Units: ng/ml



Manual Integration Results

RT: 1.64
Area: 8856
Amount: 0.004908
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:02:33
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

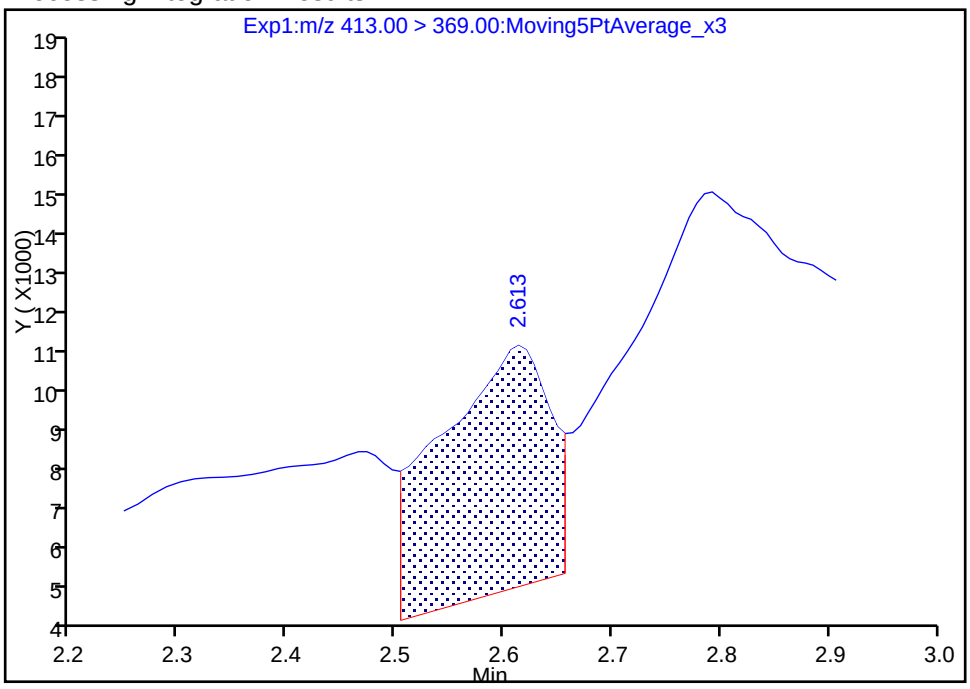
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_009.d
Injection Date: 16-Feb-2018 16:12:29 Instrument ID: A8_N
Lims ID: MB 320-208463/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

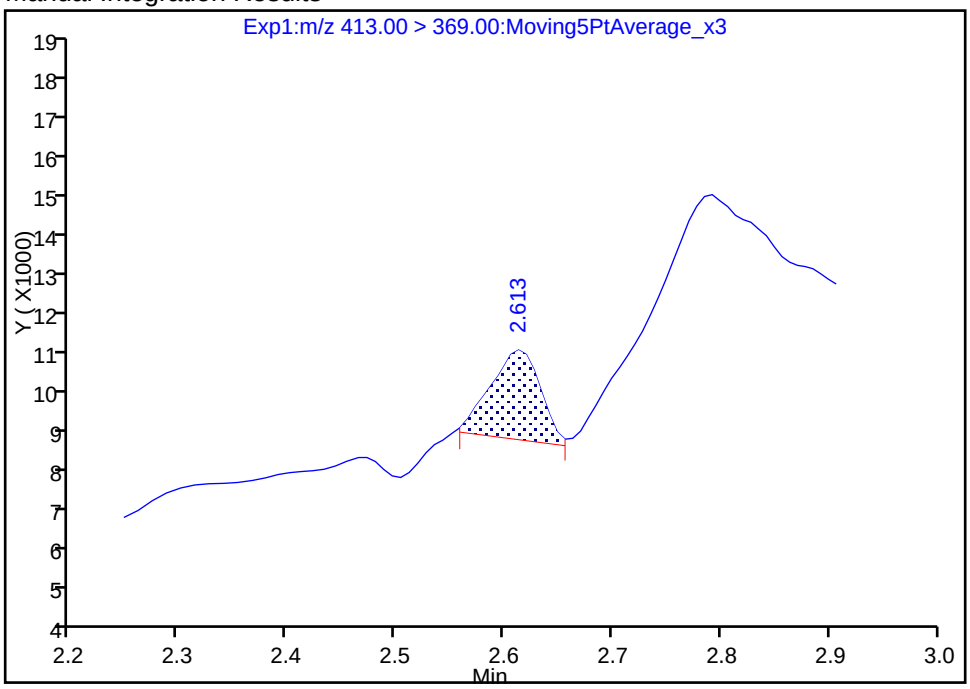
Processing Integration Results

RT: 2.61
Area: 42007
Amount: 0.027181
Amount Units: ng/ml



Manual Integration Results

RT: 2.61
Area: 6839
Amount: 0.004425
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:03:03
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

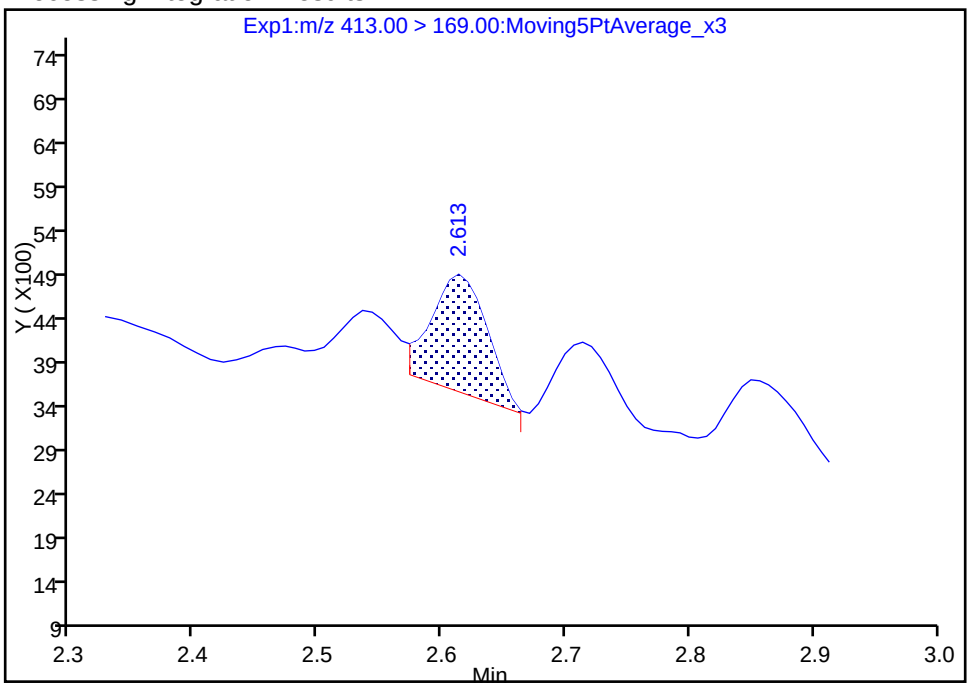
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_009.d
Injection Date: 16-Feb-2018 16:12:29 Instrument ID: A8_N
Lims ID: MB 320-208463/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

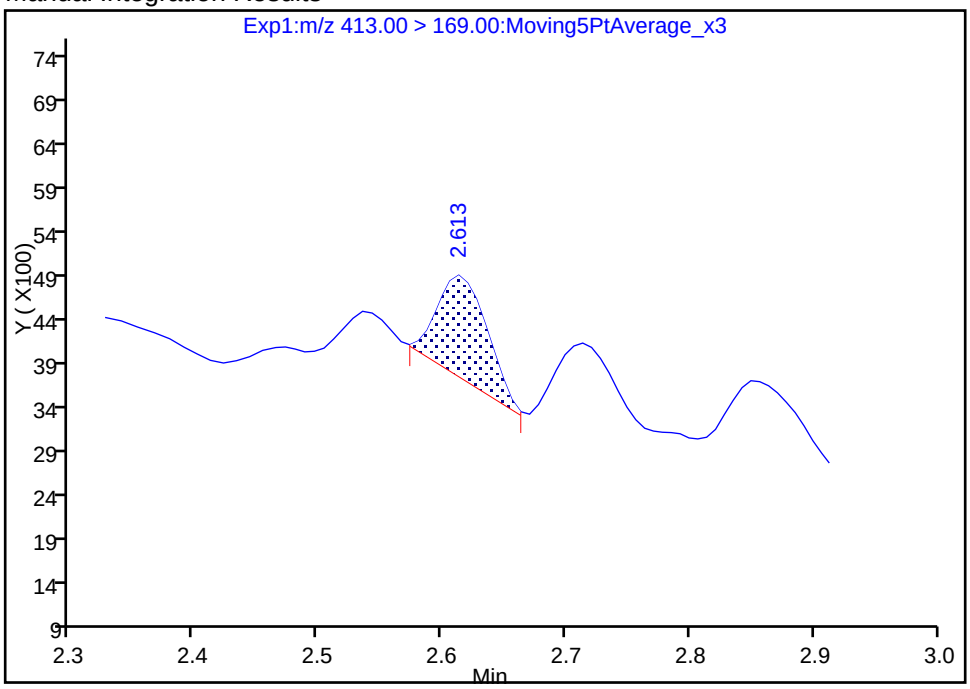
Processing Integration Results

RT: 2.61
Area: 4066
Amount: 0.027181
Amount Units: ng/ml



Manual Integration Results

RT: 2.61
Area: 3216
Amount: 0.004425
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:03:11
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

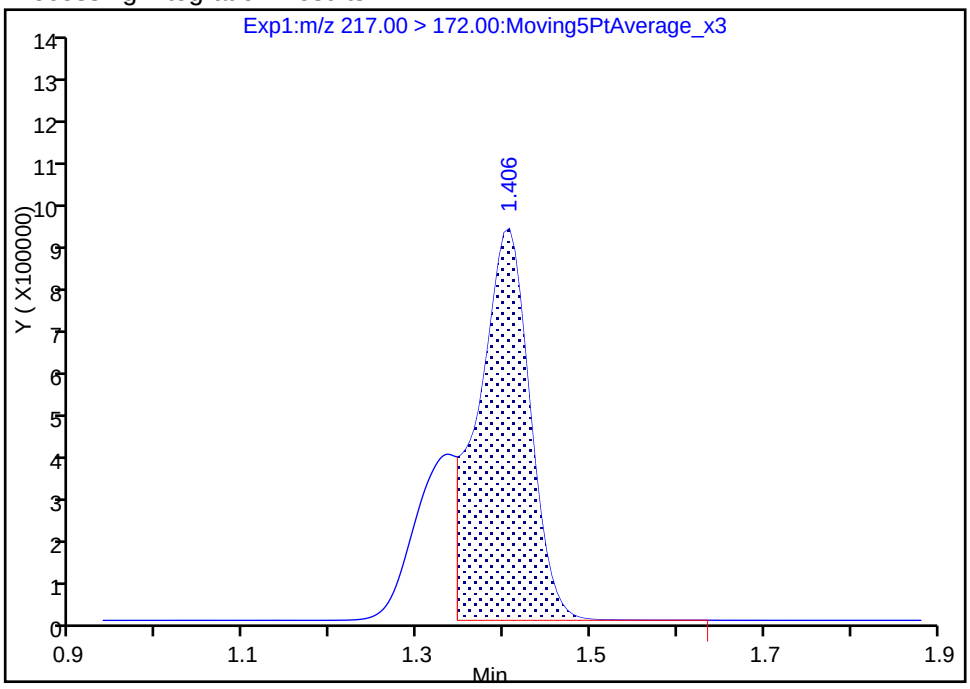
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_009.d
Injection Date: 16-Feb-2018 16:12:29 Instrument ID: A8_N
Lims ID: MB 320-208463/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

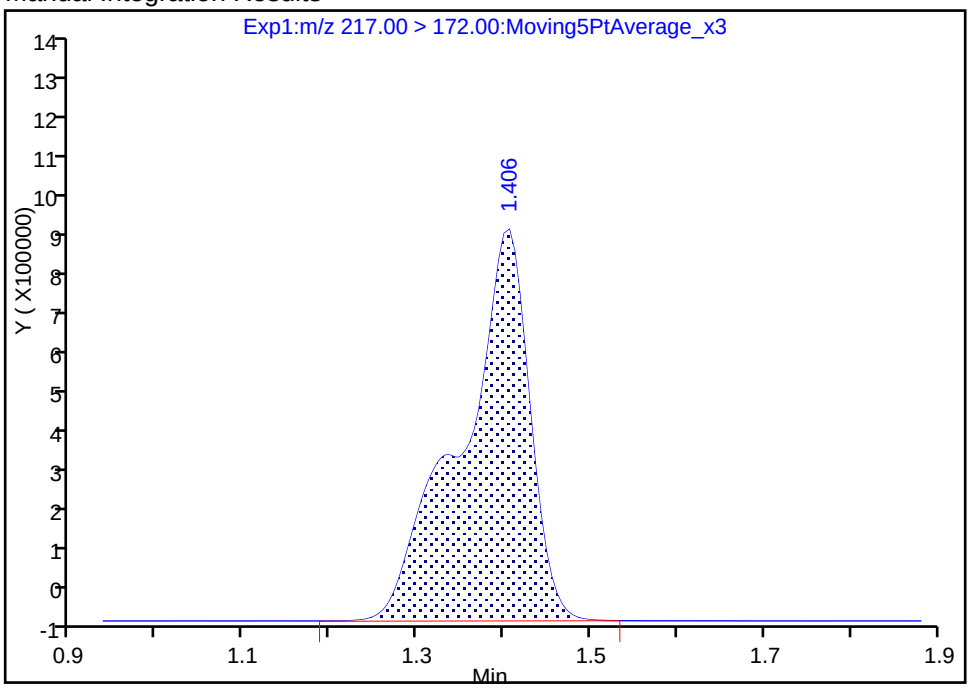
Processing Integration Results

RT: 1.41
Area: 3751677
Amount: 1.313526
Amount Units: ng/ml



Manual Integration Results

RT: 1.41
Area: 5028211
Amount: 1.760462
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:02:02
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-207074/2-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_038.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:25

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	41.3	M	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	41.7		2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	39.4		2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.1		2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	40.3		2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	41.2		2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	42.1		2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	39.9		2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	41.8		2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	43.9		4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	42.5		4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37.8		2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	33.9		2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	41.2		2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	37.6		4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	39.1		2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	40.1		4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 320-207074/2-A

Matrix: Water Lab File ID: 2018.02.07LLAA_038.d

Analysis Method: 537 (modified) Date Collected:

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) Date Analyzed: 02/07/2018 13:25

Con. Extract Vol.: 10.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	97		25-150
STL00992	13C4 PFBA	107	M	25-150
STL00993	13C2 PFHxA	102		25-150
STL00990	13C4 PFOA	104		25-150
STL00995	13C5 PFNA	103		25-150
STL00996	13C2 PFDA	109		25-150
STL00997	13C2 PFUnA	103		25-150
STL00998	13C2 PFDoA	99		25-150
STL00994	18O2 PFHxS	106		25-150
STL00991	13C4 PFOS	103		25-150
STL02116	13C2-PFTeDA	113		25-150
STL01892	13C4-PFHpA	104		25-150
STL01893	13C5 PFPeA	101		25-150
STL02337	13C3-PFBS	106		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_038.d
Lims ID: LCS 320-207074/2-A
Client ID:
Sample Type: LCS
Inject. Date: 07-Feb-2018 13:25:40 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-207074/2-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:42:42 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:17:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
217.00 > 172.00	1.424	1.412	0.012	0.541	7060042	2.68		107	16723	M
2 Perfluorobutyric acid										M
212.90 > 169.00	1.424	1.412	0.012	1.000	2760038	1.03		103	410	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.676	1.660	0.016	1.000	2009988	1.04		104	1654	
D 3 13C5-PFPeA										
267.90 > 223.00	1.676	1.660	0.016	0.637	4052477	2.54		101	33160	
D 47 13C3-PFBS										
301.90 > 83.00	1.712	1.695	0.017	0.650	88248	2.47		106	2762	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.712	1.695	0.017	1.000	2757904	0.9453		107	15317	
298.90 > 99.00	1.712	1.695	0.017	1.000	1105991		2.49(1.25-3.74)		11431	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.918	1.899	0.019	1.000	610051	1.00		107	28235	
D 7 13C2 PFHxA										
315.00 > 270.00	1.959	1.930	0.029	0.744	4407542	2.55		102	40053	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.959	1.940	0.019	1.000	1796094	0.9850		98.5	4171	
313.00 > 119.00	1.959	1.940	0.019	1.000	177571		10.11(5.03-15.10)		3219	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.286	2.262	0.024	1.000	1804904	1.00		100	2836	
363.00 > 169.00	2.286	2.262	0.024	1.000	763693		2.36(1.13-3.40)		5537	
D 9 13C4-PFHpA										
367.00 > 322.00	2.286	2.262	0.024	0.868	4328770	2.59		104	36370	
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.275	0.024	0.873	5193004	2.51		106	45750	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.275	0.024	1.000	2118262	0.8485		93.2	8716	
399.00 > 99.00	2.299	2.275	0.024	1.000	707584		2.99(1.50-4.49)		3931	
D 12 M2-6:2FTS										
429.00 > 81.00	2.611	2.588	0.023	0.992	872043	2.46		103	21657	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.611	2.588	0.023	1.000	609828	0.9240		97.5	12558	
D 14 13C4 PFOA										
417.00 > 372.00	2.633	2.606	0.027	1.000	4241962	2.59		104	48305	
* 62 13C2-PFOA										
415.00 > 370.00	2.633	2.606	0.027		4554173	2.50			45585	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.633	2.606	0.027	1.000	1947185	1.01		101	854	
413.00 > 169.00	2.633	2.606	0.027	1.000	1037540		1.88(0.84-2.52)		9367	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.640	2.613	0.027	1.000	1958043	1.03		108	25941	
449.00 > 99.00	2.640	2.613	0.027	1.000	499209		3.92(1.94-5.82)		10335	
D 18 13C4 PFOS										
503.00 > 80.00	2.989	2.976	0.013	1.135	3339757	2.46		103	19075	
D 19 13C5 PFNA										
468.00 > 423.00	2.989	2.976	0.013	1.135	3442622	2.58		103	31825	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.989	2.976	0.013	1.000	1448502	0.9391		101	2217	
499.00 > 99.00	2.989	2.976	0.013	1.000	323690		4.47(2.31-6.93)		2532	
20 Perfluorononanoic acid										
463.00 > 419.00	2.989	2.976	0.013	1.000	1442886	1.03		103	2018	
463.00 > 169.00	2.989	2.976	0.013	1.000	353631		4.08(1.90-5.69)		5722	
D 26 M2-8:2FTS										
529.00 > 81.00	3.335	3.316	0.019	1.267	1099855	2.78		116	24964	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.335	3.323	0.012	1.000	590742	1.05		109	13599	
D 21 13C8 FOSA										
506.00 > 78.00	3.335	3.331	0.004	1.267	4569179	2.43		97.4	18975	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.335	3.331	0.004	1.000	1812613	1.00		100	12382	
D 23 13C2 PFDA										
515.00 > 470.00	3.343	3.331	0.012	1.270	3128200	2.73		109	24652	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.343	3.331	0.012	1.000	1344222	1.05		105	5473	
513.00 > 169.00	3.343	3.331	0.012	1.000	242284		5.55(2.36-7.09)		2471	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.496	3.483	0.013	1.328	1593713	2.57		103	14296	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.503	3.491	0.012	1.002	656329	0.9605		96.0	4215	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.652	3.641	0.011	1.000	901440	0.9771		101	16415	
599.00 > 99.00	3.652	3.641	0.011	1.000	321466		2.80(1.39-4.16)		13653	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.659	3.648	0.011	1.390	1588027	2.50		100.0	9859	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.666	3.655	0.011	1.002	602116	1.02		102	7319	
D 30 13C2 PFUnA										
565.00 > 520.00	3.666	3.655	0.011	1.392	2277399	2.57		103	29540	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.666	3.655	0.011	1.000	936279	1.00		99.8	3944	
563.00 > 169.00	3.666	3.655	0.011	1.000	181305		5.16(0.00-0.00)		5064	
35 MeFOSA										
512.00 > 169.00	3.837	3.875	-0.038		507571	NR		0.0	2966	
D 36 13C2 PFDoA										
615.00 > 570.00	3.966	3.952	0.014	1.506	2245089	2.48		99.0	18212	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.966	3.952	0.014	1.000	986368	1.05		105	4010	
613.00 > 169.00	3.966	3.952	0.014	1.000	252835		3.90(2.13-6.40)		8191	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.030	4.066	-0.036		469177	NR		0.0	3224	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.226	4.204	0.022	1.000	1100056	1.10		110	3035	
663.00 > 169.00	4.226	4.204	0.022	1.000	350494		3.14(1.25-3.76)		9951	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.443	0.019	1.695	3161881	2.83		113	20052	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.443	0.030	1.003	332567	1.06		106	7352	
713.00 > 219.00	4.462	4.443	0.019	1.000	233022		1.43(0.71-2.13)		7096	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.887	4.862	0.025	1.000	1975890	1.02		102	1751	
813.00 > 169.00	4.887	4.862	0.025	1.000	346208		5.71(2.86-8.58)		3517	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.887	4.862	0.025	1.856	4975946	2.57		103	12112	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.232	5.199	0.033	1.000	2225771	1.01		101	555	
913.00 > 169.00	5.225	5.199	0.026	0.999	278099		8.00(0.00-0.00)		1629	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

Report Date: 08-Feb-2018 16:42:46 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_038.d

Injection Date: 07-Feb-2018 13:25:40 Instrument ID: A8_N

Lims ID: LCS 320-207074/2-A

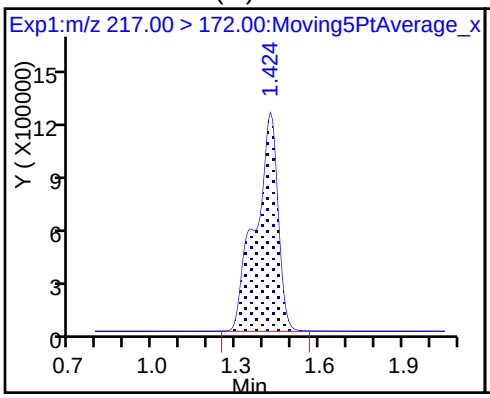
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3

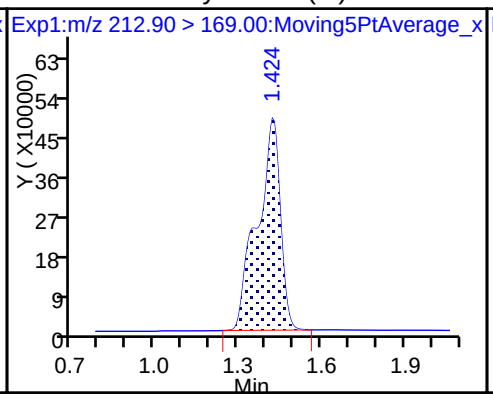
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

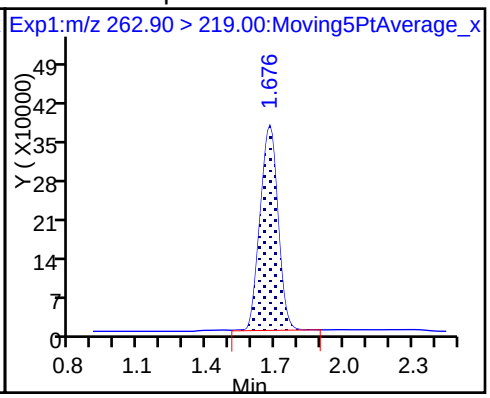
D 1 13C4 PFBA (M)



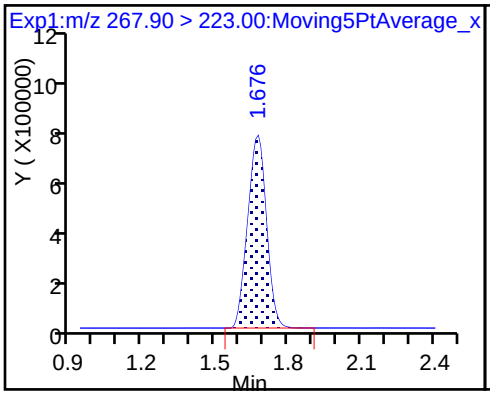
2 Perfluorobutyric acid (M)



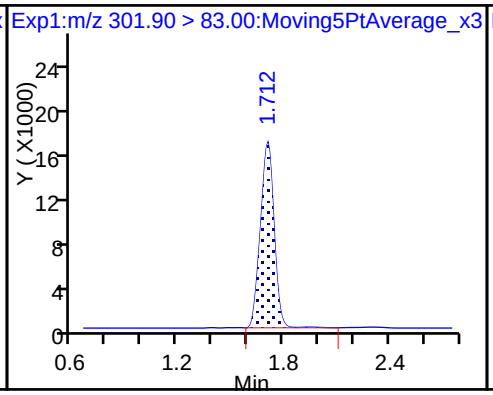
4 Perfluoropentanoic acid



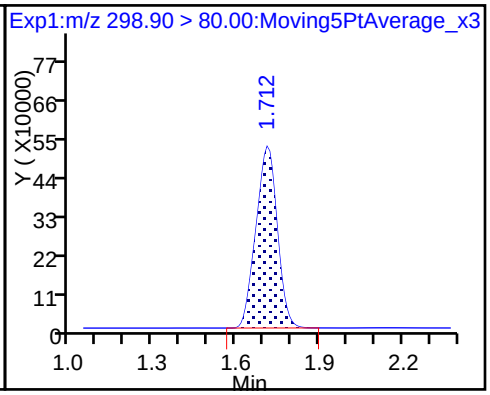
D 3 13C5-PFPeA



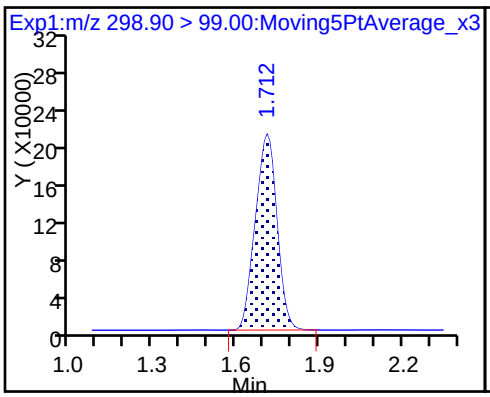
D 47 13C3-PFBS



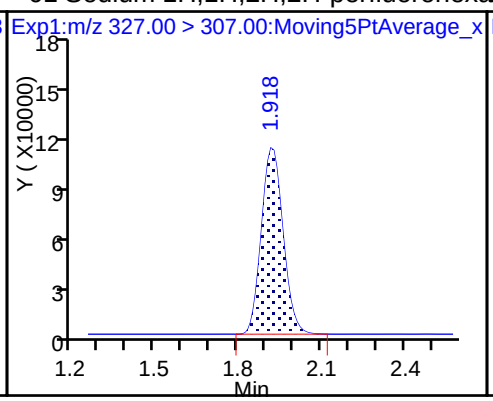
5 Perfluorobutanesulfonic acid



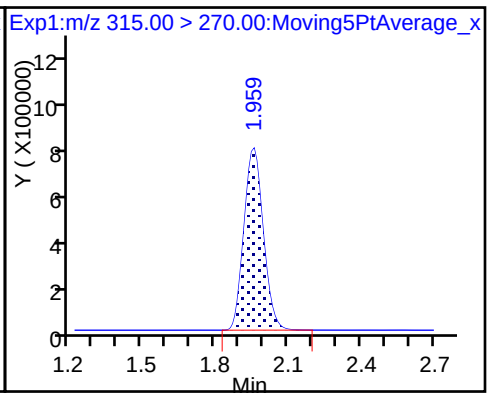
5 Perfluorobutanesulfonic acid



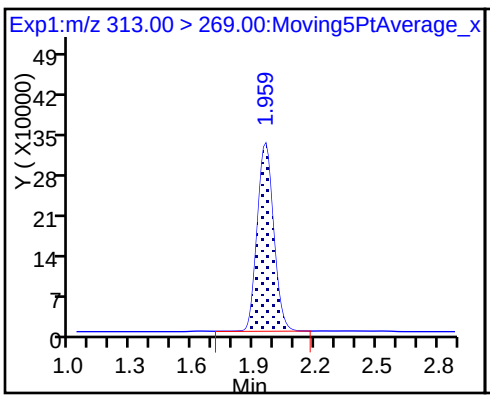
61 Sodium 1H,1H,2H,2H-perfluorohexa



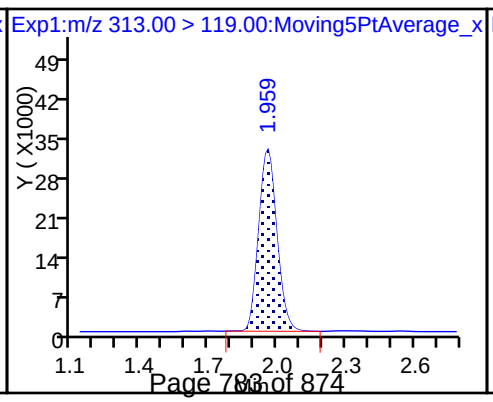
D 7 13C2 PFHxA



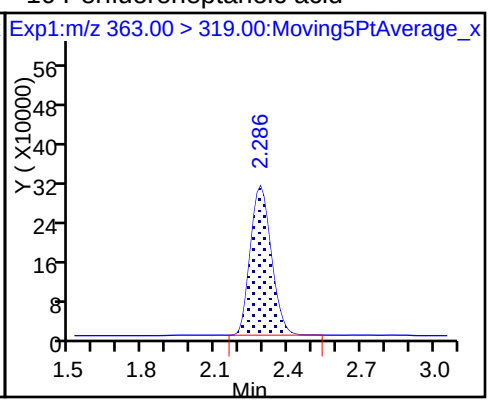
6 Perfluorohexanoic acid



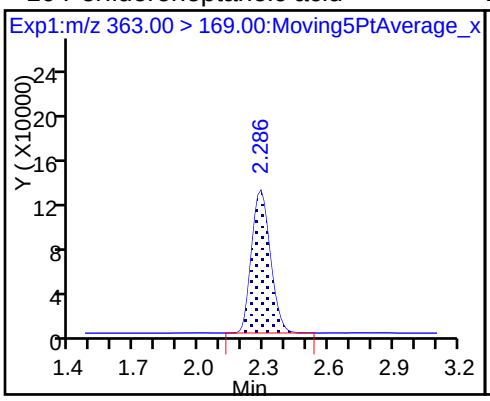
6 Perfluorohexanoic acid



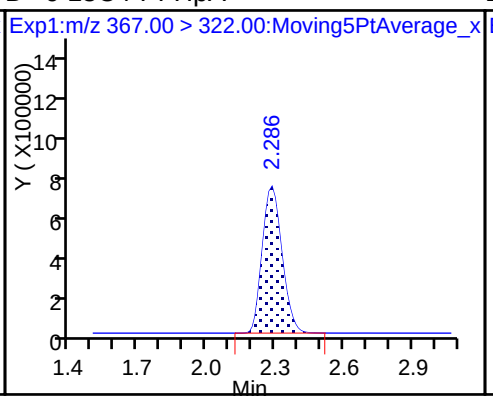
10 Perfluoroheptanoic acid



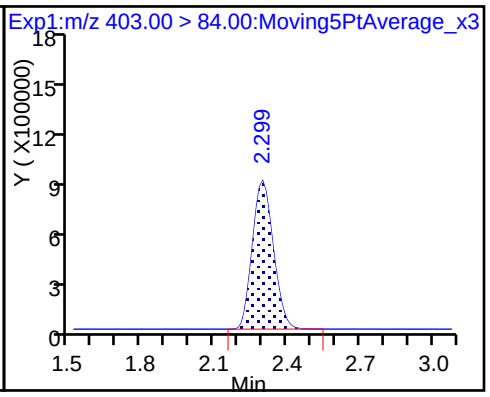
10 Perfluoroheptanoic acid



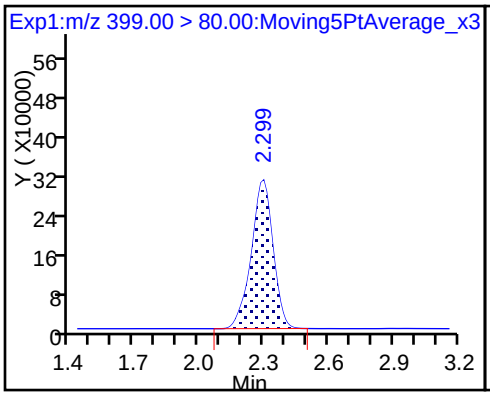
D 9 13C4-PFHpA



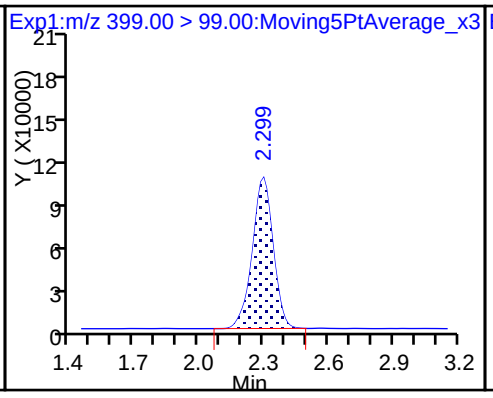
D 11 18O2 PFHxS



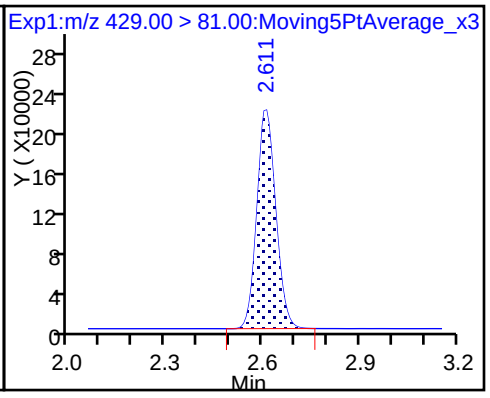
8 Perfluorohexanesulfonic acid



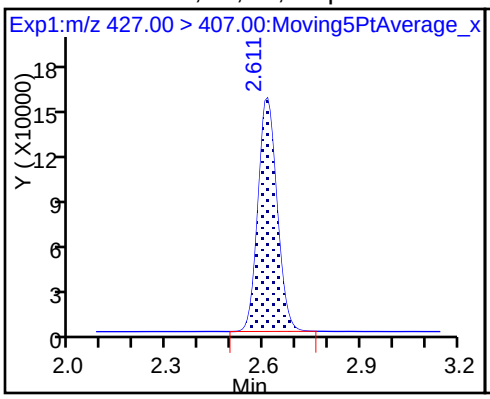
8 Perfluorohexanesulfonic acid



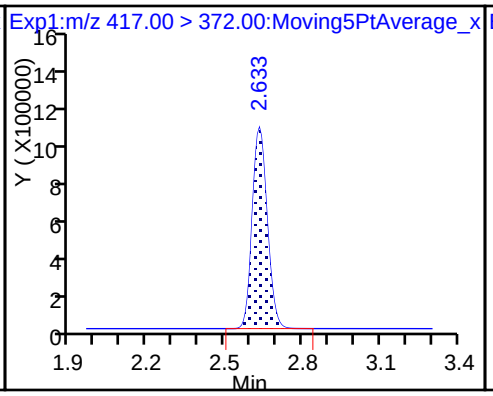
D 12 M2-6:2FTS



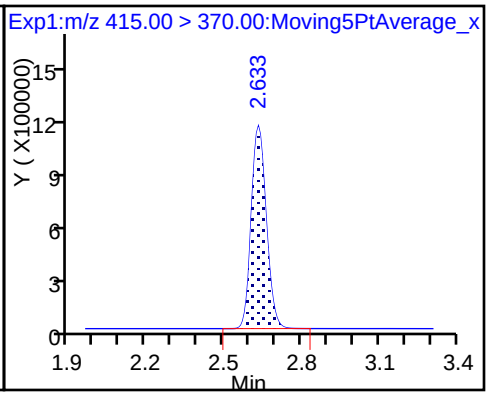
13 Sodium 1H,1H,2H,2H-perfluorooctane



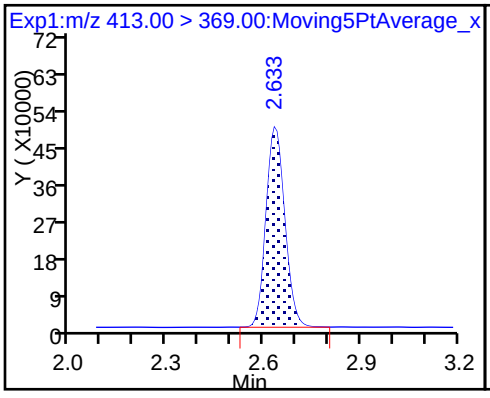
D 14 13C4 PFOA



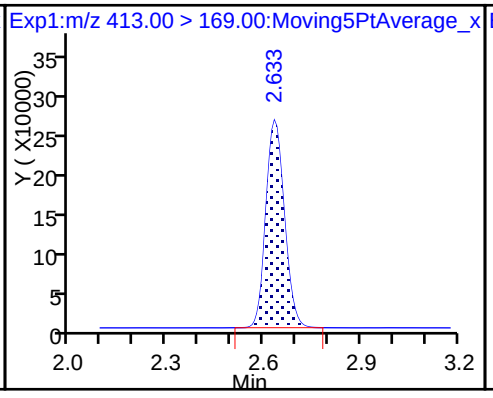
* 62 13C2-PFOA



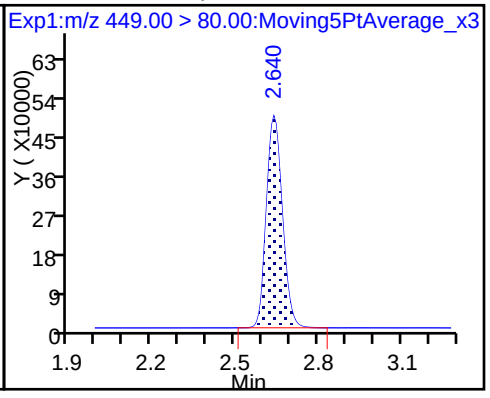
15 Perfluorooctanoic acid



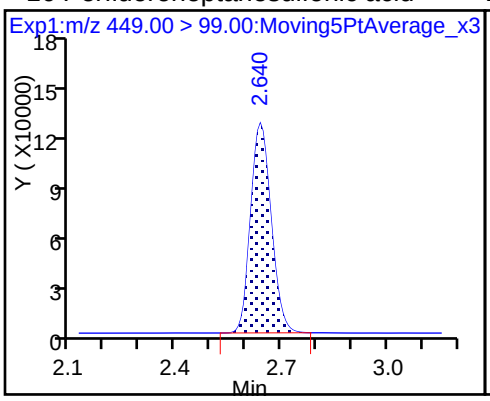
15 Perfluorooctanoic acid



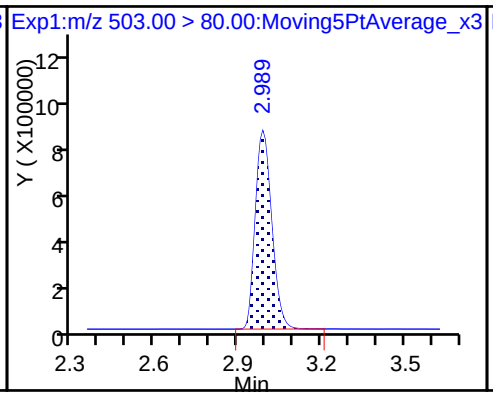
16 Perfluoroheptanesulfonic acid



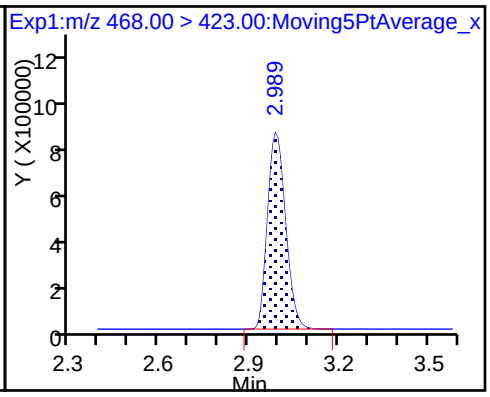
16 Perfluoroheptanesulfonic acid



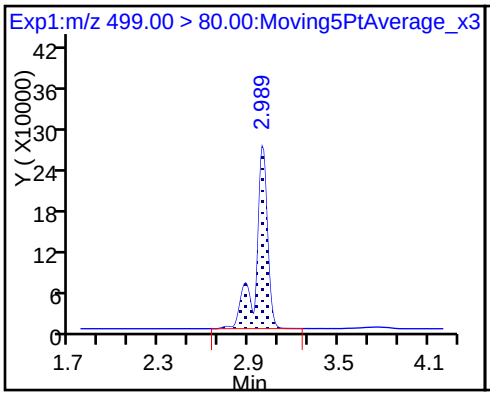
D 18 13C4 PFOS



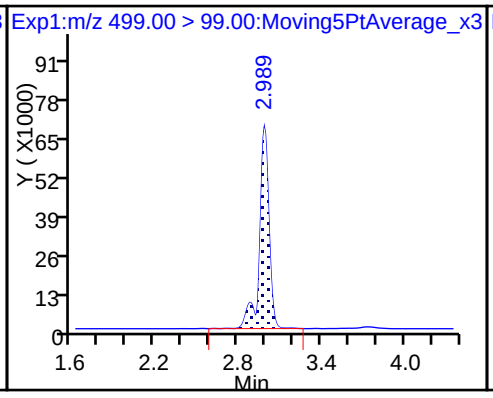
D 19 13C5 PFNA



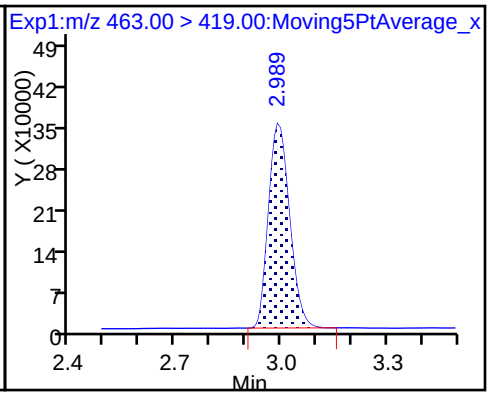
17 Perfluorooctane sulfonic acid



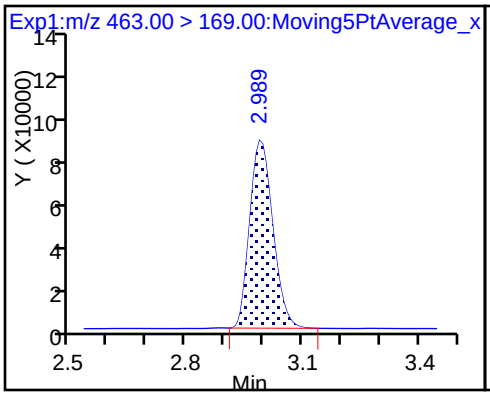
17 Perfluorooctane sulfonic acid



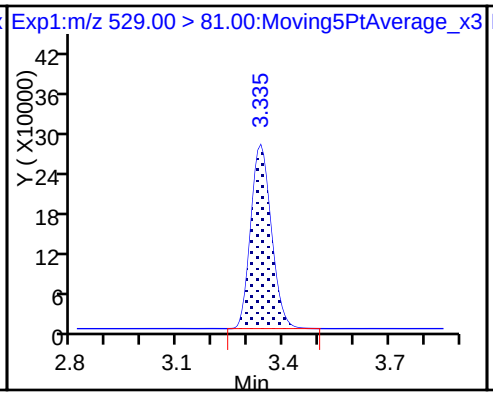
20 Perfluorononanoic acid



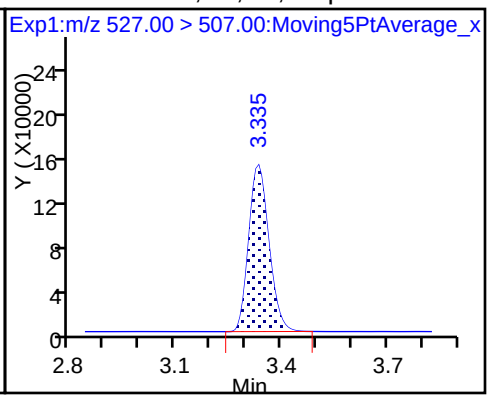
20 Perfluorononanoic acid



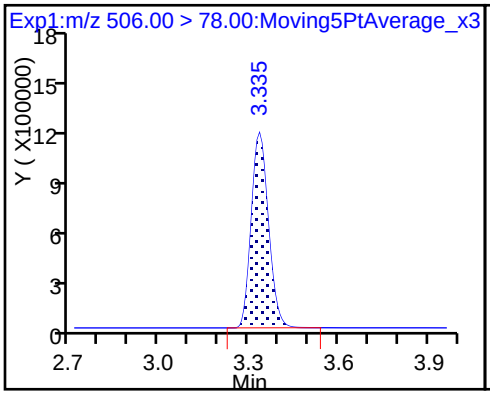
D 26 M2-8:2FTS



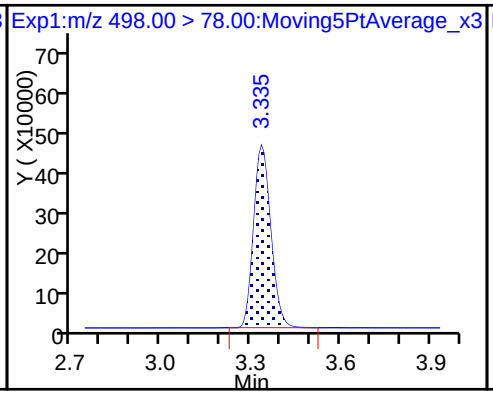
25 Sodium 1H,1H,2H,2H-perfluorodecane



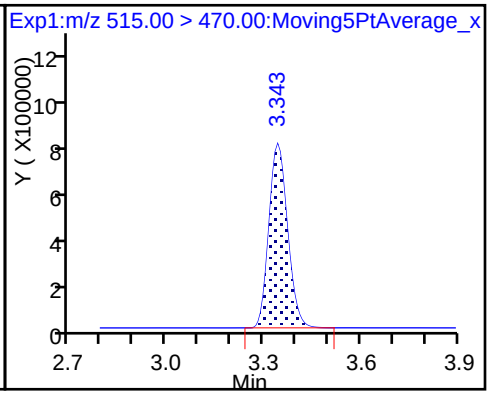
D 21 13C8 FOSA



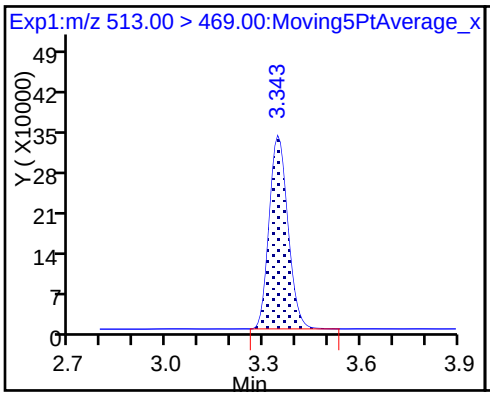
22 Perfluorooctane Sulfonamide



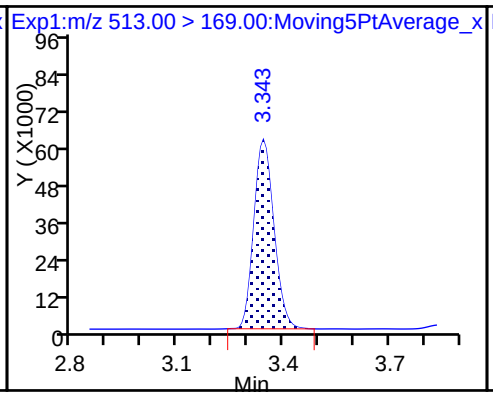
D 23 13C2 PFDA



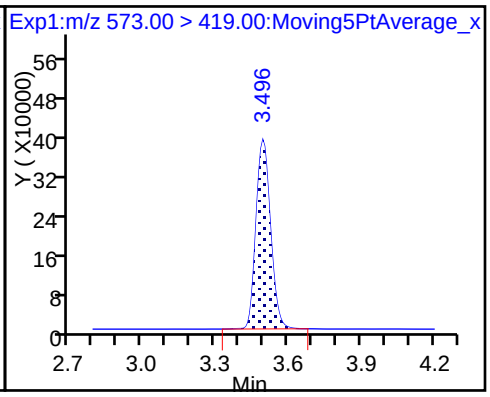
24 Perfluorodecanoic acid



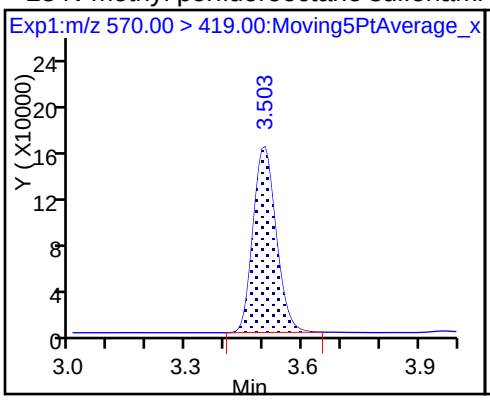
24 Perfluorodecanoic acid



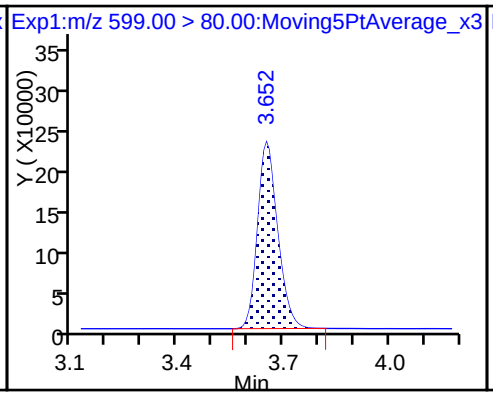
D 27 d3-NMeFOSAA



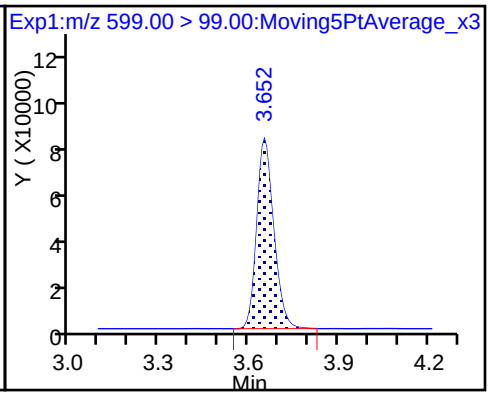
28 N-methyl perfluorooctane sulfonami



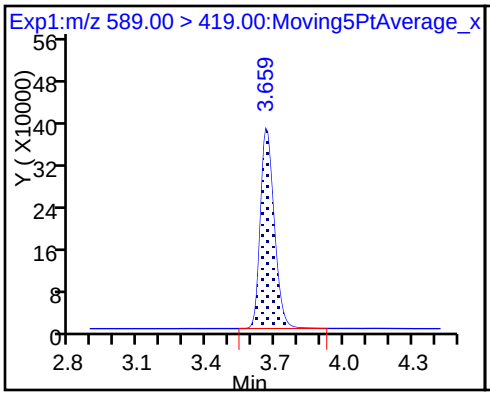
29 Perfluorodecane Sulfonic acid



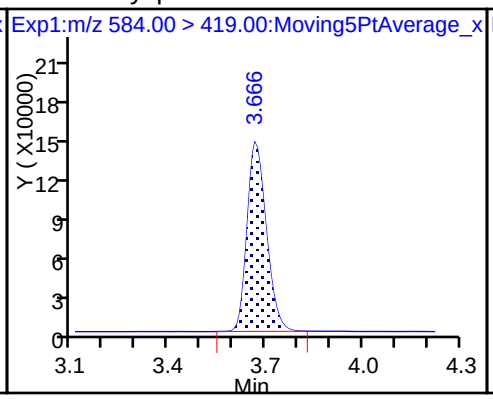
29 Perfluorodecane Sulfonic acid



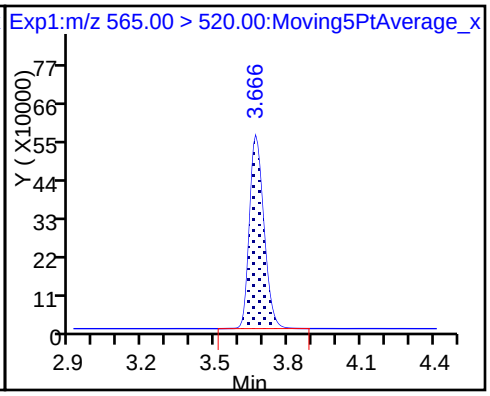
D 32 d5-NEtFOSAA



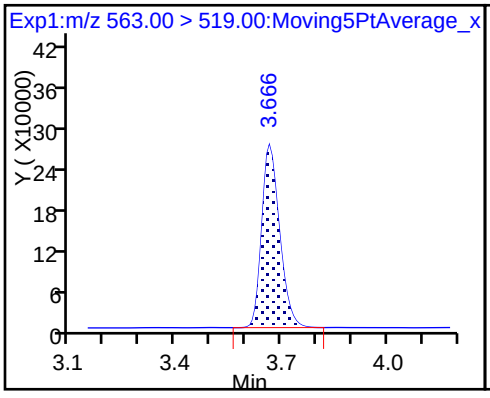
33 N-ethyl perfluorooctane sulfonamid



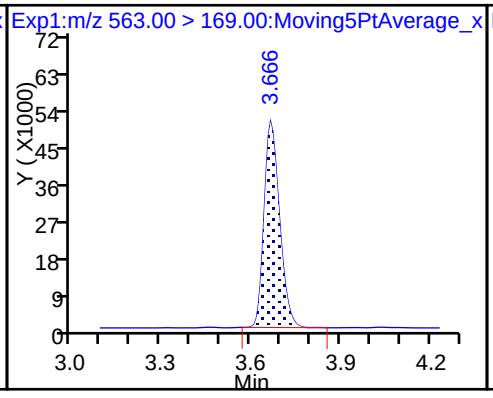
D 30 13C2 PFUnA



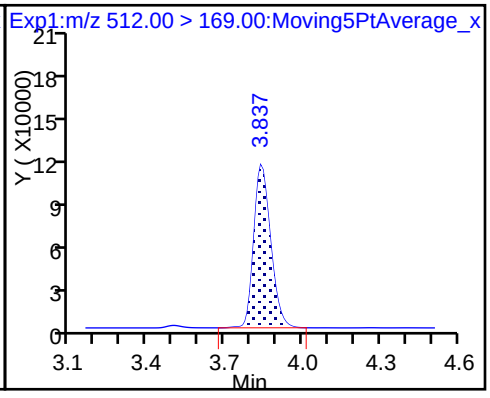
31 Perfluoroundecanoic acid



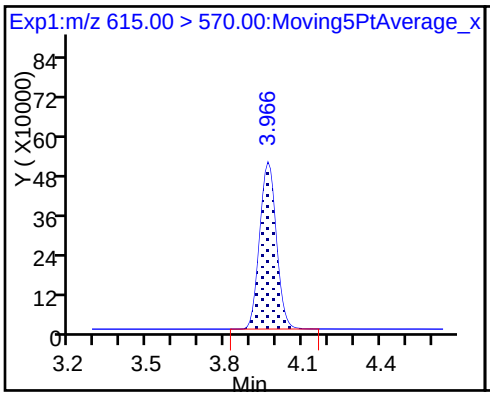
31 Perfluoroundecanoic acid



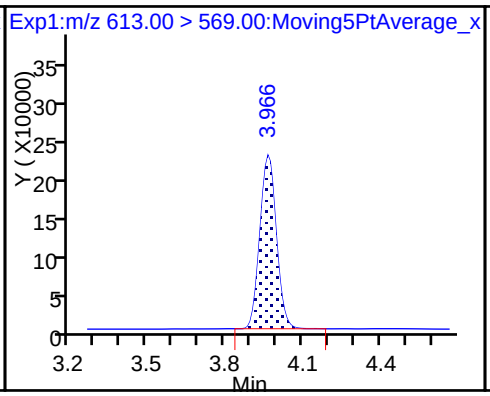
35 MeFOSA



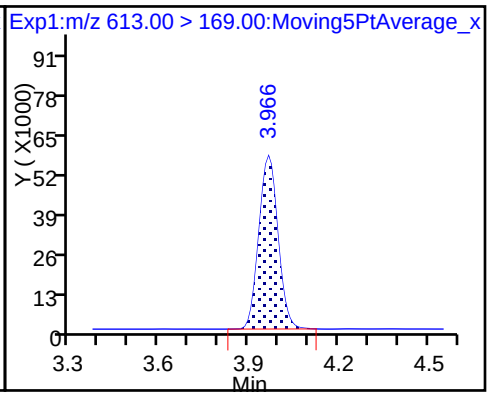
D 36 13C2 PFDoA



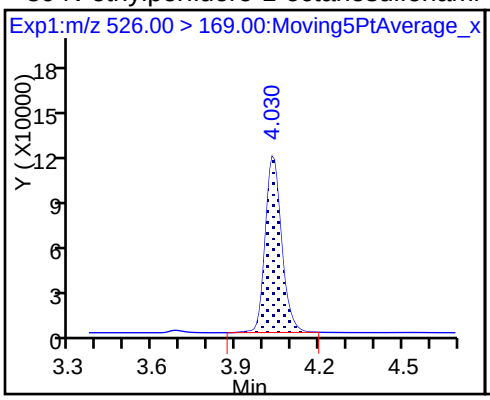
37 Perfluorododecanoic acid



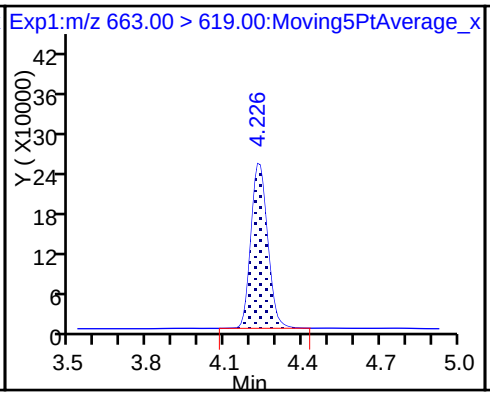
37 Perfluorododecanoic acid



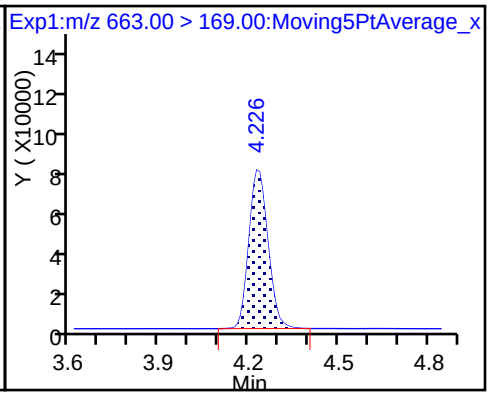
39 N-ethylperfluoro-1-octanesulfonami



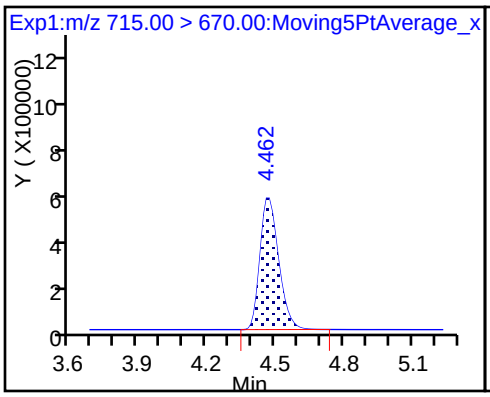
41 Perfluorotridecanoic acid



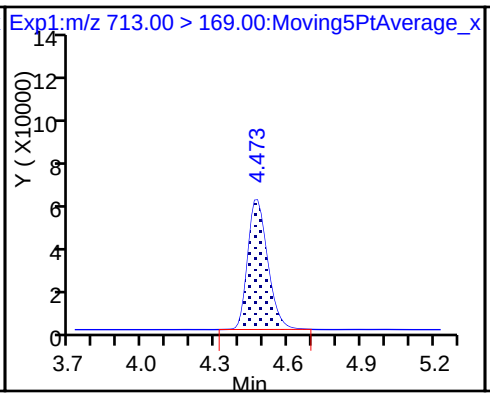
41 Perfluorotridecanoic acid



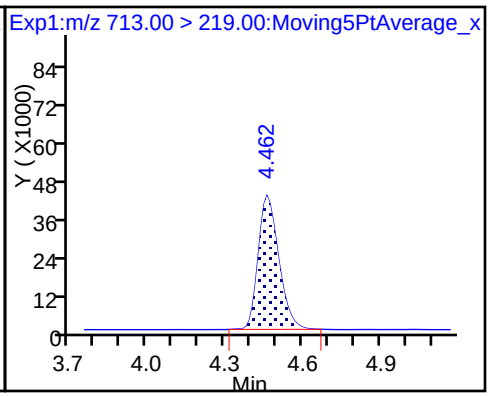
D 43 13C2-PFTeDA



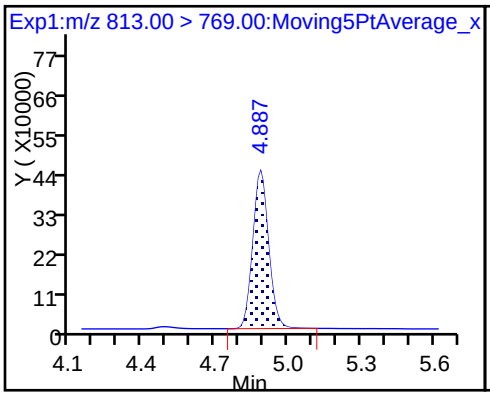
42 Perfluorotetradecanoic acid



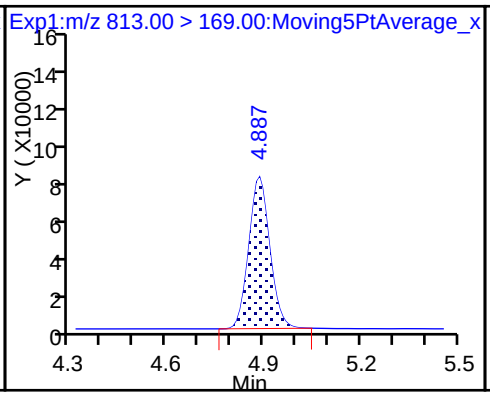
42 Perfluorotetradecanoic acid



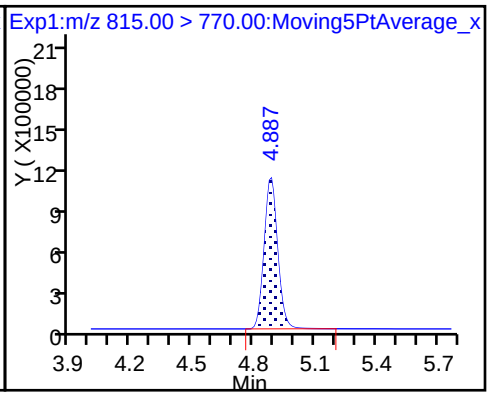
45 Perfluorohexadecanoic acid



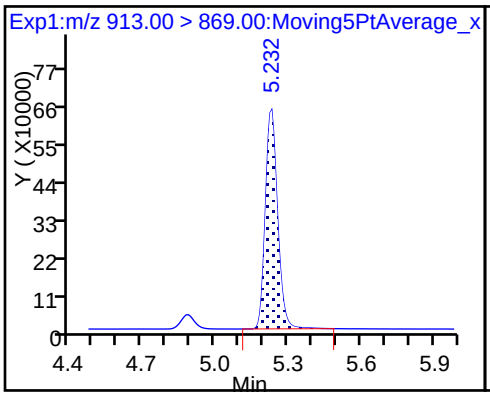
45 Perfluorohexadecanoic acid



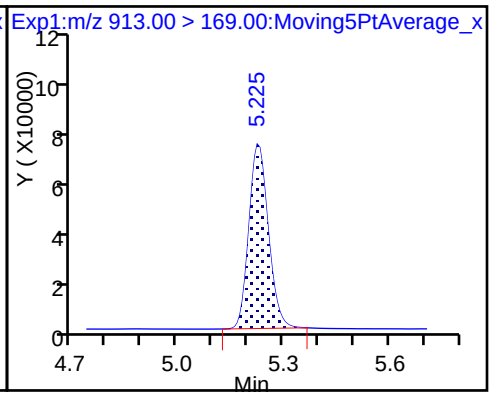
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

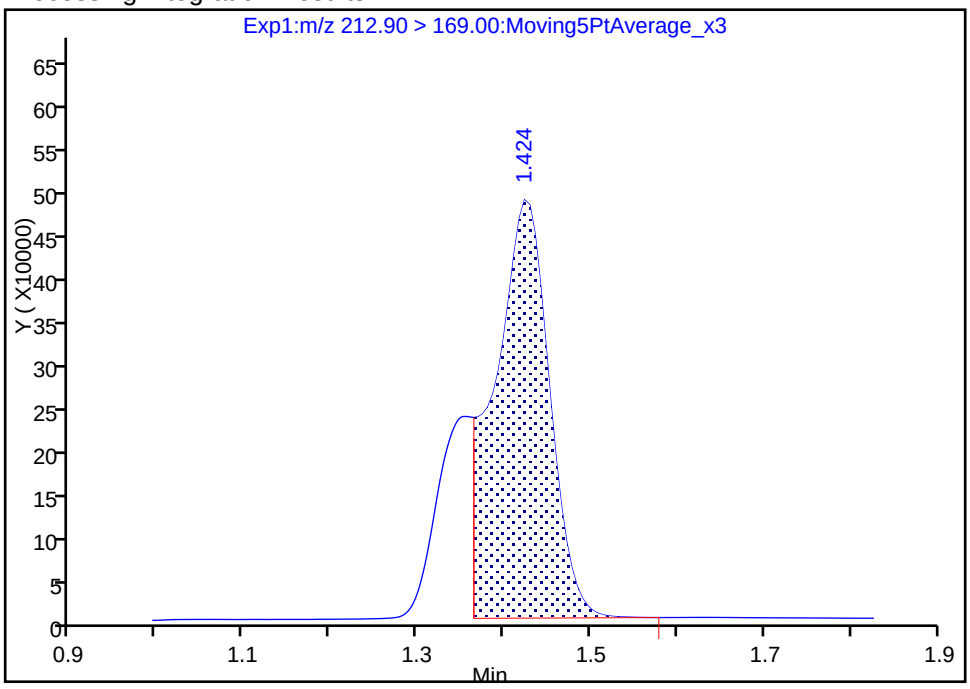
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_038.d
Injection Date: 07-Feb-2018 13:25:40 Instrument ID: A8_N
Lims ID: LCS 320-207074/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

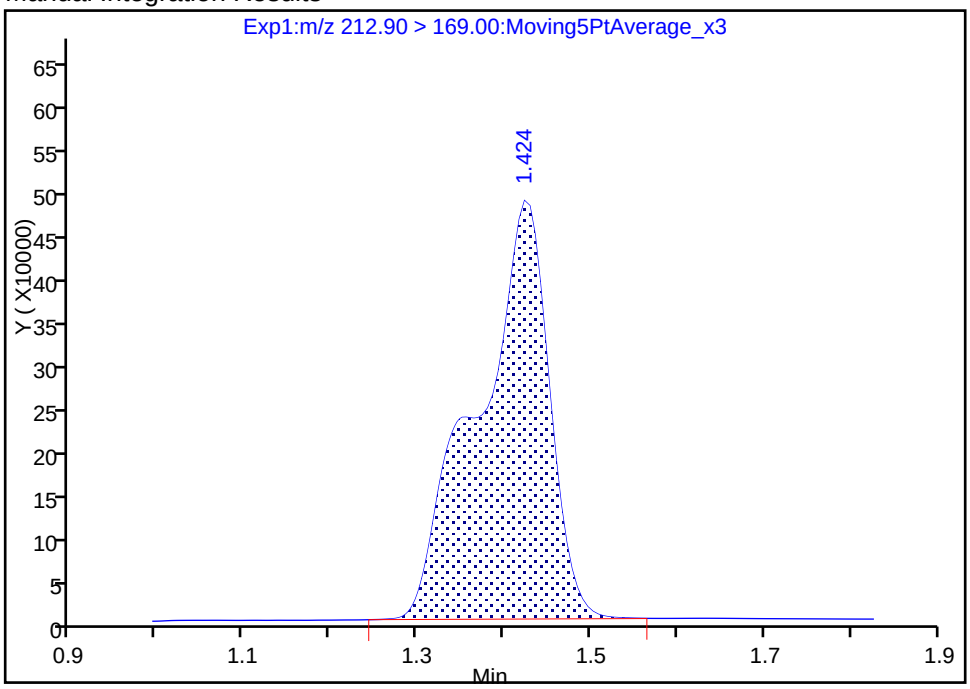
Processing Integration Results

RT: 1.42
Area: 2099780
Amount: 0.784693
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 2760038
Amount: 1.031433
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:16:09
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

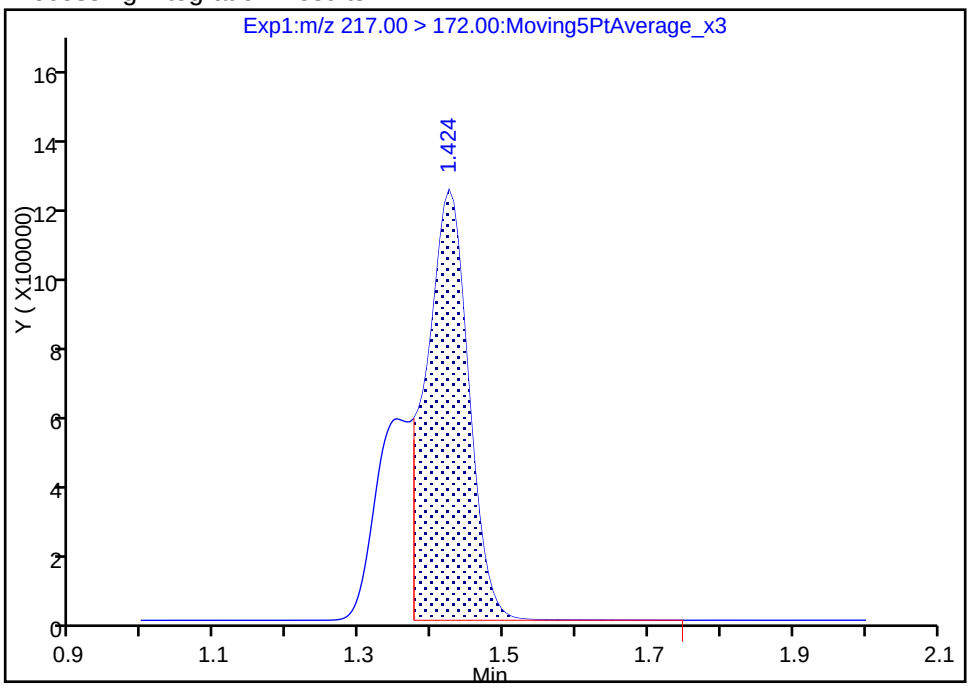
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_038.d
Injection Date: 07-Feb-2018 13:25:40 Instrument ID: A8_N
Lims ID: LCS 320-207074/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

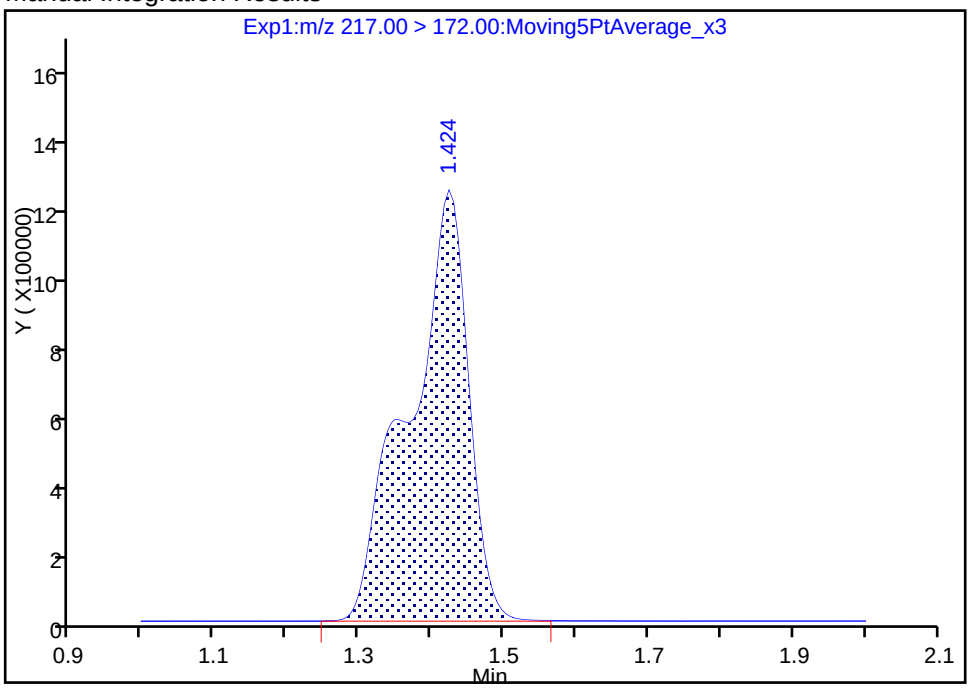
Processing Integration Results

RT: 1.42
Area: 4984439
Amount: 1.894463
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 7060042
Amount: 2.683349
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:15:52
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-208463/2-A

Matrix: Water | Lab File ID: 2018.02.16LLA_010.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:20

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	40.2	M	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	37.7	M	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	38.5		2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	38.4		2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	39.7		2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	37.6		2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	40.3		2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	35.7		2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	41.2		2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	44.1		4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	41.3		4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	40.0		2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34.9		2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	40.9		2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	37.8	M	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	39.5		2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	41.1		4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-208463/2-A

Matrix: Water | Lab File ID: 2018.02.16LLA_010.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:20

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	66		25-150
STL00992	13C4 PFBA	74	M	25-150
STL00993	13C2 PFHxA	73		25-150
STL00990	13C4 PFOA	73		25-150
STL00995	13C5 PFNA	73		25-150
STL00996	13C2 PFDA	71		25-150
STL00997	13C2 PFUnA	71		25-150
STL00998	13C2 PFDoA	65		25-150
STL00994	18O2 PFHxS	71		25-150
STL00991	13C4 PFOS	69		25-150
STL02116	13C2-PFTeDA	82		25-150
STL01892	13C4-PFHpA	73		25-150
STL01893	13C5 PFPeA	76		25-150
STL02337	13C3-PFBS	66		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_010.d
Lims ID: LCS 320-208463/2-A
Client ID:
Sample Type: LCS
Inject. Date: 16-Feb-2018 16:20:16 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-208463/2-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:25 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: roycea Date: 17-Feb-2018 09:52:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
217.00 > 172.00	1.395	1.401	-0.006	0.535	5189261	1.84		73.6	43310	M
2 Perfluorobutyric acid										M
212.90 > 169.00	1.401	1.402	-0.001	1.004	1952038	1.00		100	363	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.644	1.644	0.0	1.000	1705367	0.9422		94.2	430	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.644	1.652	-0.008	0.630	3800289	1.89		75.5	68654	
D 47 13C3-PFBS										
301.90 > 83.00	1.679	1.679	0.0	0.644	82652	1.54		66.1	1370	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.679	1.679	0.0	1.000	2646098	1.00		113	26544	
298.90 > 99.00	1.679	1.679	0.0	1.000	1089641		2.43(1.25-3.74)		7484	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.883	1.892	-0.009	1.000	609966	1.24		133	27145	
D 7 13C2 PFHxA										
315.00 > 270.00	1.922	1.922	0.0	0.737	3971028	1.83		73.4	77320	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.922	1.923	-0.001	1.000	1575870	0.9628		96.3	2795	
313.00 > 119.00	1.922	1.923	-0.001	1.000	148844		10.59(5.03-15.10)		1854	
D 9 13C4-PFHpA										
367.00 > 322.00	2.251	2.252	-0.001	0.863	3750370	1.83		73.1	88541	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.251	2.252	-0.001	1.000	1542204	0.9598		96.0	1777	
363.00 > 169.00	2.251	2.252	-0.001	1.000	625154		2.47(1.13-3.40)		4119	
D 11 18O2 PFHxS										
403.00 > 84.00	2.265	2.265	0.0	0.868	4861025	1.68		71.1	79947	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.265	2.265	0.0	1.000	1977968	0.8727		95.9	6772	
399.00 > 99.00	2.265	2.265	0.0	1.000	653818		3.03(1.50-4.49)		1261	
D 12 M2-6:2FTS										
429.00 > 81.00	2.582	2.588	-0.006	0.990	924935	1.80		75.7	20192	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.582	2.588	-0.006	1.000	571766	0.8665		91.4	22394	
D 14 13C4 PFOA										
417.00 > 372.00	2.609	2.614	-0.005	1.000	3566446	1.81		72.6	95013	
* 62 13C2-PFOA										
415.00 > 370.00	2.609	2.615	-0.006		5424129	2.50			100303	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.609	2.615	-0.006	1.000	1562220	0.99		99.3	194	
413.00 > 169.00	2.609	2.615	-0.006	1.000	845330		1.85(0.84-2.52)		293	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.616	2.622	-0.006	1.000	1848811	1.02		107	37116	
449.00 > 99.00	2.616	2.622	-0.006	1.000	482972		3.83(1.94-5.82)		6169	
D 19 13C5 PFNA										
468.00 > 423.00	2.977	2.984	-0.007	1.141	2765065	1.82		72.9	68209	
D 18 13C4 PFOS										
503.00 > 80.00	2.977	2.984	-0.007	1.141	3275404	1.65		68.9	51033	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.977	2.985	-0.008	1.000	1391982	0.9460		102	8940	M
499.00 > 99.00	2.977	2.985	-0.008	1.000	310482		4.48(2.31-6.93)		2094	
20 Perfluorononanoic acid										
463.00 > 419.00	2.977	2.985	-0.008	1.000	1070584	0.9405		94.0	1382	
463.00 > 169.00	2.977	2.985	-0.008	1.000	285232		3.75(1.90-5.69)		7847	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.325	3.331	-0.006	1.000	424047	0.9396		98.1	15233	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.325	3.331	-0.006	1.000	1888564	1.03		103	23486	
D 26 M2-8:2FTS										
529.00 > 81.00	3.325	3.332	-0.007	1.274	849859	1.79		74.9	15351	
D 21 13C8 FOSA										
506.00 > 78.00	3.325	3.339	-0.014	1.274	4715807	1.65		66.0	45214	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.340	3.346	-0.006	1.000	879119	1.01		101	3109	
513.00 > 169.00	3.340	3.346	-0.006	1.000	154240		5.70(2.36-7.09)		1492	
D 23 13C2 PFDA										
515.00 > 470.00	3.340	3.347	-0.007	1.280	2230672	1.78		71.3	37339	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.492	3.492	0.0	1.339	521043	1.42		56.9	16155	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.492	3.498	-0.006	1.000	213076	0.9168		91.7	4113	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.650	3.655	-0.005	1.000	887475	0.9863		102	33073	
599.00 > 99.00	3.643	3.655	-0.012	0.998	310550		2.86(1.39-4.16)		2975	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.656	3.656	0.0	1.402	566465	1.47		58.7	1548	
D 30 13C2 PFUnA										
565.00 > 520.00	3.663	3.663	0.0	1.404	1703153	1.78		71.3	39261	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.663	3.670	-0.007	1.002	218965	1.00		99.8	5440	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.663	3.670	-0.007	1.000	650904	0.8936		89.4	911	
563.00 > 169.00	3.663	3.670	-0.007	1.000	137869		4.72(0.00-0.00)		7891	
35 MeFOSA										
512.00 > 169.00	3.826	3.875	-0.049		323007	NR		0.0	4059	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.954	3.961	-0.007	1.000	615636	1.03		103	1735	
613.00 > 169.00	3.954	3.961	-0.007	1.000	156091		3.94(2.13-6.40)		5967	
D 36 13C2 PFDoA										
615.00 > 570.00	3.954	3.962	-0.008	1.516	1480821	1.63		65.0	13509	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.020	4.066	-0.046		198595	NR		0.0	3568	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.215	4.222	-0.007	1.000	614247	1.10		110	1671	
663.00 > 169.00	4.215	4.222	-0.007	1.000	186150		3.30(1.25-3.76)		6058	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.449	4.448	0.001	1.706	1640084	2.04		81.6	25370	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.449	4.455	-0.006	1.000	179124	1.03		103	6627	
713.00 > 219.00	4.449	4.455	-0.006	1.000	119583		1.50(0.71-2.13)		2773	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.868	4.857	0.011	1.866	1876575	1.73		69.2	11327	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.868	4.862	0.006	1.000	740381	1.01		101	136	
813.00 > 169.00	4.868	4.862	0.006	1.000	127396		5.81(2.86-8.58)		3099	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.217	5.214	0.003	1.000	783093	1.05		105	203	
913.00 > 169.00	5.210	5.214	-0.004	0.999	101189		7.74(0.00-0.00)		1107	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

Report Date: 17-Feb-2018 13:11:31 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_010.d

Injection Date: 16-Feb-2018 16:20:16 Instrument ID: A8_N

Lims ID: LCS 320-208463/2-A

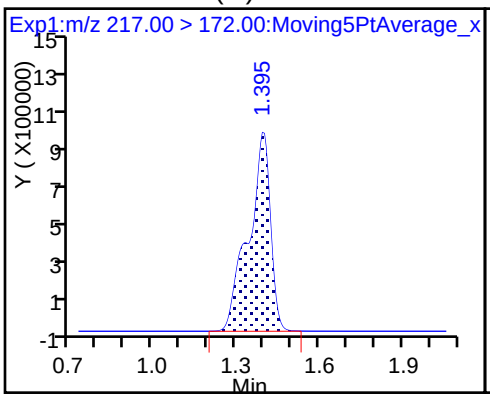
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3

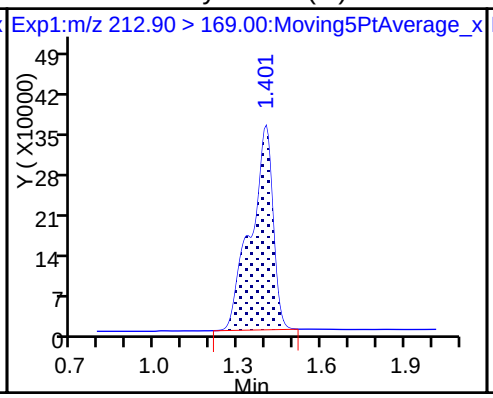
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

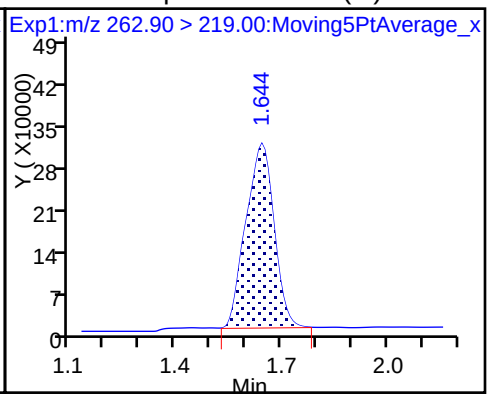
D 1 13C4 PFBA (M)



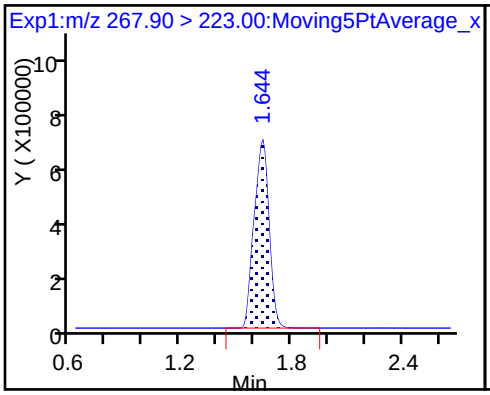
2 Perfluorobutyric acid (M)



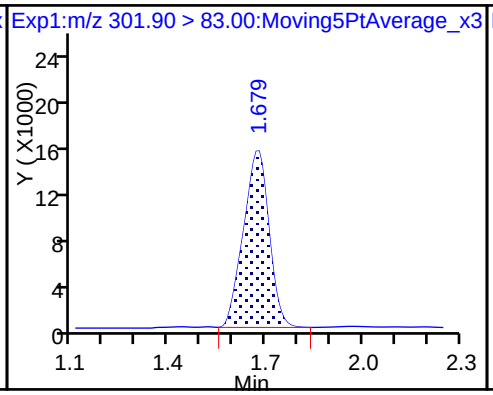
4 Perfluoropentanoic acid (M)



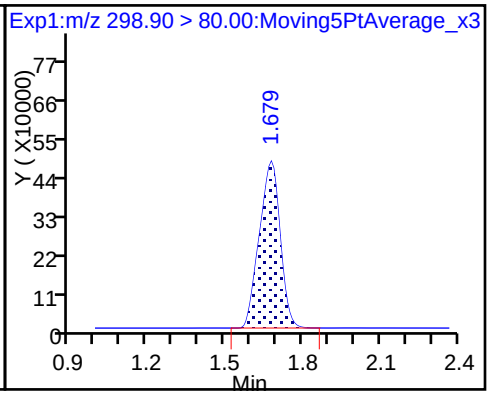
D 3 13C5-PFPeA



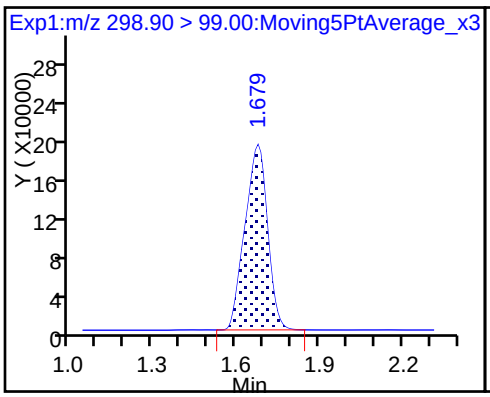
D 47 13C3-PFBS



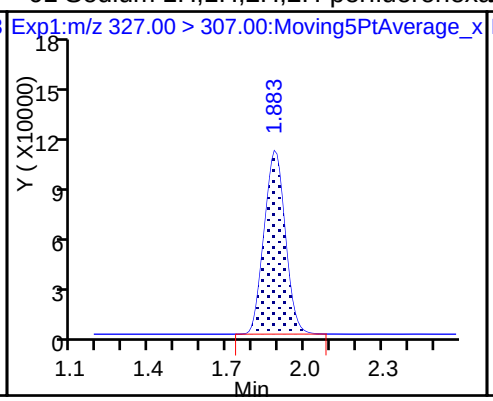
5 Perfluorobutanesulfonic acid



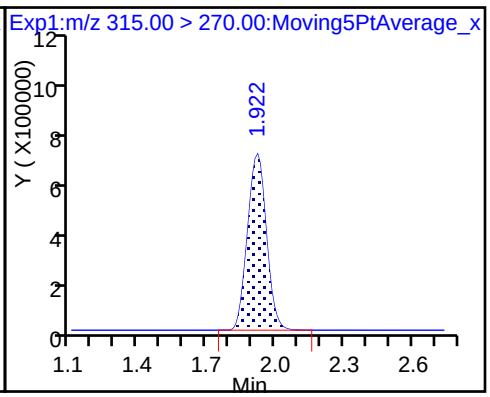
5 Perfluorobutanesulfonic acid



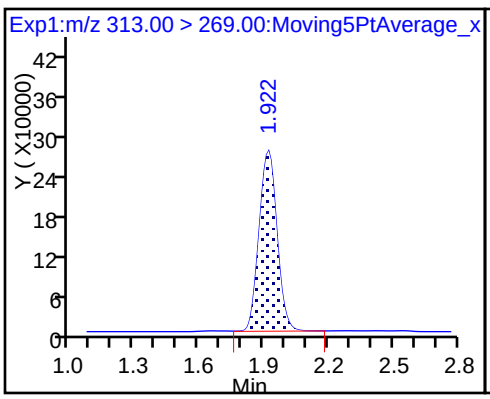
61 Sodium 1H,1H,2H,2H-perfluorohexa



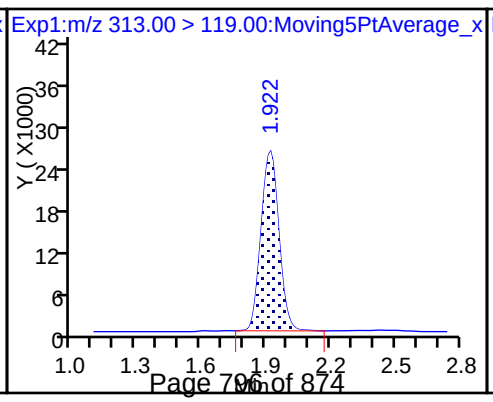
D 7 13C2 PFHxA



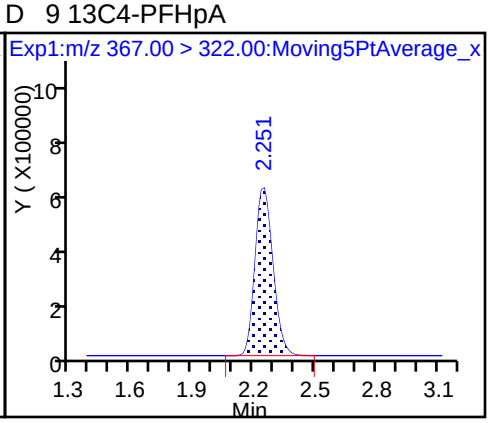
6 Perfluorohexanoic acid



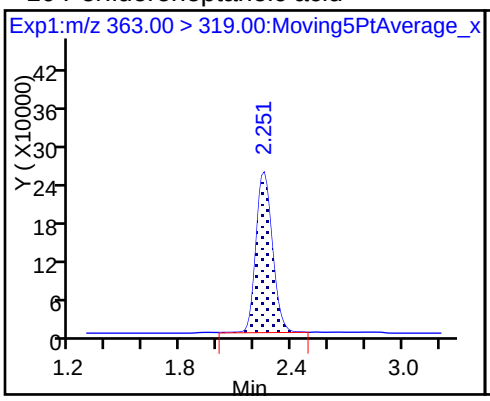
6 Perfluorohexanoic acid



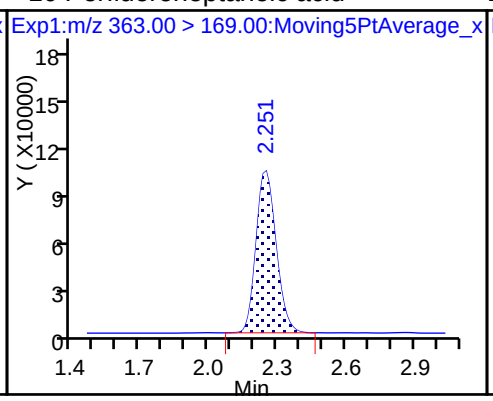
D 9 13C4-PFHpA



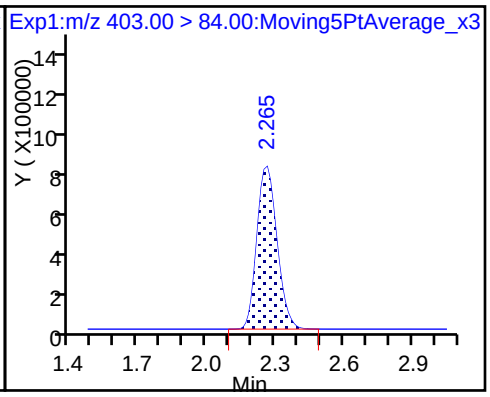
10 Perfluoroheptanoic acid



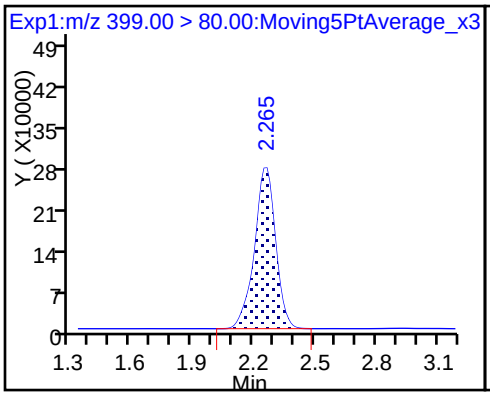
10 Perfluoroheptanoic acid



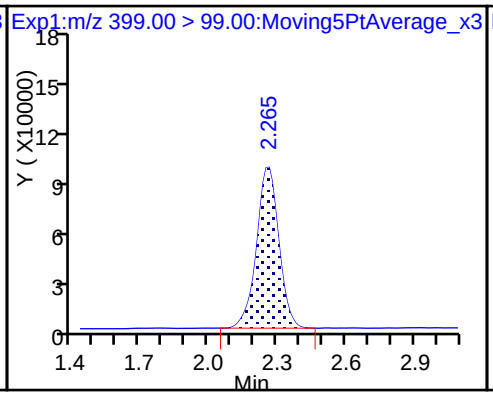
D 11 18O2 PFHxS



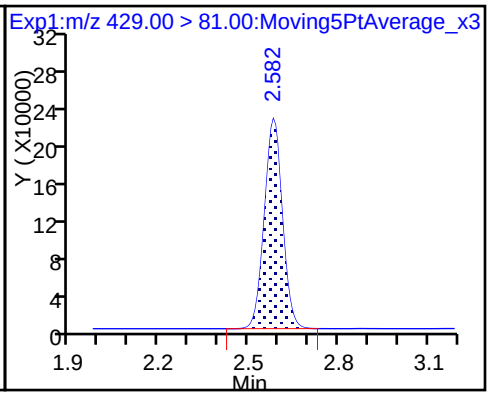
8 Perfluorohexanesulfonic acid



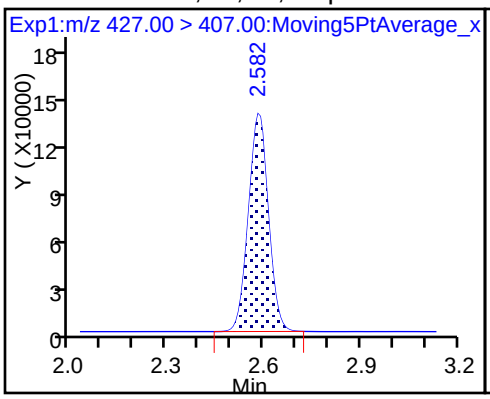
8 Perfluorohexanesulfonic acid



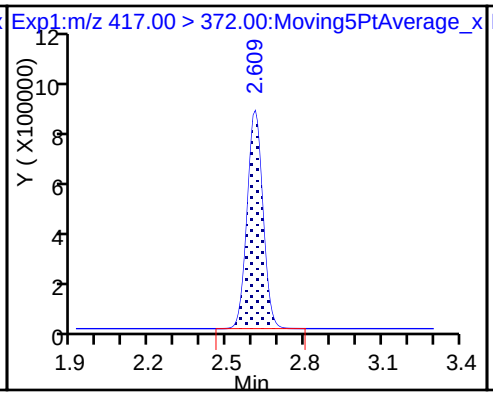
D 12 M2-6:2FTS



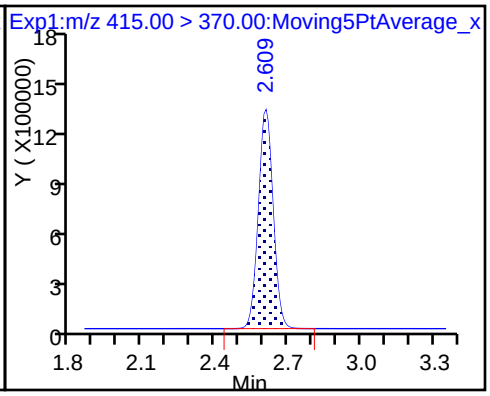
13 Sodium 1H,1H,2H,2H-perfluorooctane



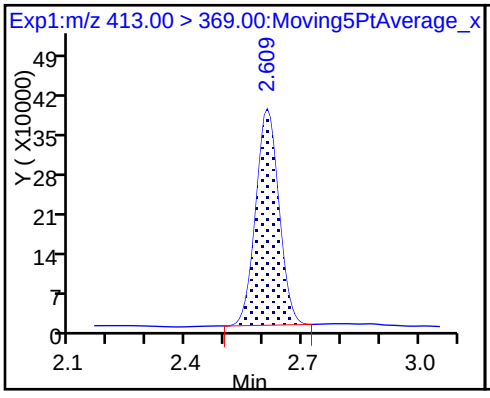
D 14 13C4 PFOA



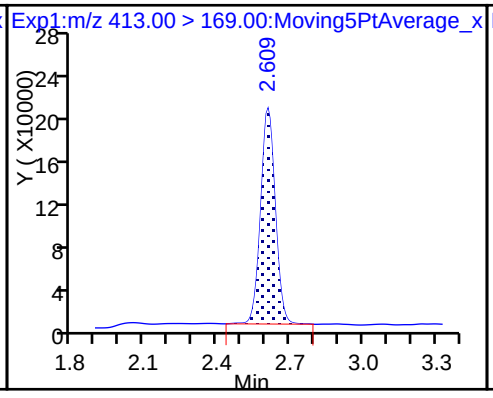
* 62 13C2-PFOA



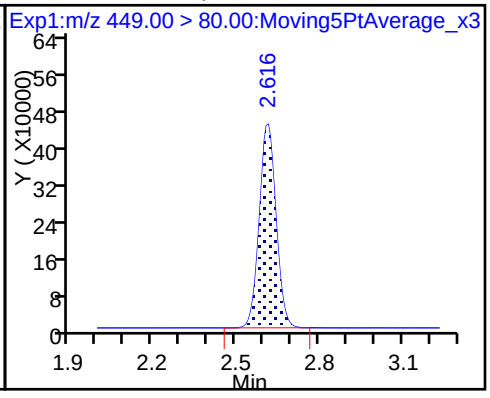
15 Perfluorooctanoic acid



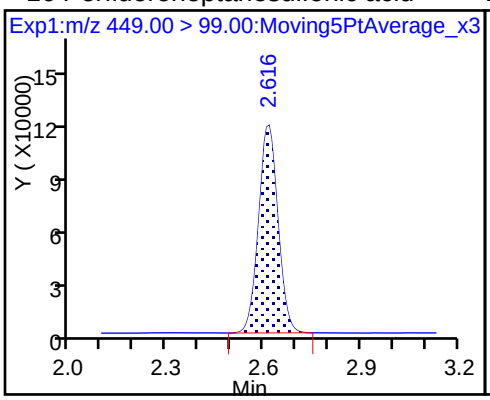
15 Perfluorooctanoic acid



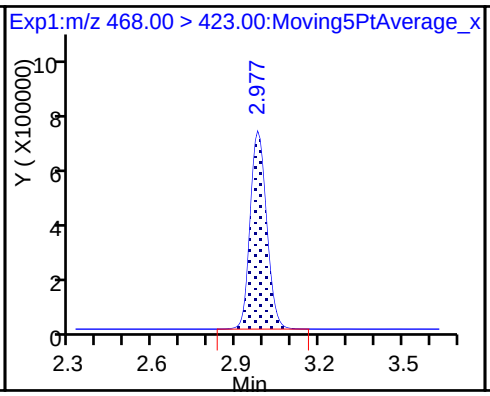
16 Perfluoroheptanesulfonic acid



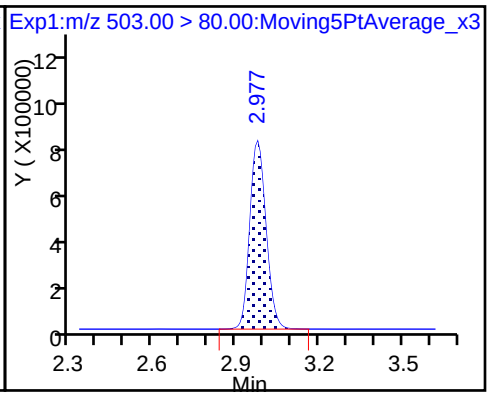
16 Perfluoroheptanesulfonic acid



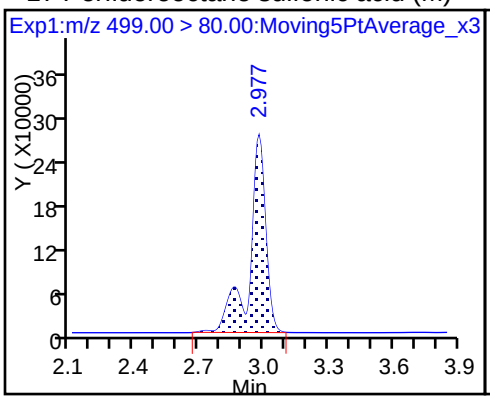
D 19 13C5 PFNA



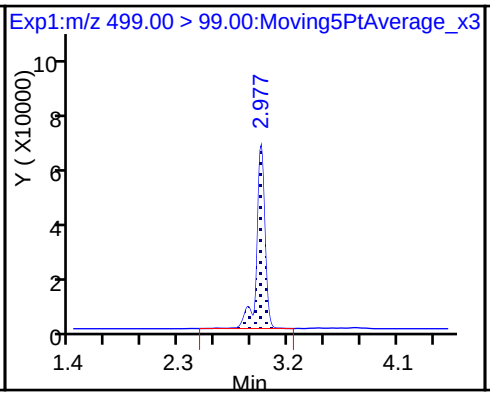
D 18 13C4 PFOS



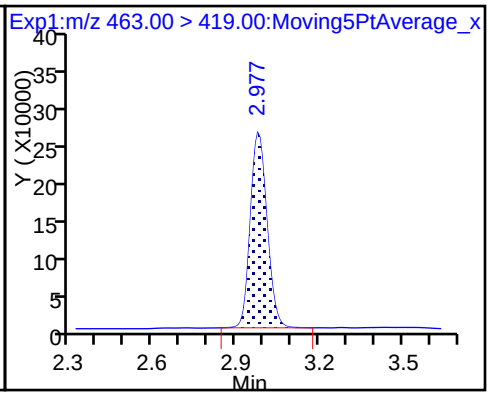
17 Perfluorooctane sulfonic acid (M)



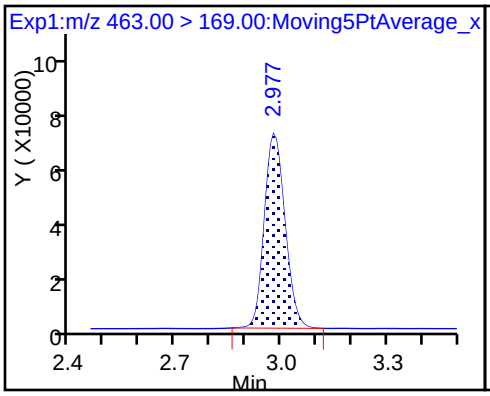
17 Perfluorooctane sulfonic acid



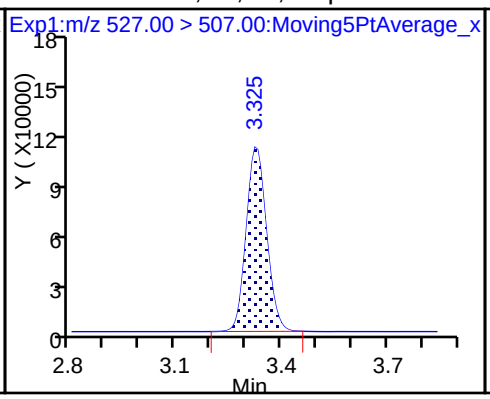
20 Perfluorononanoic acid



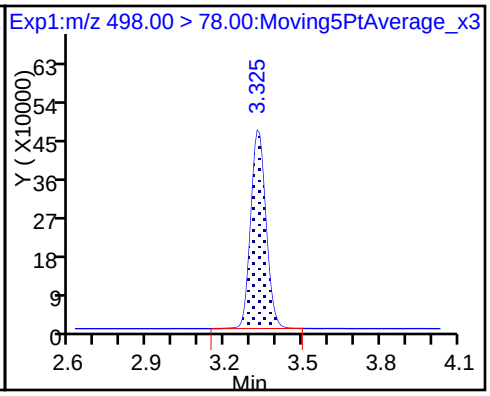
20 Perfluorononanoic acid



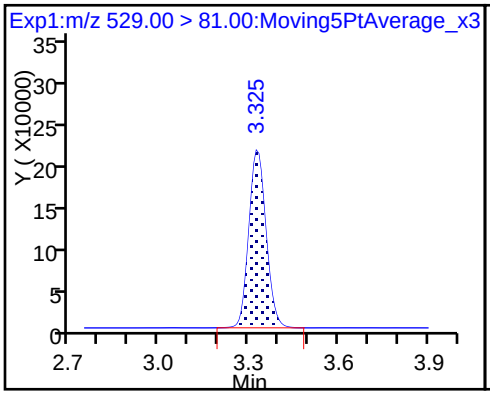
25 Sodium 1H,1H,2H,2H-perfluorodecane



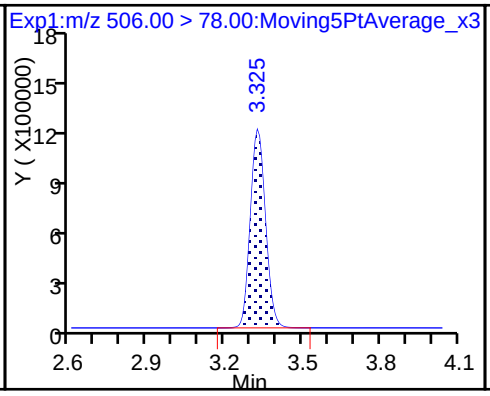
22 Perfluorooctane Sulfonamide



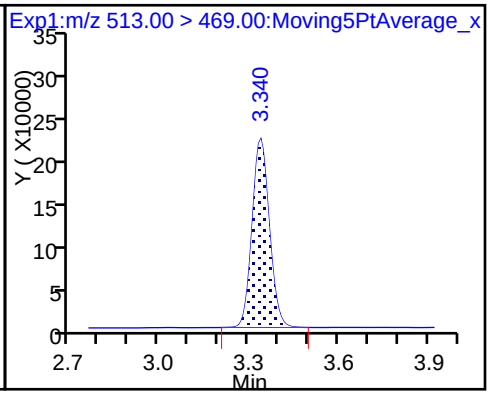
D 26 M2-8:2FTS



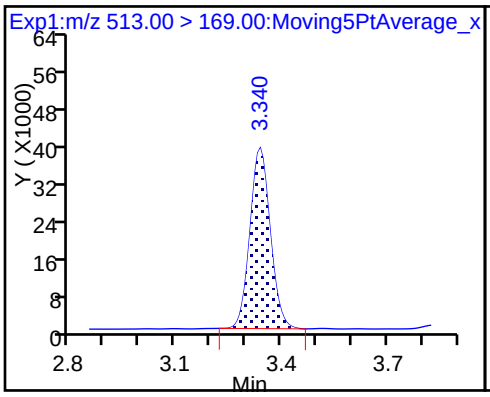
D 21 13C8 FOSA



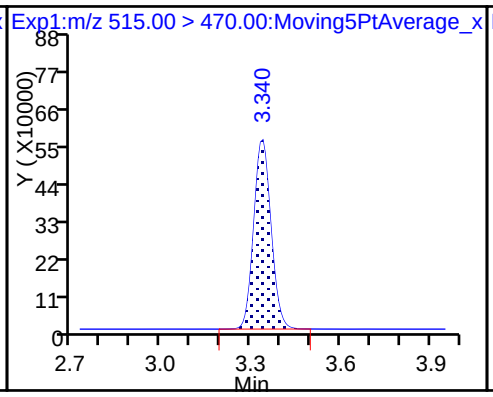
24 Perfluorodecanoic acid



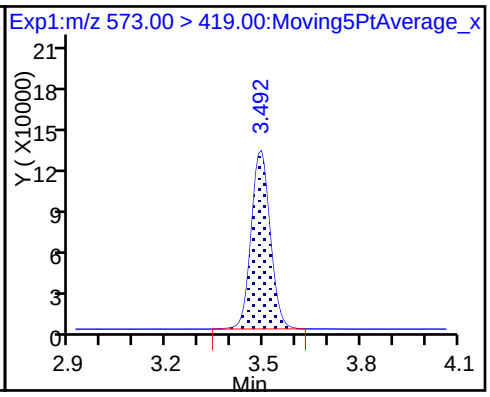
24 Perfluorodecanoic acid



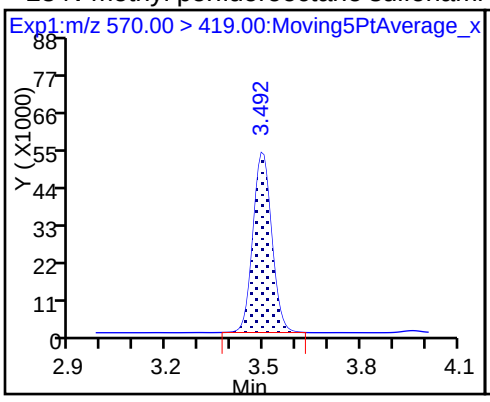
D 23 13C2 PFDA



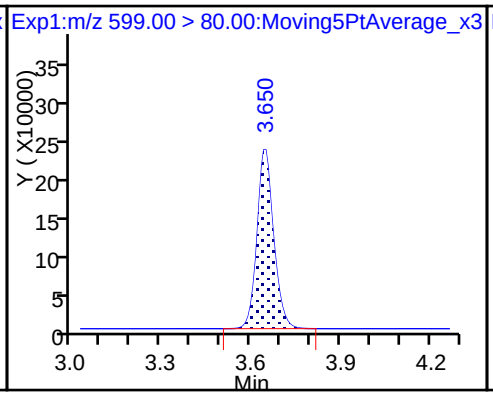
D 27 d3-NMeFOSAA



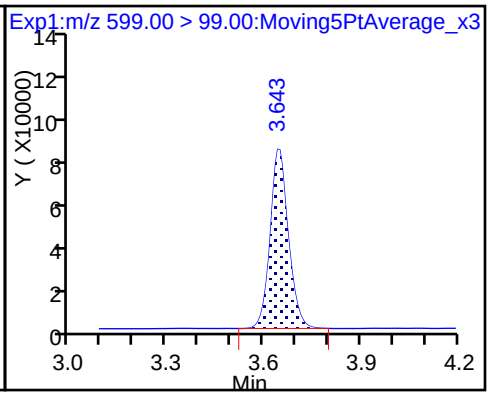
28 N-methyl perfluorooctane sulfonami



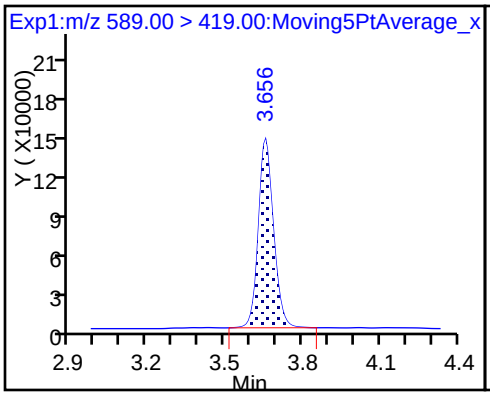
29 Perfluorodecane Sulfonic acid



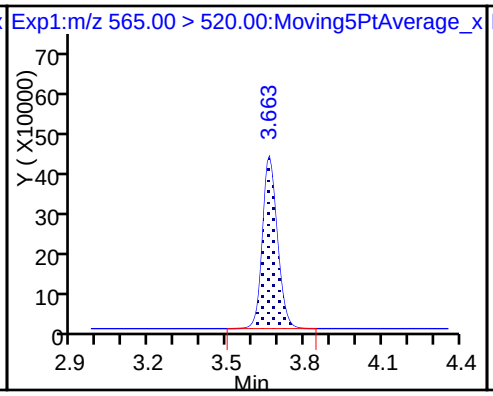
29 Perfluorodecane Sulfonic acid



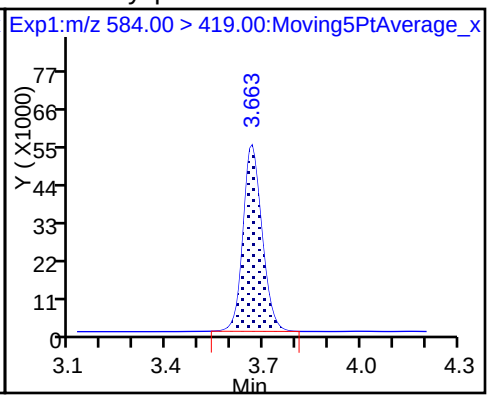
D 32 d5-NEtFOSAA



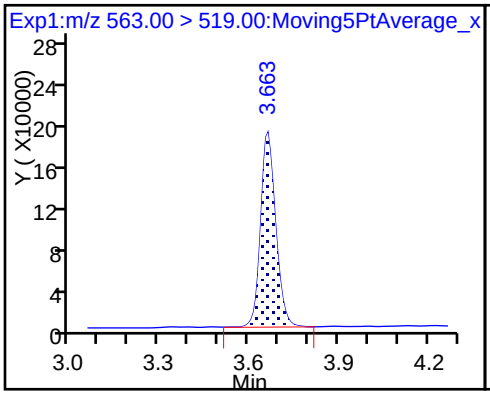
D 30 13C2 PFUnA



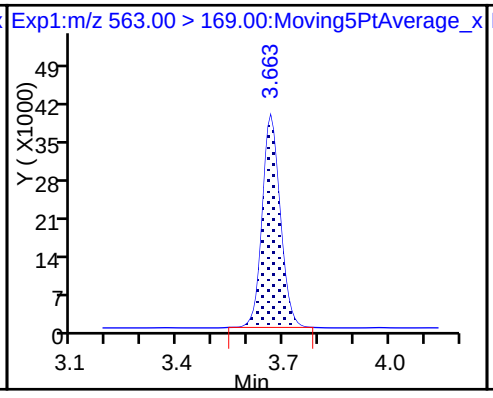
33 N-ethyl perfluorooctane sulfonamid



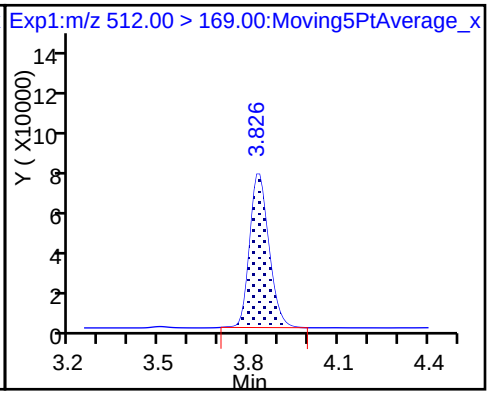
31 Perfluoroundecanoic acid



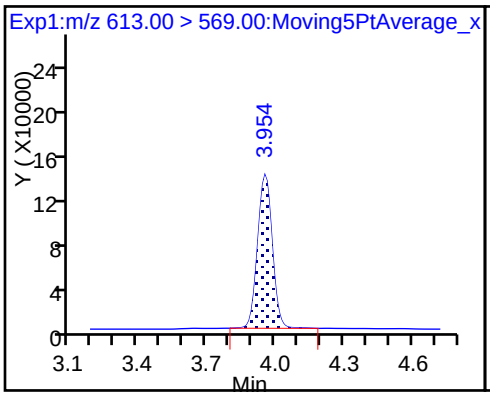
31 Perfluoroundecanoic acid



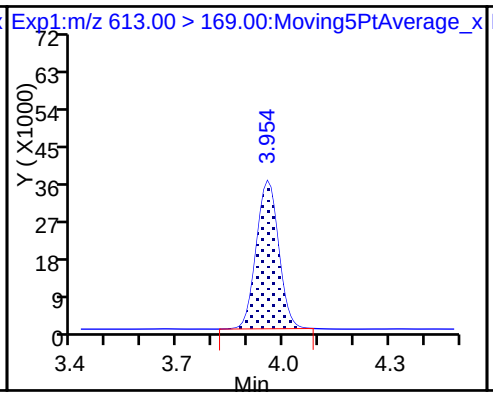
35 MeFOSA



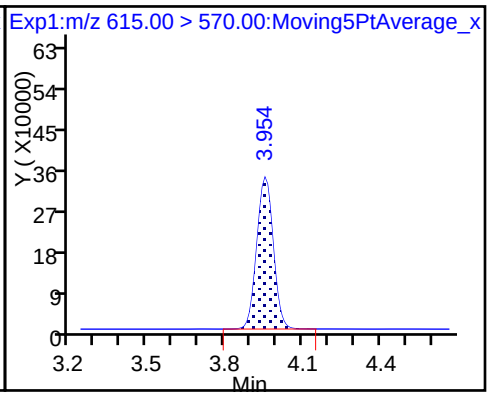
37 Perfluorododecanoic acid



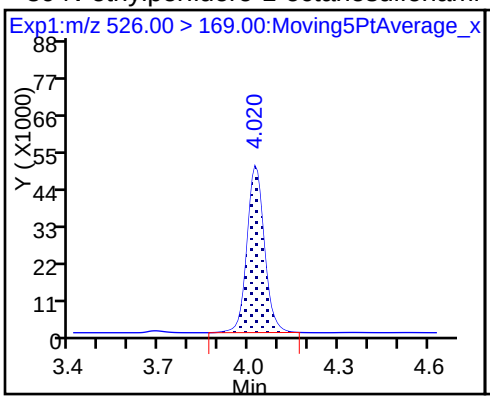
37 Perfluorododecanoic acid



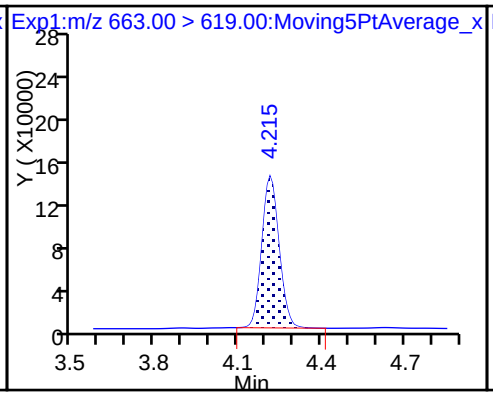
D 36 13C2 PFDoA



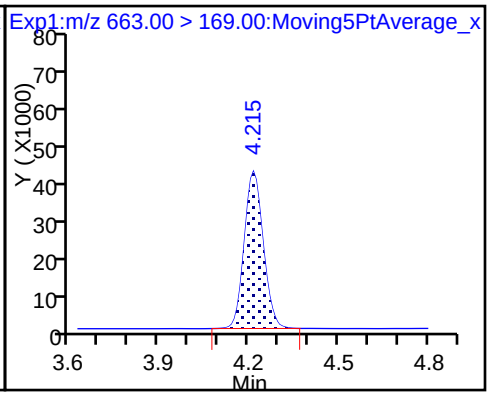
39 N-ethylperfluoro-1-octanesulfonami



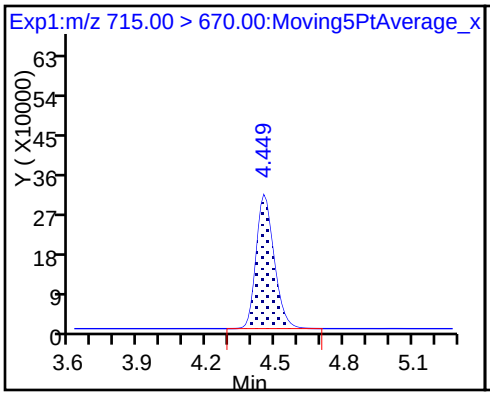
41 Perfluorotridecanoic acid



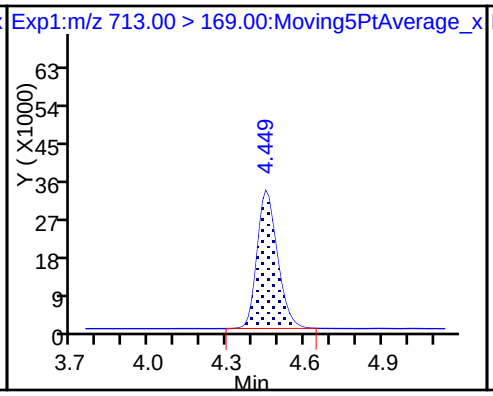
41 Perfluorotridecanoic acid



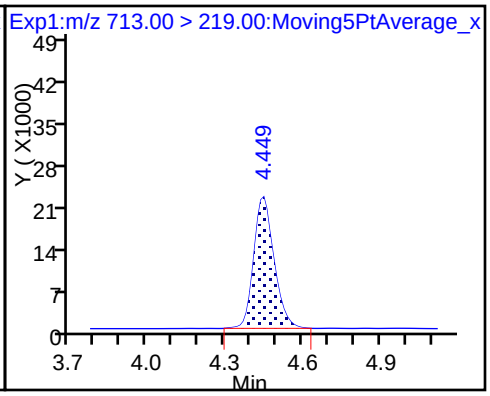
D 43 13C2-PFTeDA



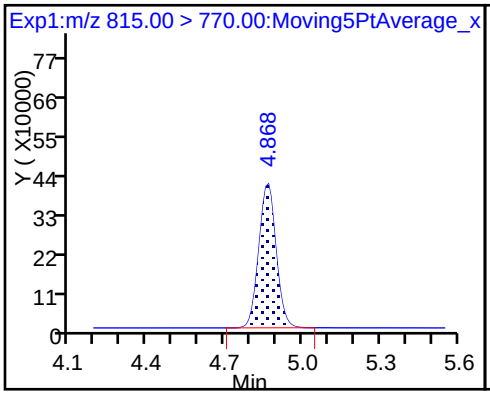
42 Perfluorotetradecanoic acid



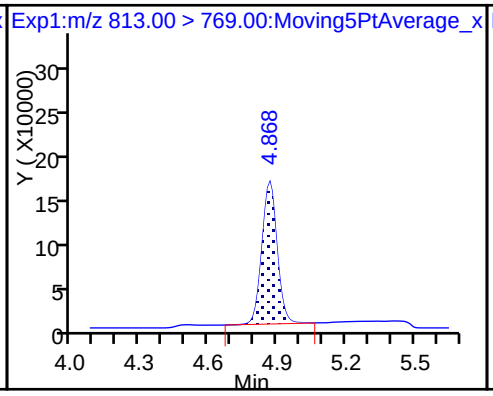
42 Perfluorotetradecanoic acid



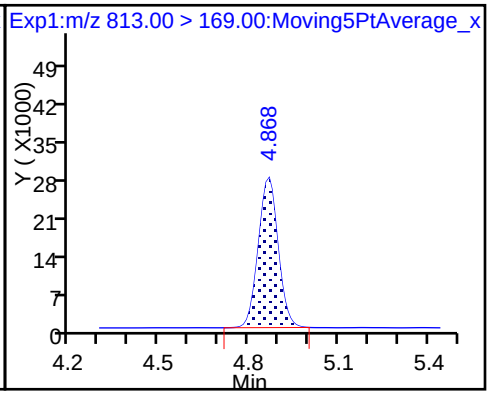
D 44 13C2-PFHxDA



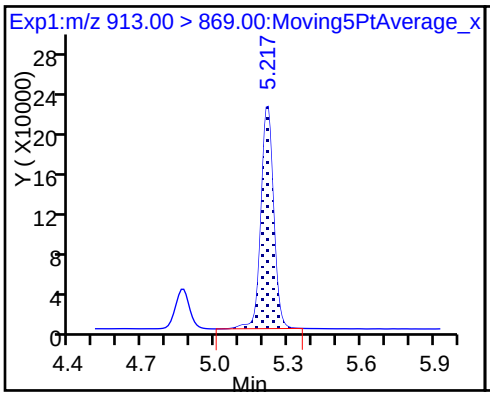
45 Perfluorohexadecanoic acid



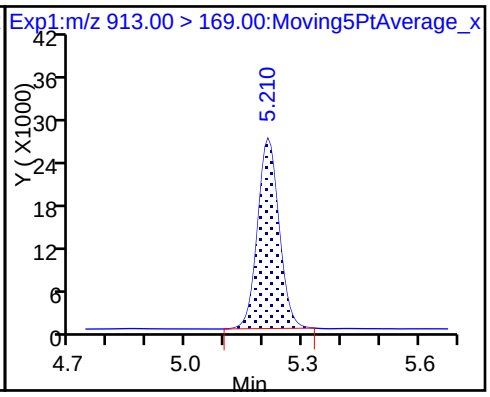
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

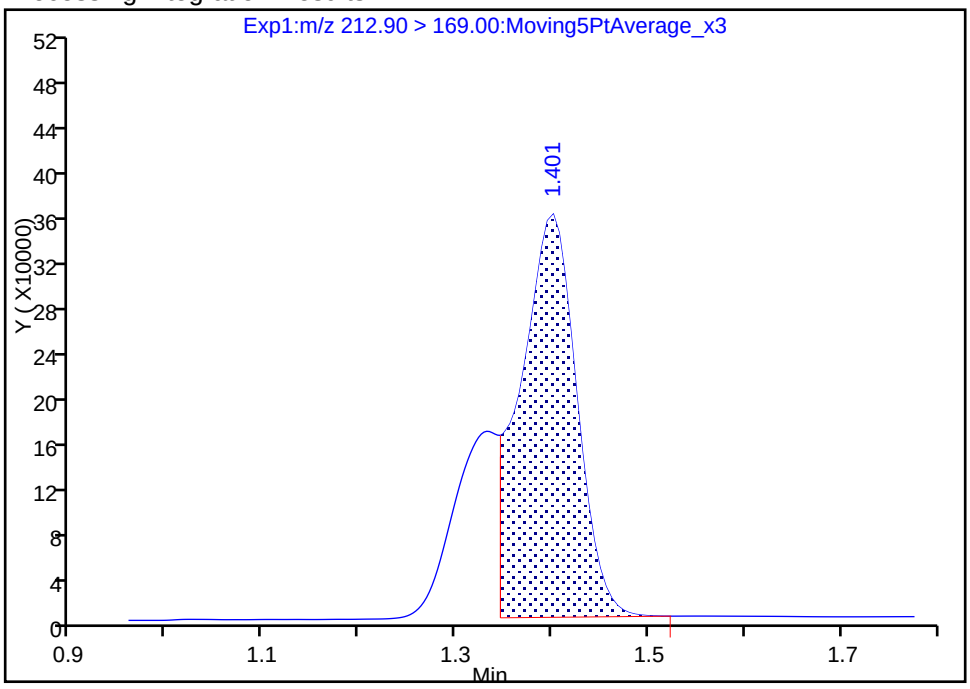
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_010.d
Injection Date: 16-Feb-2018 16:20:16 Instrument ID: A8_N
Lims ID: LCS 320-208463/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

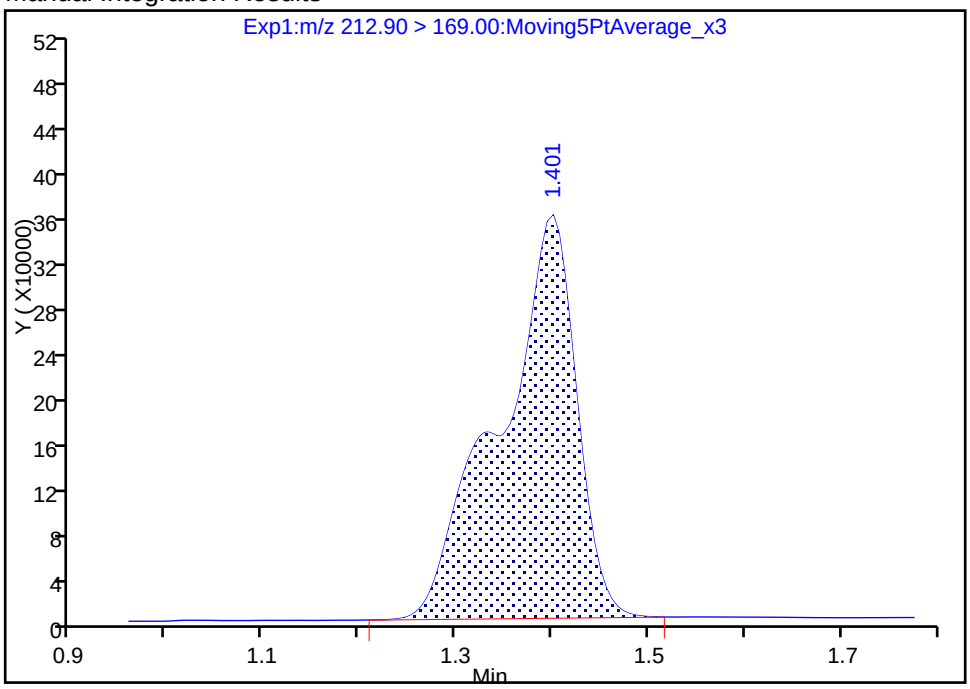
Processing Integration Results

RT: 1.40
Area: 1424056
Amount: 0.732620
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 1952038
Amount: 1.004246
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:05:09
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

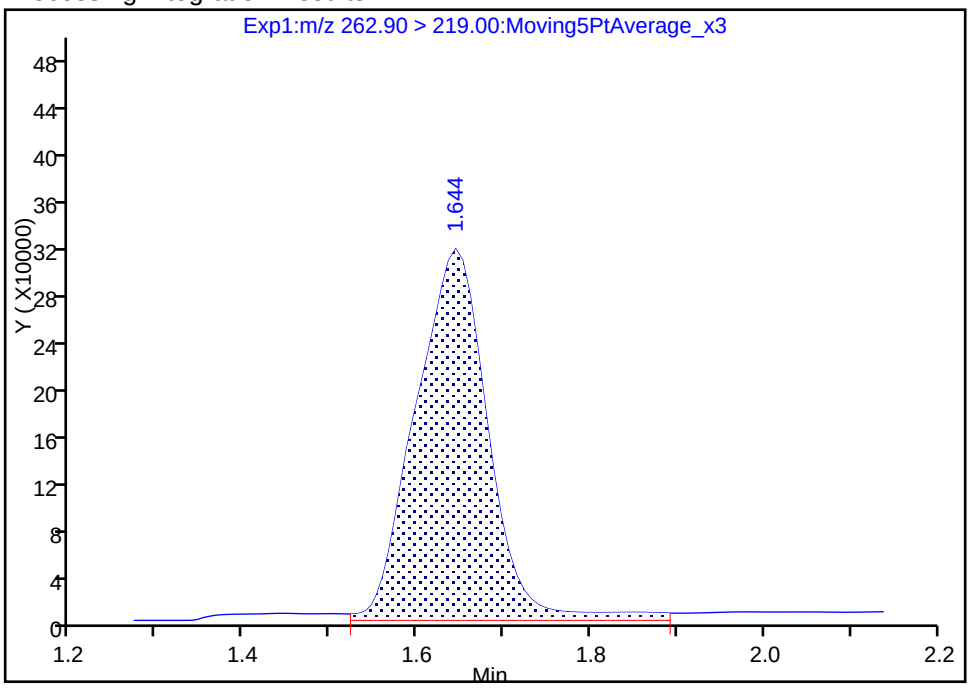
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_010.d
Injection Date: 16-Feb-2018 16:20:16 Instrument ID: A8_N
Lims ID: LCS 320-208463/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

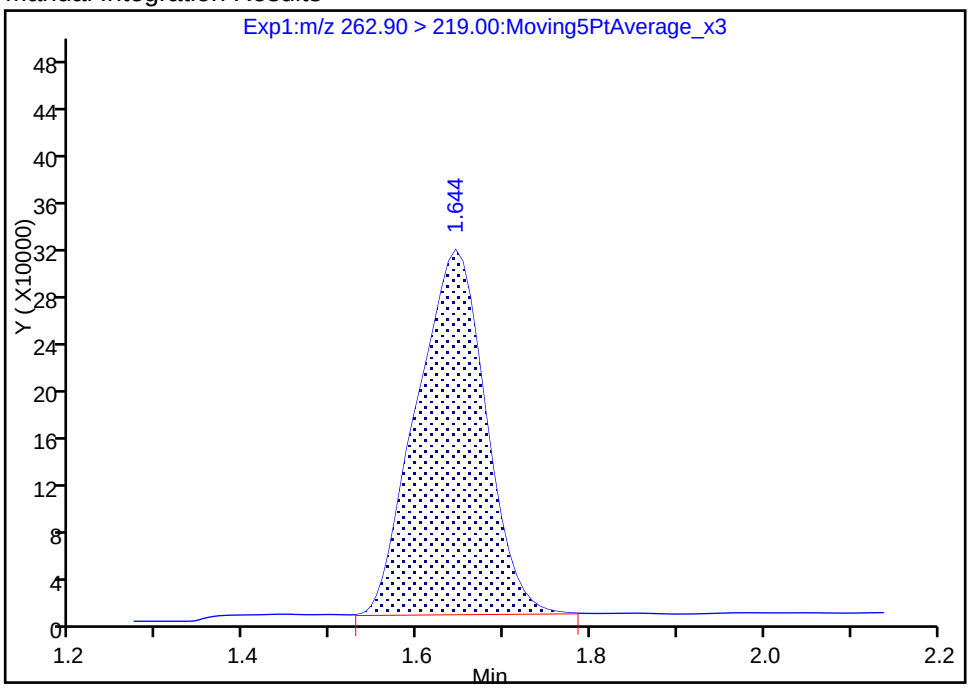
Processing Integration Results

RT: 1.64
Area: 1834965
Amount: 1.013767
Amount Units: ng/ml



Manual Integration Results

RT: 1.64
Area: 1705367
Amount: 0.942168
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:05:30
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

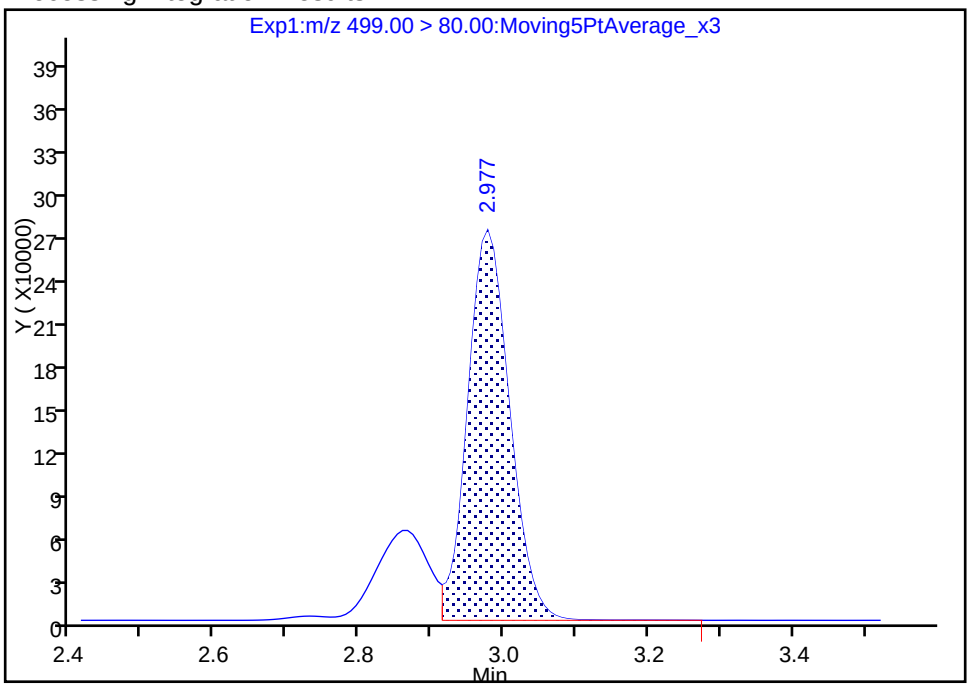
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_010.d
Injection Date: 16-Feb-2018 16:20:16 Instrument ID: A8_N
Lims ID: LCS 320-208463/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

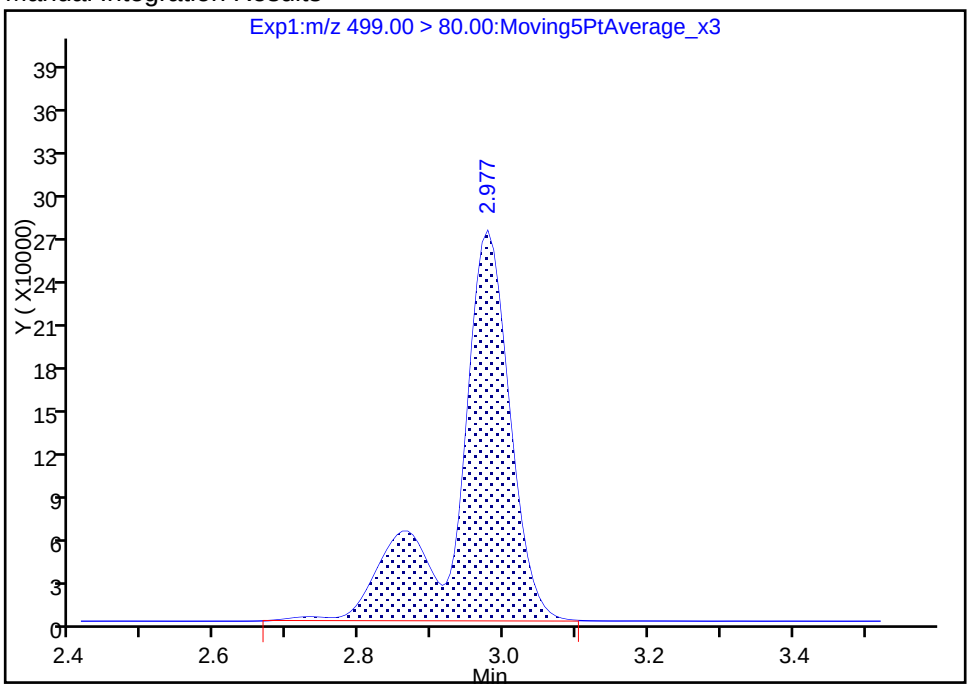
Processing Integration Results

RT: 2.98
Area: 1082720
Amount: 0.735838
Amount Units: ng/ml



Manual Integration Results

RT: 2.98
Area: 1391982
Amount: 0.946018
Amount Units: ng/ml



Reviewer: roycea, 17-Feb-2018 09:52:01
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

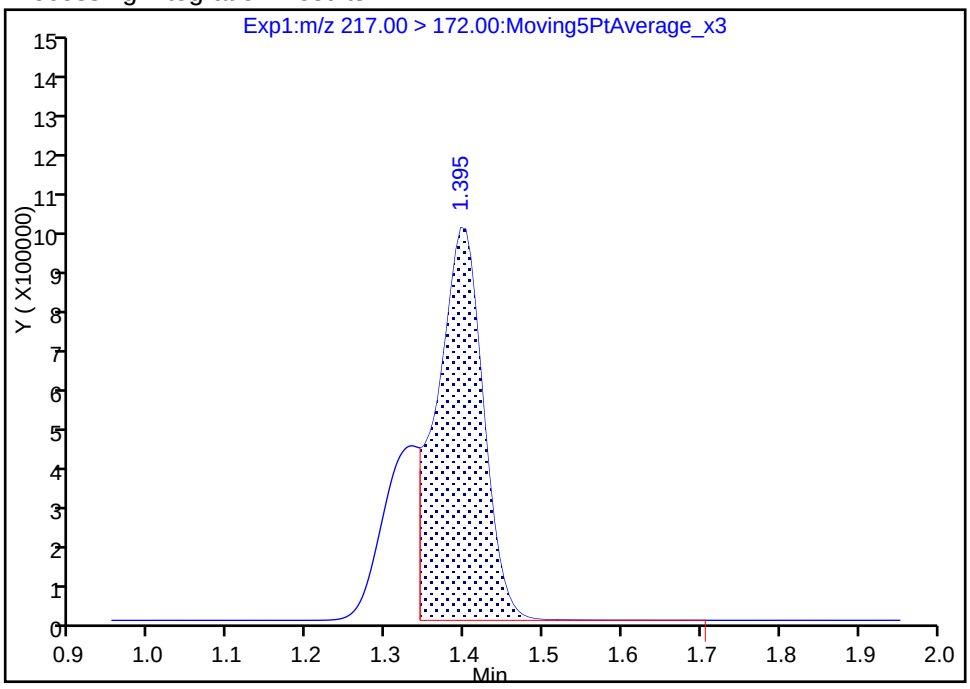
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_010.d
Injection Date: 16-Feb-2018 16:20:16 Instrument ID: A8_N
Lims ID: LCS 320-208463/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

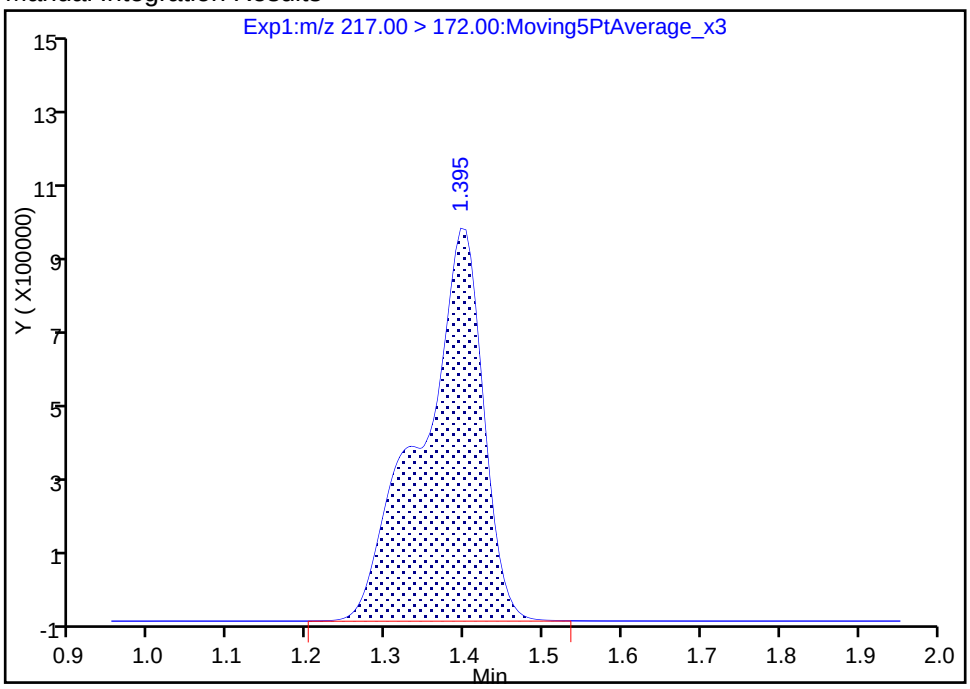
Processing Integration Results

RT: 1.40
Area: 3849163
Amount: 1.364240
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 5189261
Amount: 1.839205
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:04:42
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 320-207074/3-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_039.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:33

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	40.5	M	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	38.6		2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	39.0		2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	41.0		2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	41.8		2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	40.1		2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	40.1		2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	37.7		2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	38.3		2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	40.9		4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	44.4		4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	40.7		2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	35.8		2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	39.1		2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	38.1		4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	38.1		2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	41.5		4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 320-207074/3-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_039.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:33

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	95		25-150
STL00992	13C4 PFBA	108		25-150
STL00993	13C2 PFHxA	108		25-150
STL00990	13C4 PFOA	102		25-150
STL00995	13C5 PFNA	106		25-150
STL00996	13C2 PFDA	113		25-150
STL00997	13C2 PFUnA	109		25-150
STL00998	13C2 PFDoA	104		25-150
STL00994	18O2 PFHxS	103		25-150
STL00991	13C4 PFOS	103		25-150
STL02116	13C2-PFTeDA	111		25-150
STL01892	13C4-PFHpA	106		25-150
STL01893	13C5 PFPeA	103		25-150
STL02337	13C3-PFBS	97		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_039.d
Lims ID: LCSD 320-207074/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 07-Feb-2018 13:33:30 ALS Bottle#: 32 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-207074/3-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 08-Feb-2018 16:42:42 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 08-Feb-2018 14:18:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.424	1.412	0.012	0.542	7089953	2.69		108	24417	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.430	1.412	0.018	1.004	2720593	1.01		101	410	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.676	1.660	0.016	1.000	1882606	0.9641		96.4	1424	
D 3 13C5-PFPeA										
267.90 > 223.00	1.676	1.660	0.016	0.638	4105332	2.56		103	47675	
D 47 13C3-PFBS										
301.90 > 83.00	1.712	1.695	0.017	0.652	80399	2.25		96.6	2999	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.712	1.695	0.017	1.000	2705431	1.02		115	15479	
298.90 > 99.00	1.712	1.695	0.017	1.000	1102468		2.45(1.25-3.74)		10440	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.918	1.899	0.019	1.000	527802	0.9476		101	24517	
D 7 13C2 PFHxA										
315.00 > 270.00	1.960	1.930	0.030	0.746	4649136	2.69		108	31513	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.960	1.940	0.020	1.000	1877087	0.9759		97.6	4502	
313.00 > 119.00	1.960	1.940	0.020	1.000	177698		10.56(5.03-15.10)		3562	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.273	2.262	0.011	1.000	1890510	1.03		103	3289	
363.00 > 169.00	2.273	2.262	0.011	1.000	708266		2.67(1.13-3.40)		4893	
D 9 13C4-PFHpA										
367.00 > 322.00	2.273	2.262	0.011	0.866	4431670	2.64		106	29906	
D 11 18O2 PFHxS										
403.00 > 84.00	2.286	2.275	0.011	0.871	5060250	2.44		103	56492	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.286	2.275	0.011	1.000	2175366	0.8943		98.3	8430	
399.00 > 99.00	2.286	2.275	0.011	1.000	726081		3.00(1.50-4.49)		3589	
D 12 M2-6:2FTS										
429.00 > 81.00	2.604	2.588	0.016	0.992	892564	2.51		106	22503	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.604	2.588	0.016	1.000	578531	0.8564		90.3	14234	
D 14 13C4 PFOA										
417.00 > 372.00	2.626	2.606	0.020	1.000	4194948	2.56		102	51554	
* 62 13C2-PFOA										
415.00 > 370.00	2.626	2.606	0.020		4564773	2.50			36023	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.626	2.606	0.020	1.000	1996841	1.04		104	946	
413.00 > 169.00	2.626	2.606	0.020	1.000	1036522		1.93(0.84-2.52)		8228	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.633	2.613	0.020	1.000	1875206	0.9784		103	25815	
449.00 > 99.00	2.633	2.613	0.020	1.000	516204		3.63(1.94-5.82)		9839	
D 18 13C4 PFOS										
503.00 > 80.00	2.997	2.976	0.021	1.141	3363732	2.47		103	19773	
D 19 13C5 PFNA										
468.00 > 423.00	2.997	2.976	0.021	1.141	3537535	2.65		106	45057	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.997	2.976	0.021	1.000	1480520	0.9530		103	1871	
499.00 > 99.00	2.997	2.976	0.021	1.000	314894		4.70(2.31-6.93)		2031	
20 Perfluorononanoic acid										
463.00 > 419.00	2.997	2.976	0.021	1.000	1444806	1.00		100	2370	
463.00 > 169.00	2.997	2.976	0.021	1.000	348405		4.15(1.90-5.69)		8330	
D 26 M2-8:2FTS										
529.00 > 81.00	3.343	3.316	0.027	1.273	1116864	2.82		118	21644	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.343	3.323	0.020	1.000	560000	0.9777		102	17560	
D 21 13C8 FOSA										
506.00 > 78.00	3.343	3.331	0.012	1.273	4449753	2.37		94.6	28313	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.343	3.331	0.012	1.000	1828702	1.04		104	9945	
D 23 13C2 PFDA										
515.00 > 470.00	3.350	3.331	0.019	1.276	3238465	2.82		113	31690	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.350	3.331	0.019	1.000	1327906	1.00		100	5685	
513.00 > 169.00	3.350	3.331	0.019	1.000	237048		5.60(2.36-7.09)		2040	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.503	3.483	0.020	1.334	1581325	2.55		102	15390	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.503	3.491	0.012	1.000	694754	1.02		102	4956	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.652	3.641	0.011	1.000	884599	0.9520		98.8	15022	
599.00 > 99.00	3.652	3.641	0.011	1.000	315676		2.80(1.39-4.16)		13489	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.666	3.648	0.018	1.396	1601852	2.51		101	9010	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.666	3.655	0.011	1.000	635997	1.07		107	7306	
D 30 13C2 PFUnA										
565.00 > 520.00	3.666	3.655	0.011	1.396	2433104	2.74		109	29129	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.666	3.655	0.011	1.000	943906	0.9419		94.2	3725	
563.00 > 169.00	3.666	3.655	0.011	1.000	192384		4.91(0.00-0.00)		5903	
35 MeFOSA										
512.00 > 169.00	3.837	3.875	-0.038		488723	NR		0.0	2347	
D 36 13C2 PFDoA										
615.00 > 570.00	3.966	3.952	0.014	1.511	2373347	2.61		104	20931	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.966	3.952	0.014	1.000	956103	0.9585		95.9	4471	
613.00 > 169.00	3.966	3.952	0.014	1.000	242200		3.95(2.13-6.40)		7972	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.030	4.066	-0.036		463223	NR		0.0	3028	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.226	4.204	0.022	1.000	1082208	1.02		102	3230	
663.00 > 169.00	4.226	4.204	0.022	1.000	355364		3.05(1.25-3.76)		11474	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.462	4.443	0.019	1.699	3103519	2.77		111	19939	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.462	4.443	0.019	1.000	341597	1.11		111	8776	
713.00 > 219.00	4.462	4.443	0.019	1.000	237933		1.44(0.71-2.13)		8629	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.878	4.862	0.016	1.000	1824238	0.9264		92.6	1674	
813.00 > 169.00	4.878	4.862	0.016	1.000	326585		5.59(2.86-8.58)		3771	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.878	4.862	0.016	1.858	5049242	2.61		104	16670	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.233	5.199	0.034	1.000	2310917	1.03		103	591	
913.00 > 169.00	5.233	5.199	0.034	1.000	276846		8.35(0.00-0.00)		1376	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

Report Date: 08-Feb-2018 16:42:48 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_039.d

Injection Date: 07-Feb-2018 13:33:30 Instrument ID: A8_N

Lims ID: LCSD 320-207074/3-A

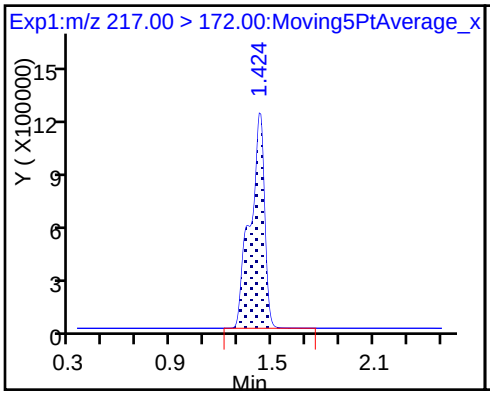
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 4

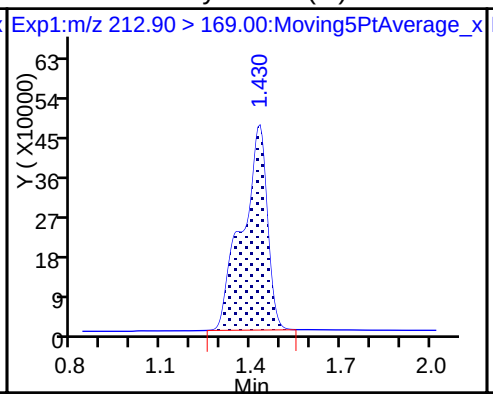
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

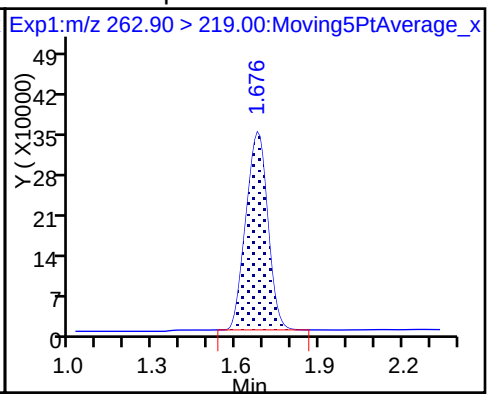
D 1 13C4 PFBA



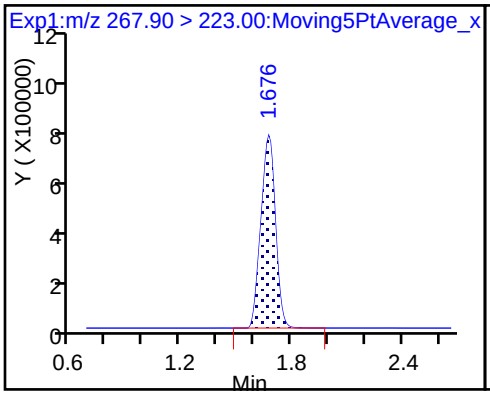
2 Perfluorobutyric acid (M)



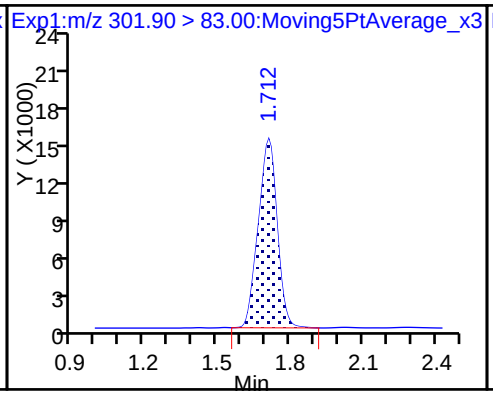
4 Perfluoropentanoic acid



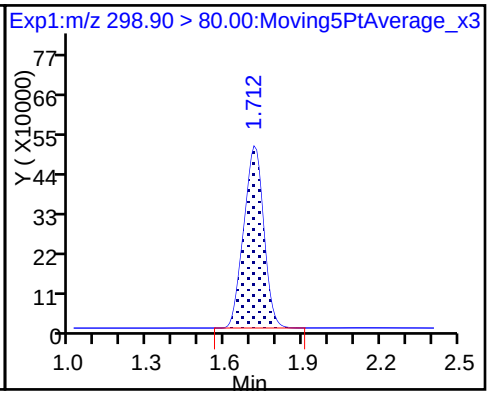
D 3 13C5-PFPeA



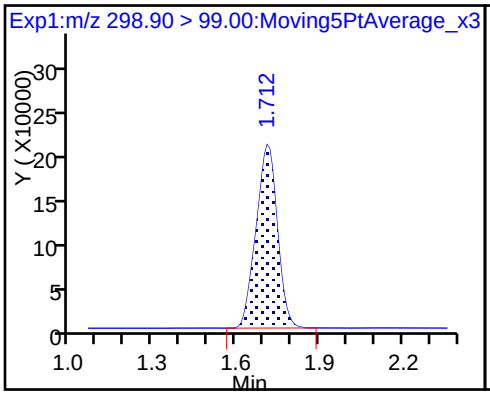
D 47 13C3-PFBS



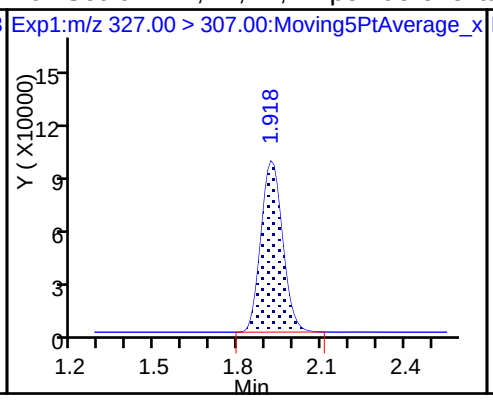
5 Perfluorobutanesulfonic acid



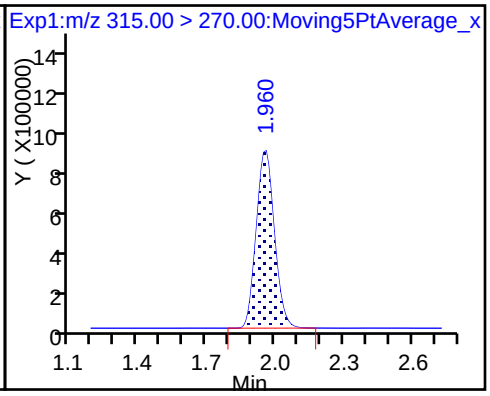
5 Perfluorobutanesulfonic acid



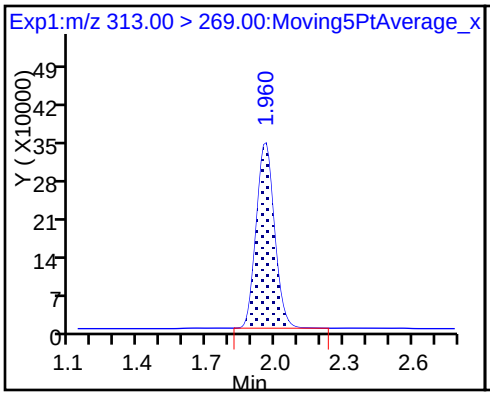
61 Sodium 1H,1H,2H,2H-perfluorohexa



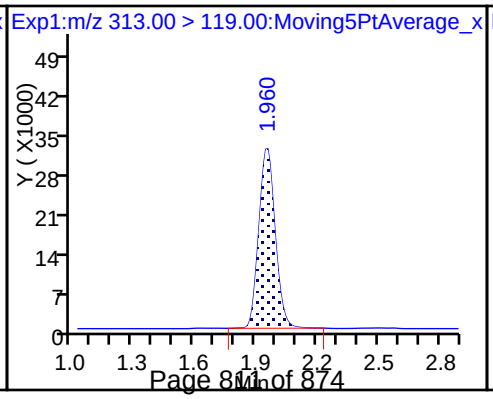
D 7 13C2 PFHxA



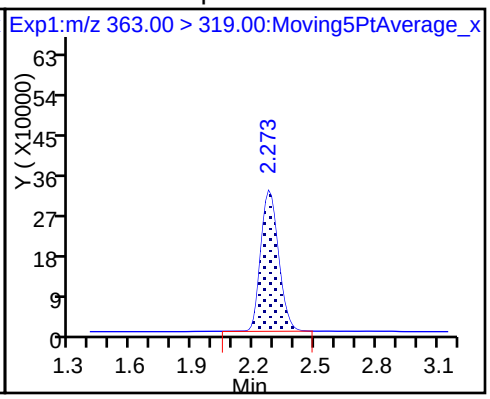
6 Perfluorohexanoic acid



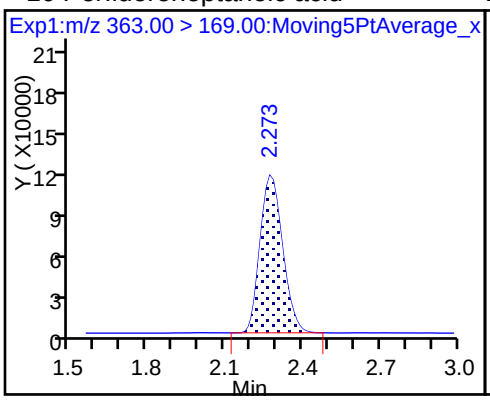
6 Perfluorohexanoic acid



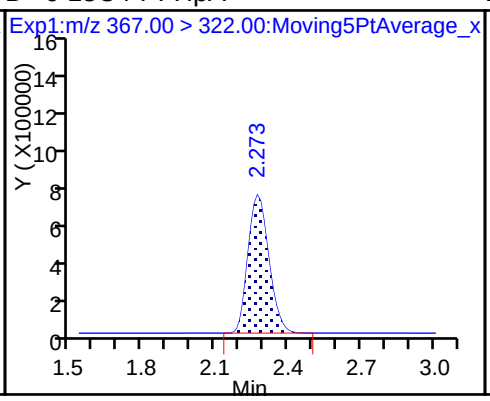
10 Perfluoroheptanoic acid



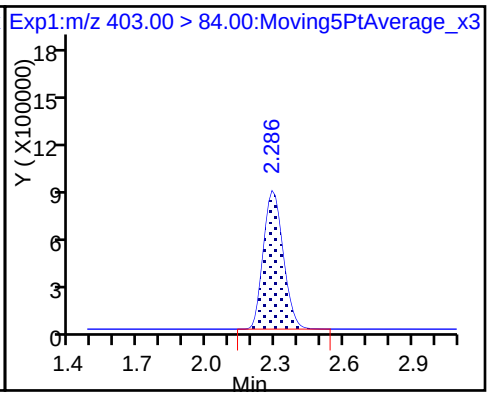
10 Perfluoroheptanoic acid



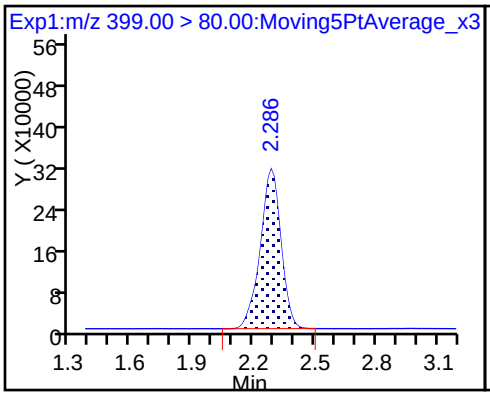
D 9 13C4-PFHpA



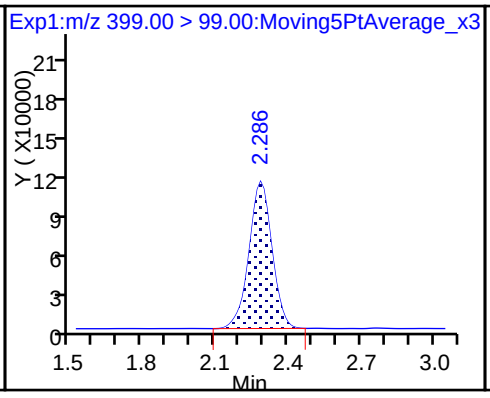
D 11 18O2 PFHxS



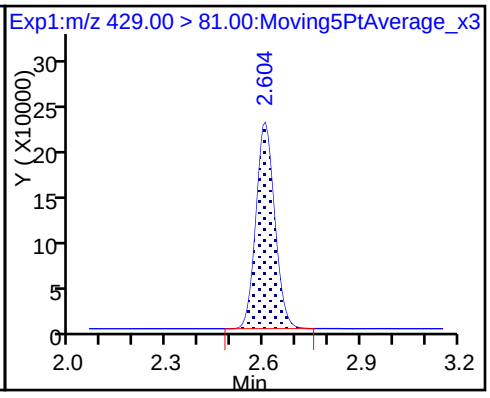
8 Perfluorohexanesulfonic acid



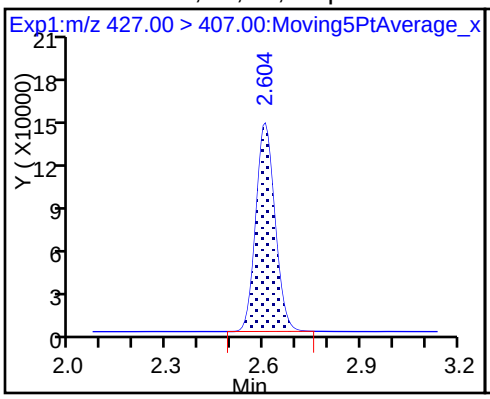
8 Perfluorohexanesulfonic acid



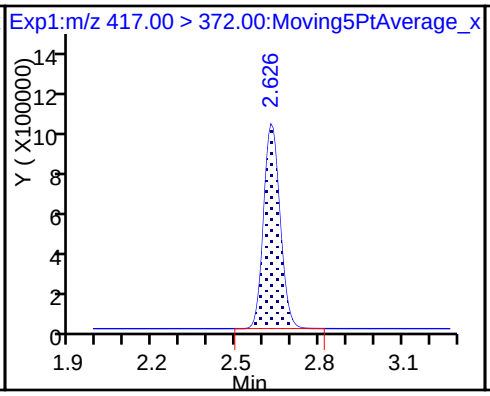
D 12 M2-6:2FTS



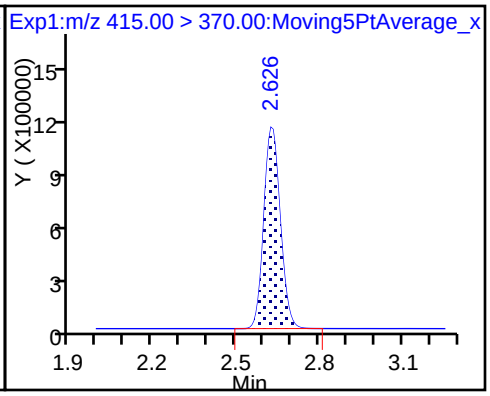
13 Sodium 1H,1H,2H,2H-perfluorooctane



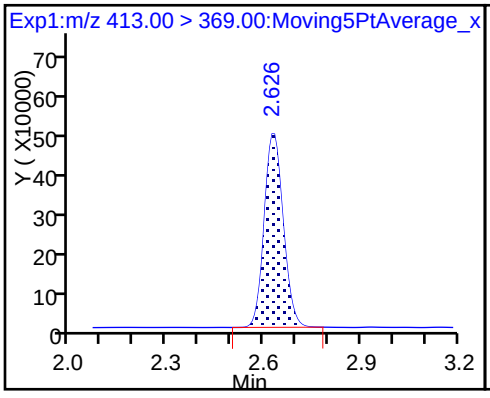
D 14 13C4 PFOA



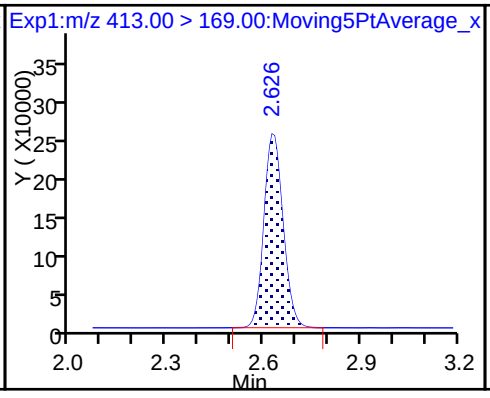
* 62 13C2-PFOA



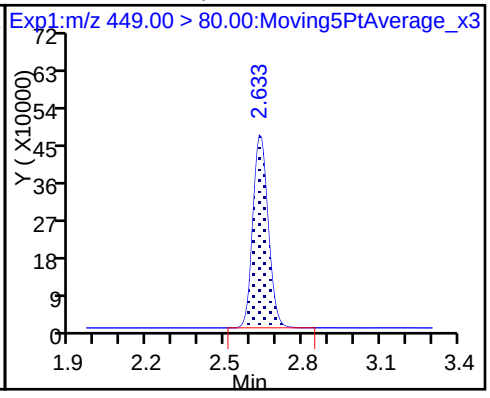
15 Perfluorooctanoic acid



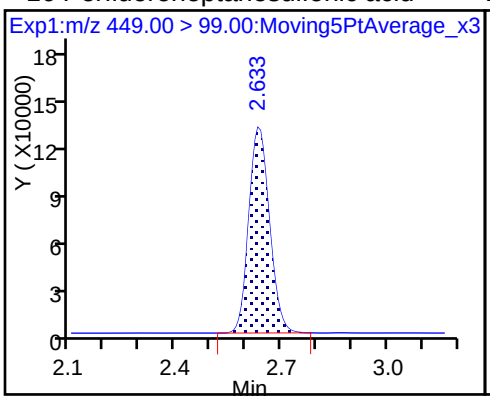
15 Perfluorooctanoic acid



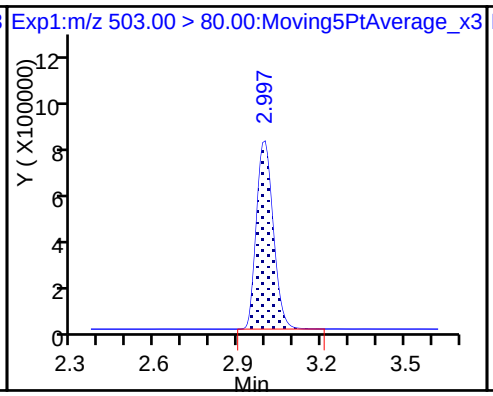
16 Perfluoroheptanesulfonic acid



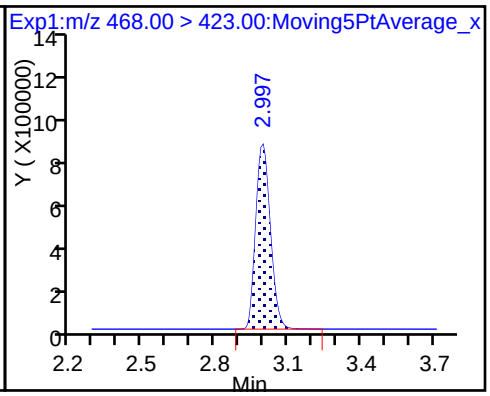
16 Perfluoroheptanesulfonic acid



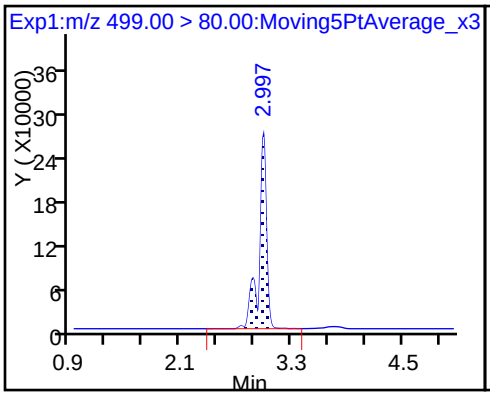
D 18 13C4 PFOS



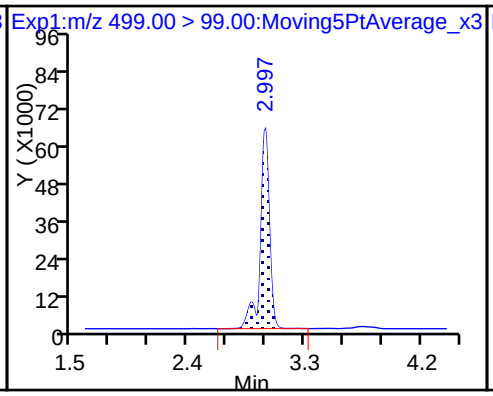
D 19 13C5 PFNA



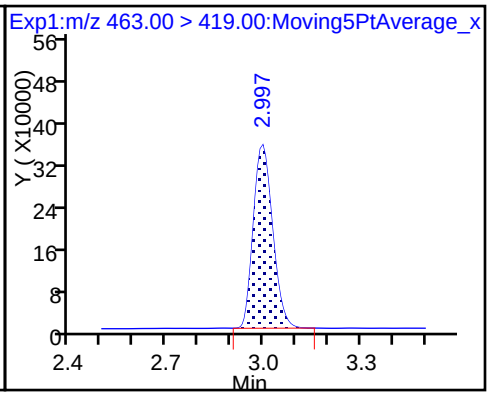
17 Perfluorooctane sulfonic acid



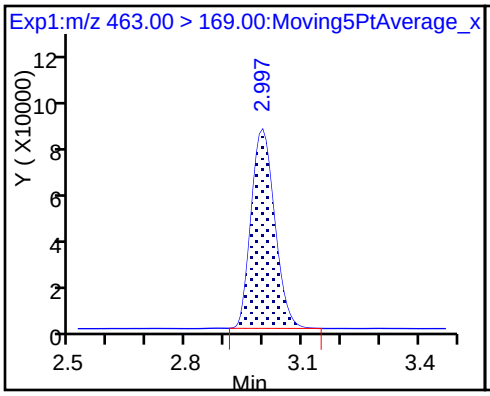
17 Perfluorooctane sulfonic acid



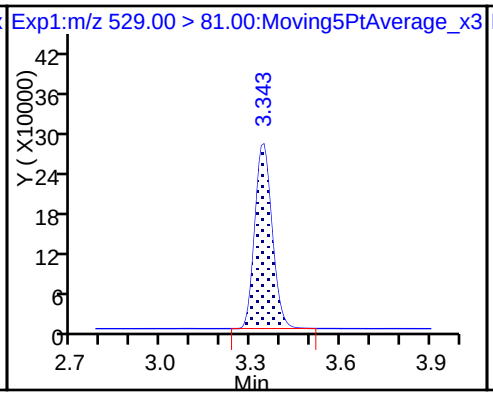
20 Perfluorononanoic acid



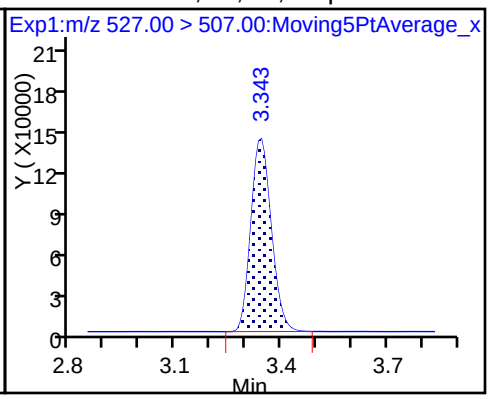
20 Perfluorononanoic acid



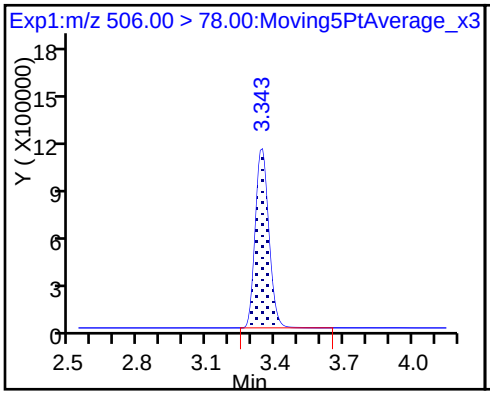
D 26 M2-8:2FTS



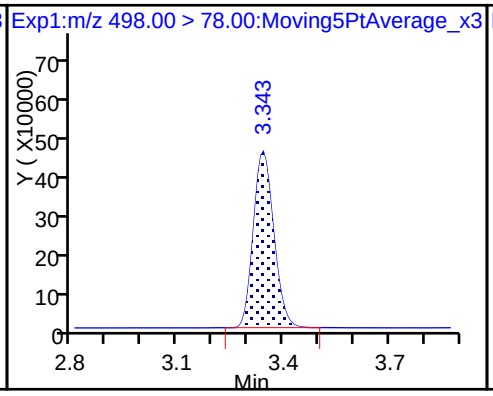
25 Sodium 1H,1H,2H,2H-perfluorodecane



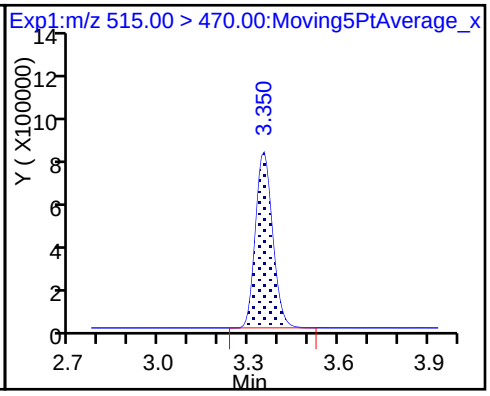
D 21 13C8 FOSA



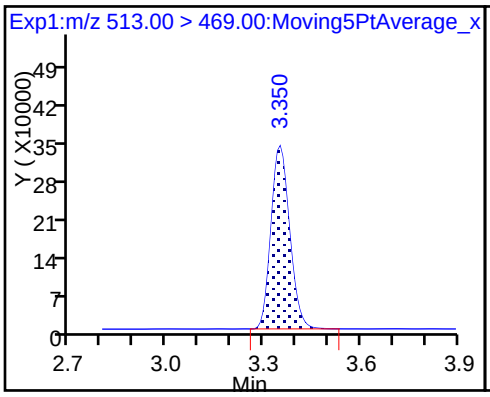
22 Perfluorooctane Sulfonamide



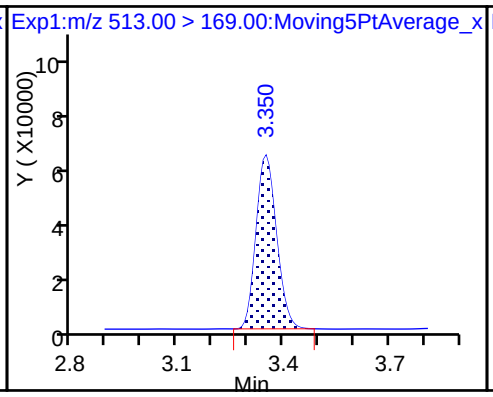
D 23 13C2 PFDA



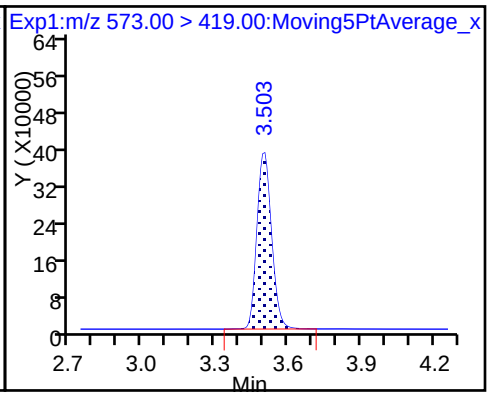
24 Perfluorodecanoic acid



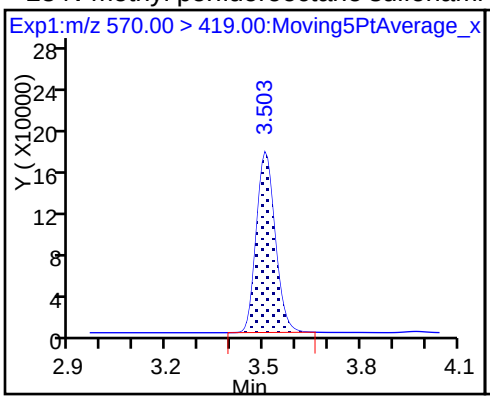
24 Perfluorodecanoic acid



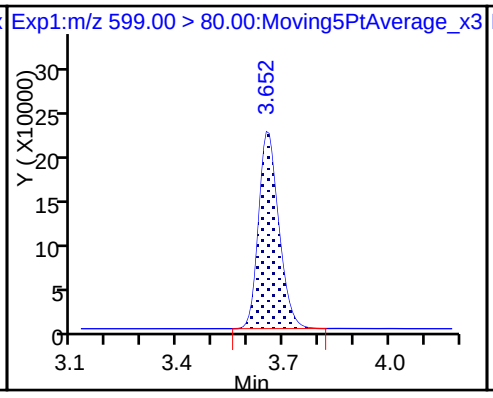
D 27 d3-NMeFOSAA



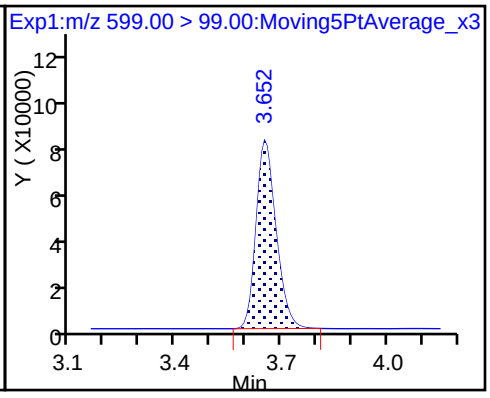
28 N-methyl perfluorooctane sulfonami



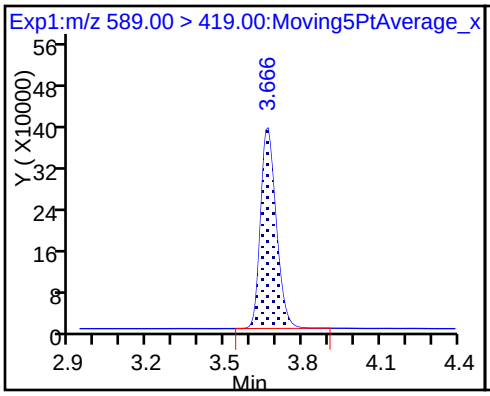
29 Perfluorodecane Sulfonic acid



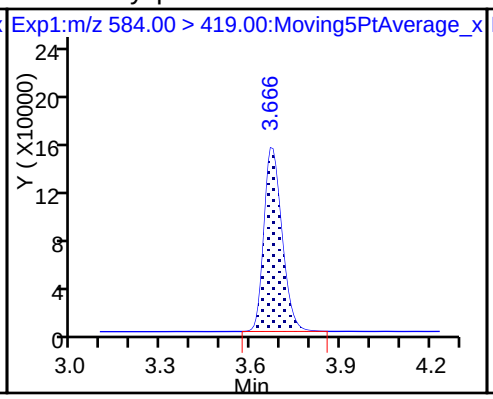
29 Perfluorodecane Sulfonic acid



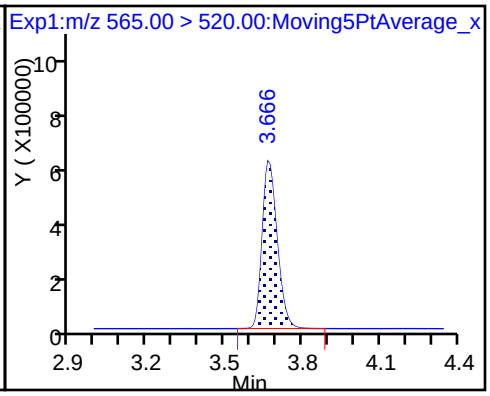
D 32 d5-NEtFOSAA



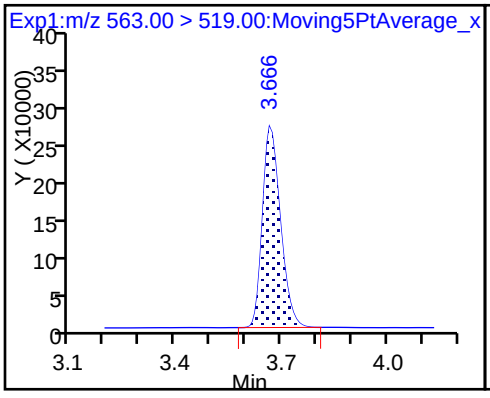
33 N-ethyl perfluorooctane sulfonamid



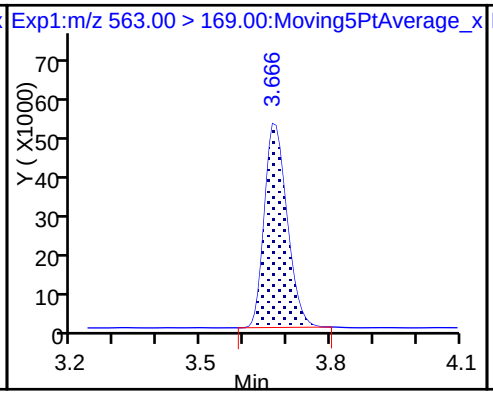
D 30 13C2 PFUnA



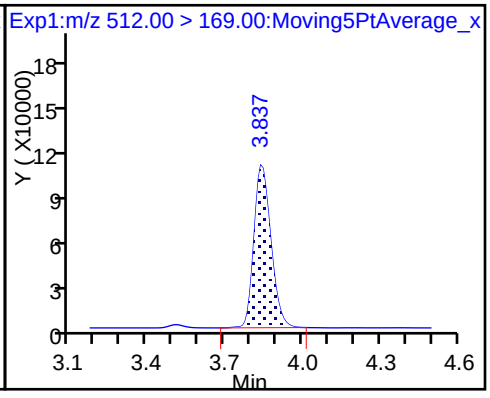
31 Perfluoroundecanoic acid



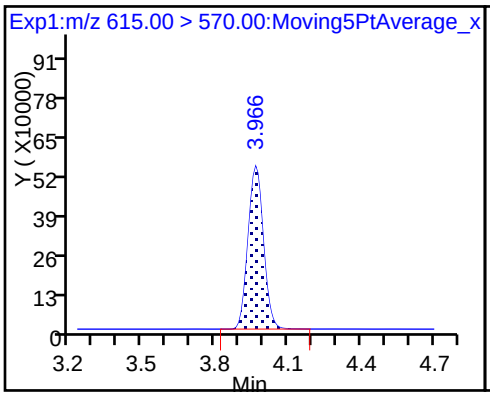
31 Perfluoroundecanoic acid



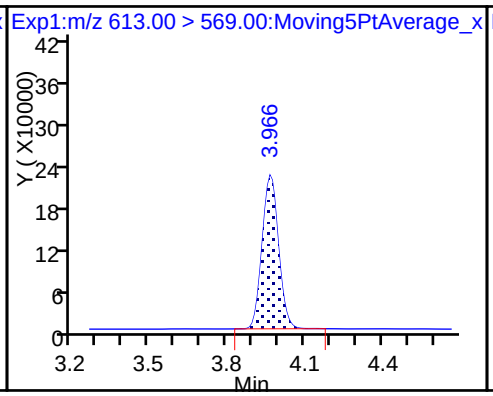
35 MeFOSA



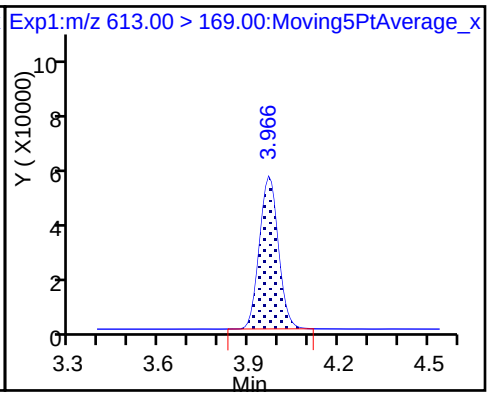
D 36 13C2 PFDoA



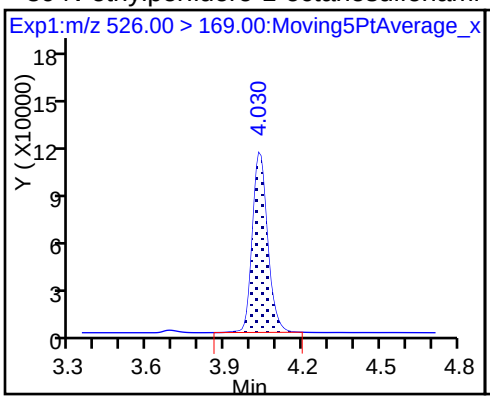
37 Perfluorododecanoic acid



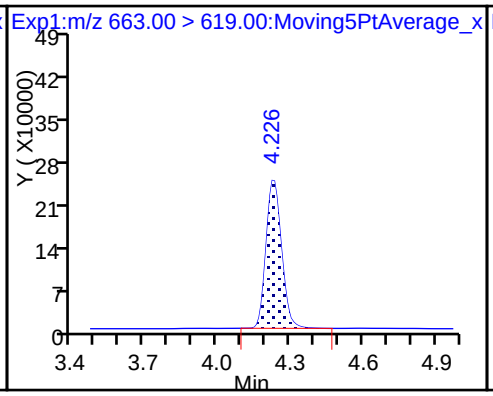
37 Perfluorododecanoic acid



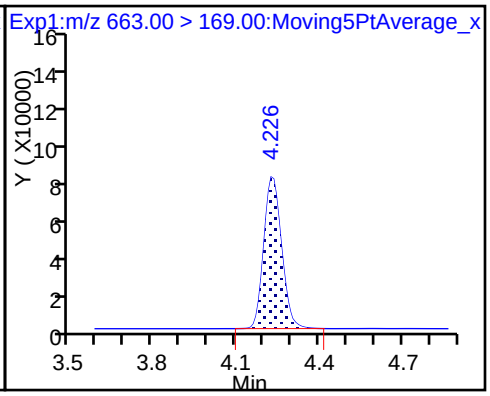
39 N-ethylperfluoro-1-octanesulfonami



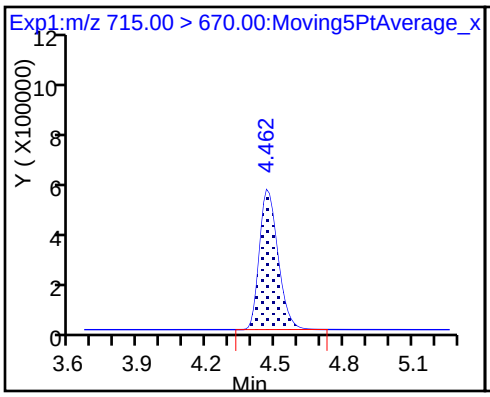
41 Perfluorotridecanoic acid



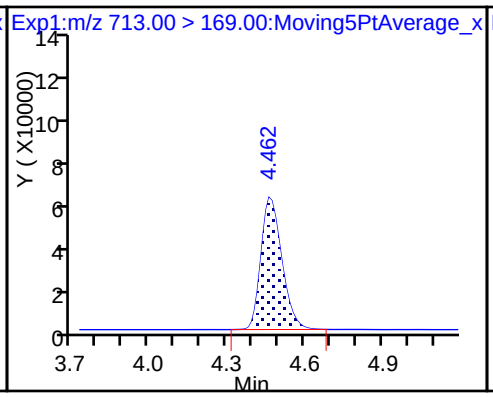
41 Perfluorotridecanoic acid



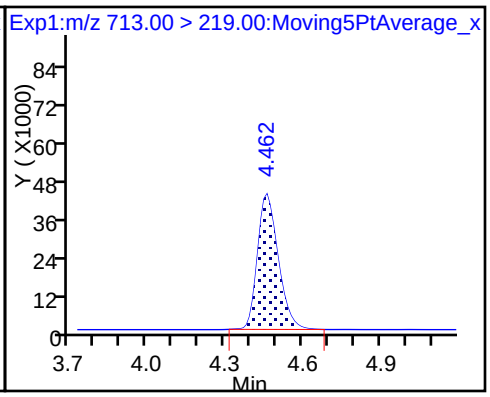
D 43 13C2-PFTeDA



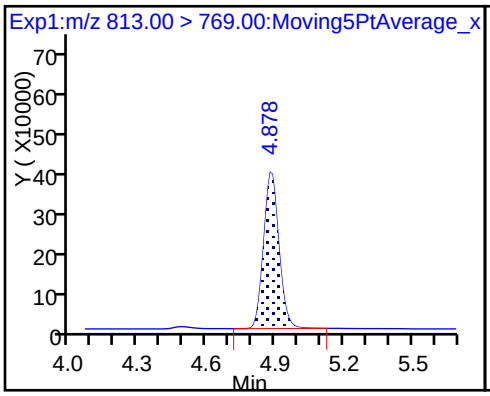
42 Perfluorotetradecanoic acid



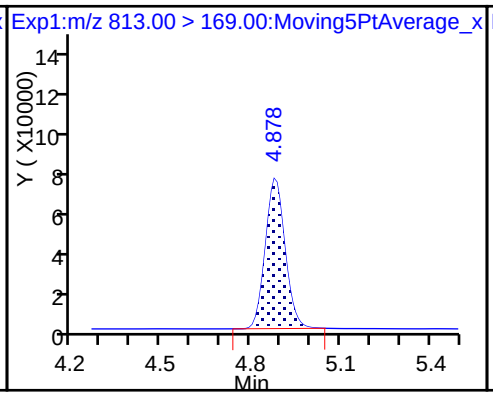
42 Perfluorotetradecanoic acid



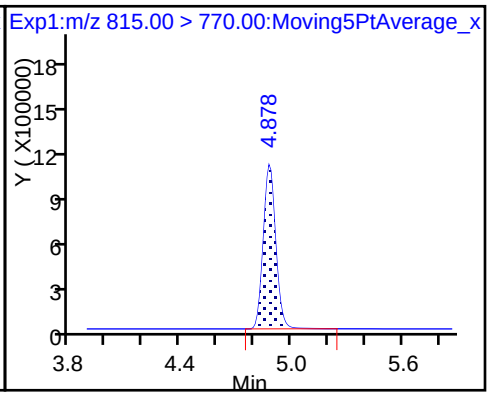
45 Perfluorohexadecanoic acid



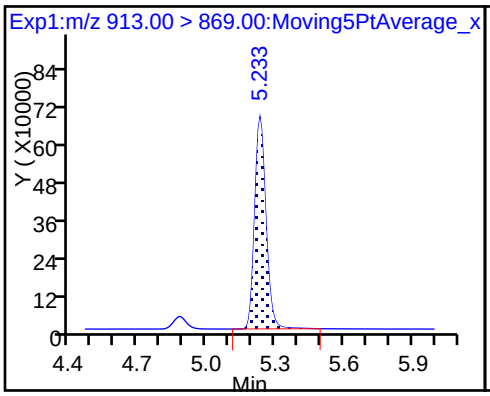
45 Perfluorohexadecanoic acid



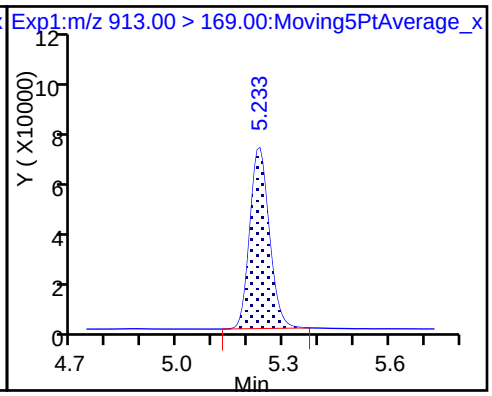
D 44 13C2-PFHxDA



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

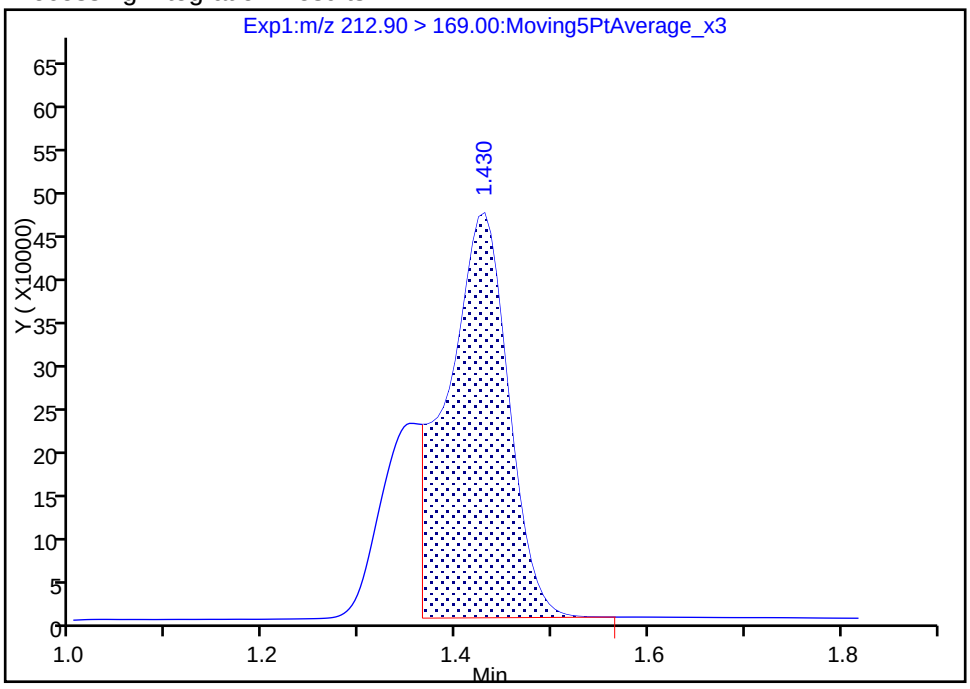
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b\2018.02.07LLAA_039.d
Injection Date: 07-Feb-2018 13:33:30 Instrument ID: A8_N
Lims ID: LCSD 320-207074/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

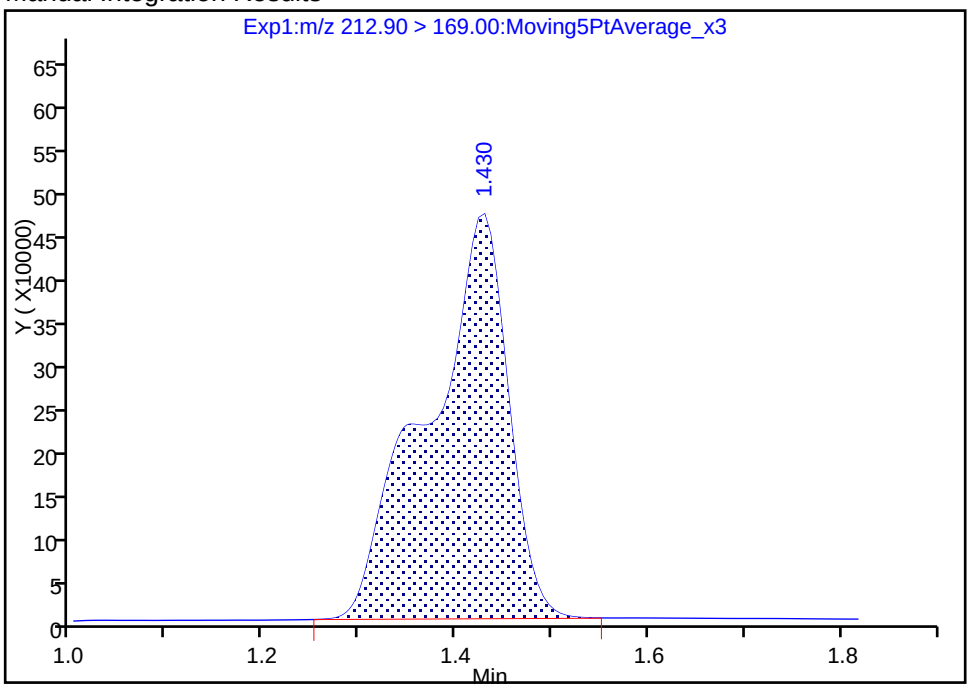
Processing Integration Results

RT: 1.43
Area: 2064209
Amount: 0.768146
Amount Units: ng/ml



Manual Integration Results

RT: 1.43
Area: 2720593
Amount: 1.012403
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 14:17:24
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 320-208463/3-A

Matrix: Water | Lab File ID: 2018.02.16LLA_011.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:28

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	37.8	M	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	35.2	M	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	36.2		2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	38.3		2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	37.8		2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	36.8		2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	38.1		2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	32.3		2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	41.3		2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	46.3		4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	39.3		4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36.2		2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	32.6		2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	37.2		2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34.4	M	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	35.9		2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	37.2		4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: Lab Sample ID: LCSD 320-208463/3-A

Matrix: Water Lab File ID: 2018.02.16LLA_011.d

Analysis Method: 537 (modified) Date Collected:

Extraction Method: 3535 Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) Date Analyzed: 02/16/2018 16:28

Con. Extract Vol.: 10.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	55		25-150
STL00992	13C4 PFBA	56	M	25-150
STL00993	13C2 PFHxA	58		25-150
STL00990	13C4 PFOA	57		25-150
STL00995	13C5 PFNA	57		25-150
STL00996	13C2 PFDA	58		25-150
STL00997	13C2 PFUnA	58		25-150
STL00998	13C2 PFDoA	48		25-150
STL00994	18O2 PFHxS	58		25-150
STL00991	13C4 PFOS	57		25-150
STL02116	13C2-PFTeDA	71		25-150
STL01892	13C4-PFHpA	58		25-150
STL01893	13C5 PFPeA	61		25-150
STL02337	13C3-PFBS	54		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_011.d
Lims ID: LCSD 320-208463/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 16-Feb-2018 16:28:05 ALS Bottle#: 32 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-208463/3-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 17-Feb-2018 13:11:25 Calib Date: 15-Feb-2018 15:14:13
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180215-54134.b\2018.02.15LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK009

First Level Reviewer: roycea Date: 17-Feb-2018 09:53:44

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
217.00 > 172.00	1.396	1.401	-0.005	0.535	5092470	1.41		56.2	38609	M
2 Perfluorobutyric acid										M
212.90 > 169.00	1.402	1.402	0.0	1.004	1804601	0.9460		94.6	307	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.644	1.644	0.0	1.000	1644606	0.8810		88.1	378	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.644	1.652	-0.008	0.630	3919256	1.52		60.6	63913	
D 47 13C3-PFBS										
301.90 > 83.00	1.679	1.679	0.0	0.644	86776	1.26		54.0	1413	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.679	1.679	0.0	1.000	2512704	0.9052		102	25161	
298.90 > 99.00	1.679	1.679	0.0	1.000	1003261		2.50(1.25-3.74)		6646	
61 Sodium 1H,1H,2H,2H-perfluorohexane										
327.00 > 307.00	1.892	1.892	0.0	1.000	609495	1.18		127	25046	
D 7 13C2 PFHxA										
315.00 > 270.00	1.923	1.922	0.001	0.737	4054968	1.46		58.3	80104	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.923	1.923	0.0	1.000	1511248	0.9042		90.4	2219	
313.00 > 119.00	1.923	1.923	0.0	1.000	145242		10.41(5.03-15.10)		2294	
D 9 13C4-PFHpA										
367.00 > 322.00	2.252	2.252	0.0	0.863	3798302	1.44		57.7	97618	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.252	2.252	0.0	1.000	1558218	0.9575		95.8	1925	
363.00 > 169.00	2.252	2.252	0.0	1.000	588856		2.65(1.13-3.40)		3773	
D 11 18O2 PFHxS										
403.00 > 84.00	2.265	2.265	0.0	0.868	5135586	1.38		58.5	98245	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.252	2.265	-0.013	0.994	1948982	0.8139		89.4	6348	
399.00 > 99.00	2.252	2.265	-0.013	0.994	632468		3.08(1.50-4.49)		1194	
D 12 M2-6:2FTS										
429.00 > 81.00	2.581	2.588	-0.007	0.990	908208	1.37		57.8	22241	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.581	2.588	-0.007	1.000	577644	0.8915		94.0	13932	
D 14 13C4 PFOA										
417.00 > 372.00	2.608	2.614	-0.006	1.000	3590936	1.42		56.9	72416	
* 62 13C2-PFOA										
415.00 > 370.00	2.608	2.615	-0.007		6966646	2.50			102489	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.608	2.615	-0.007	1.000	1498683	0.9462		94.6	174	
413.00 > 169.00	2.608	2.615	-0.007	1.000	837226		1.79(0.84-2.52)		246	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.615	2.622	-0.007	1.000	1786662	0.9303		97.7	49219	
449.00 > 99.00	2.615	2.622	-0.007	1.000	463802		3.85(1.94-5.82)		6079	
D 19 13C5 PFNA										
468.00 > 423.00	2.977	2.984	-0.007	1.141	2785143	1.43		57.2	54389	
D 18 13C4 PFOS										
503.00 > 80.00	2.977	2.984	-0.007	1.141	3475284	1.36		56.9	49125	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	2.977	2.985	-0.008	1.000	1342868	0.8601		92.7	6729	M
499.00 > 99.00	2.977	2.985	-0.008	1.000	306718		4.38(2.31-6.93)		1573	
20 Perfluorononanoic acid										
463.00 > 419.00	2.985	2.985	0.0	1.003	1054586	0.9197		92.0	1053	
463.00 > 169.00	2.977	2.985	-0.008	1.000	265941		3.97(1.90-5.69)		7783	
25 Sodium 1H,1H,2H,2H-perfluorodecane										
527.00 > 507.00	3.331	3.331	0.0	1.000	406412	0.8612		89.9	25006	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.331	3.331	0.0	1.000	1822054	0.9289		92.9	22801	
D 26 M2-8:2FTS										
529.00 > 81.00	3.331	3.332	-0.001	1.277	888626	1.46		61.0	15526	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.339	-0.008	1.277	5029793	1.37		54.8	36388	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.339	3.346	-0.007	1.000	871827	0.9534		95.3	3202	
513.00 > 169.00	3.339	3.346	-0.007	1.000	166272		5.24(2.36-7.09)		2591	
D 23 13C2 PFDA										
515.00 > 470.00	3.339	3.347	-0.008	1.280	2338551	1.46		58.2	58605	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.491	3.492	-0.001	1.338	536890	1.14		45.7	14721	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.498	3.498	0.0	1.002	205916	0.8599		86.0	3351	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.649	3.655	-0.006	1.000	855756	0.8964		93.0	24550	
599.00 > 99.00	3.649	3.655	-0.006	1.000	283697		3.02(1.39-4.16)		2240	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.655	3.656	-0.001	1.402	578230	1.17		46.6	1351	
D 30 13C2 PFUnA										
565.00 > 520.00	3.662	3.663	-0.001	1.404	1793642	1.46		58.4	45684	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.662	3.670	-0.008	1.002	202099	0.9026		90.3	4216	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.662	3.670	-0.008	1.000	618986	0.8069		80.7	805	
563.00 > 169.00	3.662	3.670	-0.008	1.000	133495		4.64(0.00-0.00)		9528	
35 MeFOSA										
512.00 > 169.00	3.833	3.875	-0.042		268121	NR		0.0	4282	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.961	3.961	0.0	1.000	590728	1.03		103	1243	
613.00 > 169.00	3.961	3.961	0.0	1.000	143788		4.11(2.13-6.40)		4648	
D 36 13C2 PFDoA										
615.00 > 570.00	3.961	3.962	-0.001	1.519	1418080	1.21		48.5	12855	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.026	4.066	-0.040		165311	NR		0.0	2460	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.222	4.222	0.0	1.000	618528	1.16		116	1644	
663.00 > 169.00	4.222	4.222	0.0	1.000	205334		3.01(1.25-3.76)		6715	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.455	4.448	0.007	1.708	1833850	1.78		71.0	26184	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.455	4.455	0.0	1.000	190774	0.9826		98.3	8797	
713.00 > 219.00	4.455	4.455	0.0	1.000	138420		1.38(0.71-2.13)		2872	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.862	4.857	0.005	1.864	1962950	1.41		56.3	13524	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.862	4.862	0.0	1.000	710061	0.9283		92.8	130	
813.00 > 169.00	4.862	4.862	0.0	1.000	127944		5.55(2.86-8.58)		3123	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.214	5.214	0.0	1.000	793627	1.02		102	209	
913.00 > 169.00	5.214	5.214	0.0	1.000	101600		7.81(0.00-0.00)		959	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

Report Date: 17-Feb-2018 13:11:34 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_011.d

Injection Date: 16-Feb-2018 16:28:05 Instrument ID: A8_N

Lims ID: LCSD 320-208463/3-A

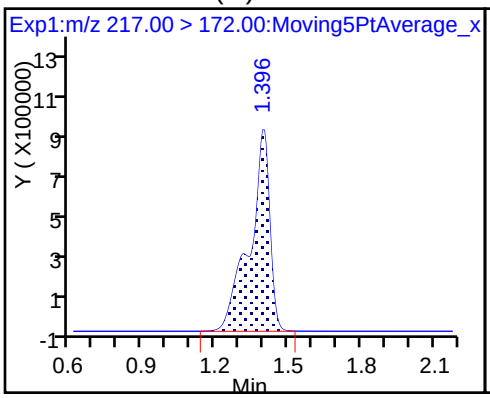
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 4

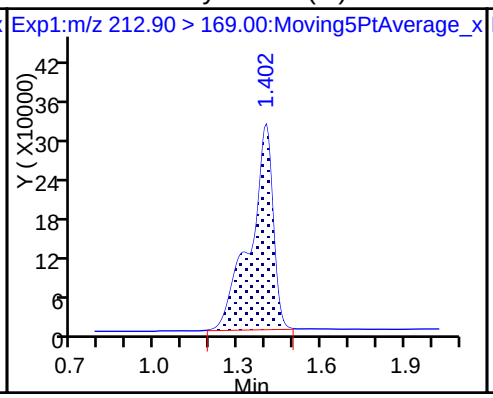
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

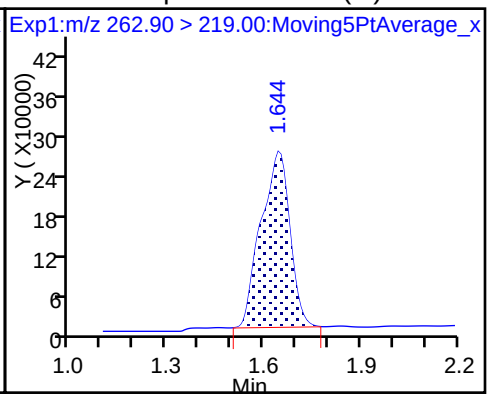
D 1 13C4 PFBA (M)



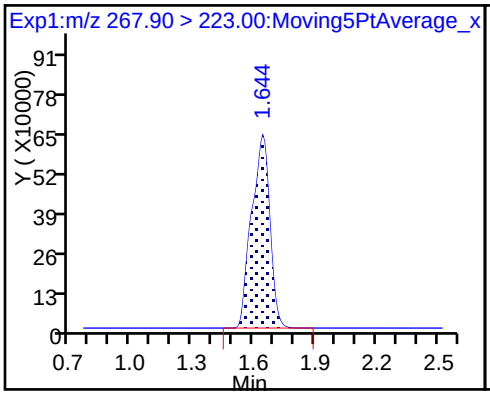
2 Perfluorobutyric acid (M)



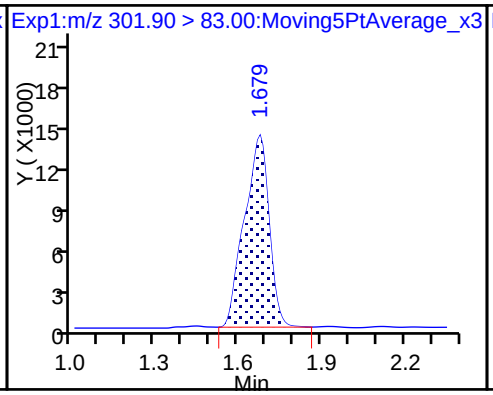
4 Perfluoropentanoic acid (M)



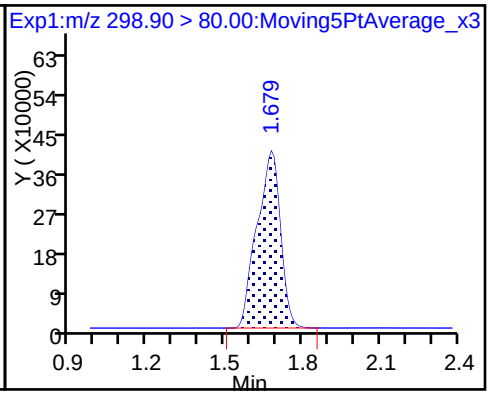
D 3 13C5-PFPeA



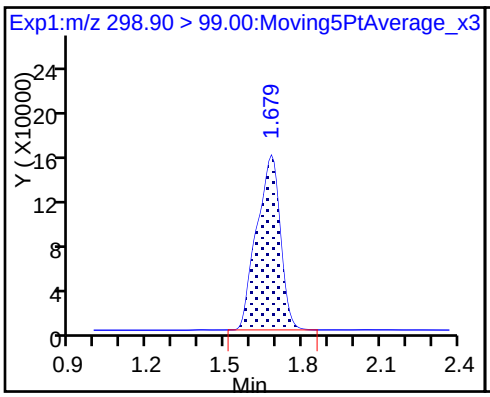
D 47 13C3-PFBS



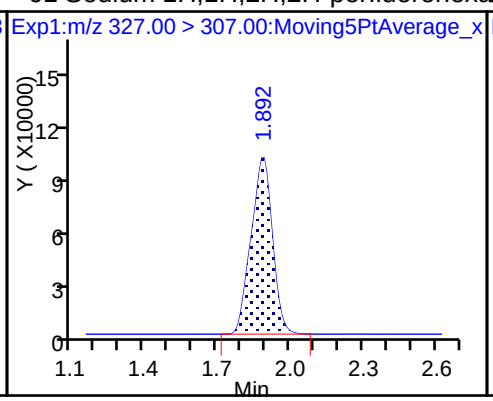
5 Perfluorobutanesulfonic acid



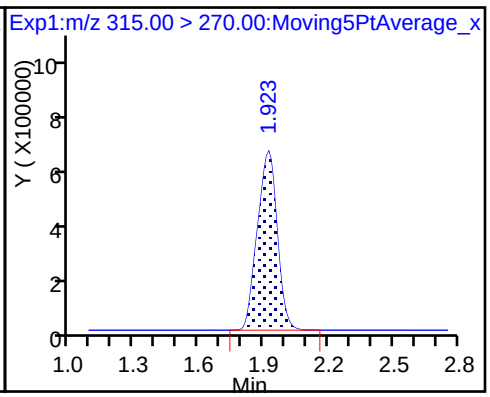
5 Perfluorobutanesulfonic acid



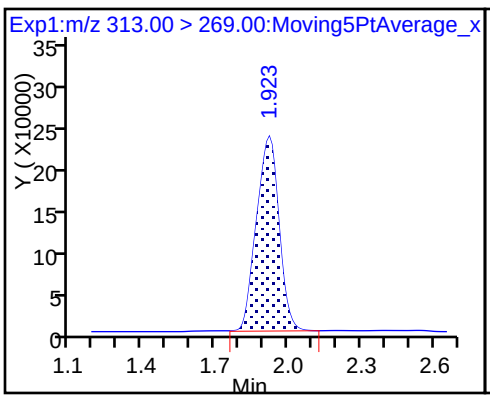
61 Sodium 1H,1H,2H,2H-perfluorohexa



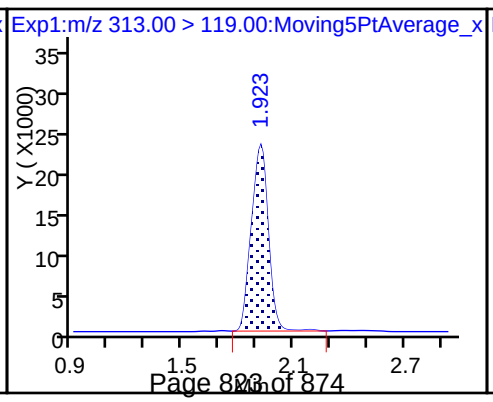
D 7 13C2 PFHxA



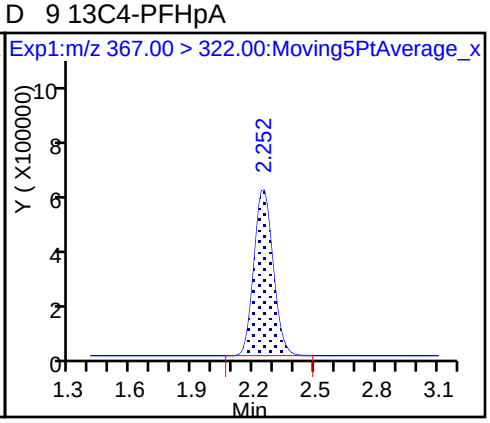
6 Perfluorohexanoic acid



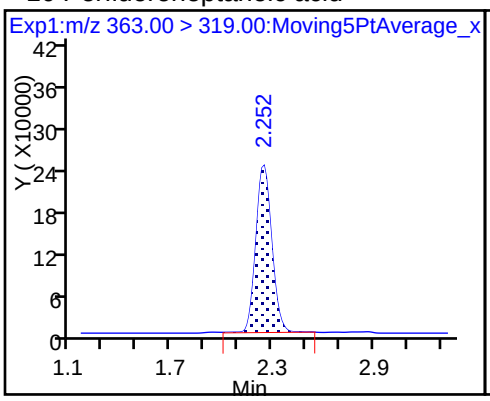
6 Perfluorohexanoic acid



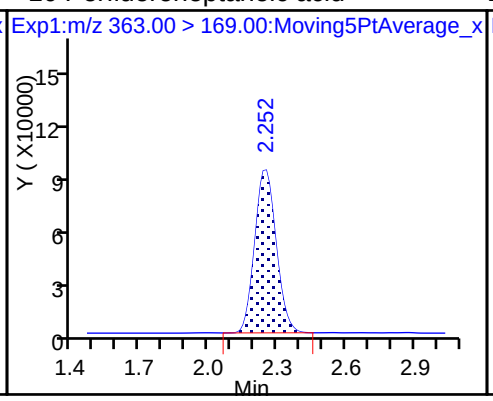
D 9 13C4-PFHpA



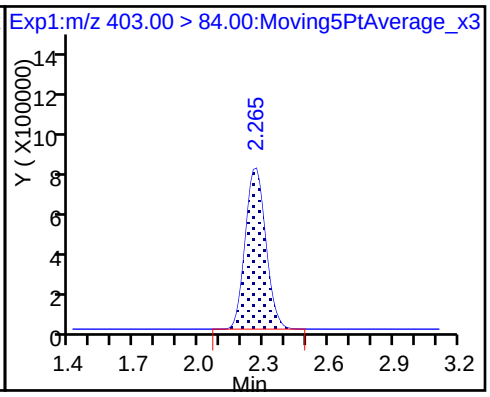
10 Perfluoroheptanoic acid



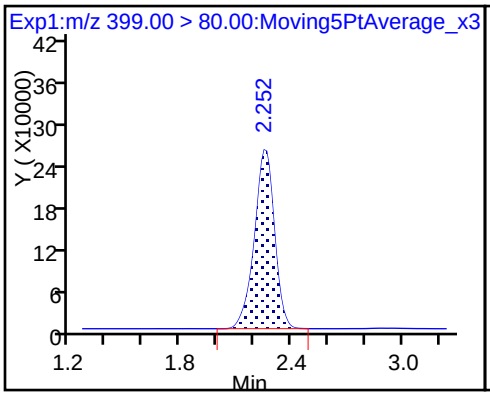
10 Perfluoroheptanoic acid



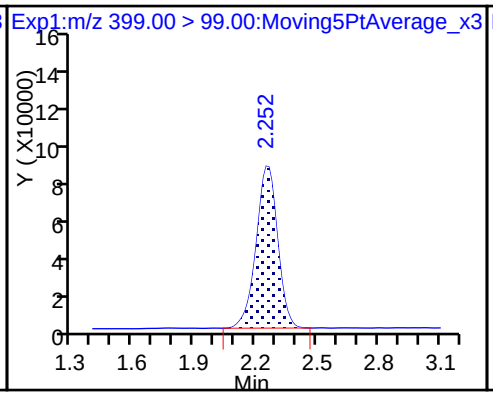
D 11 18O2 PFHxS



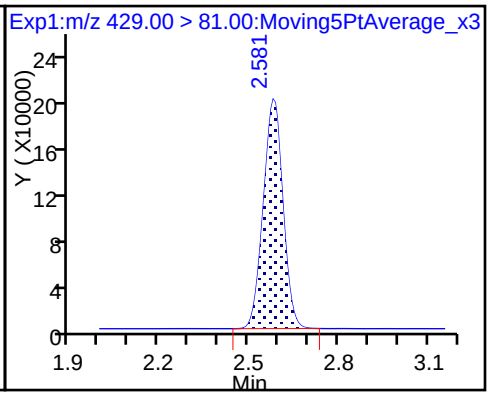
8 Perfluorohexanesulfonic acid



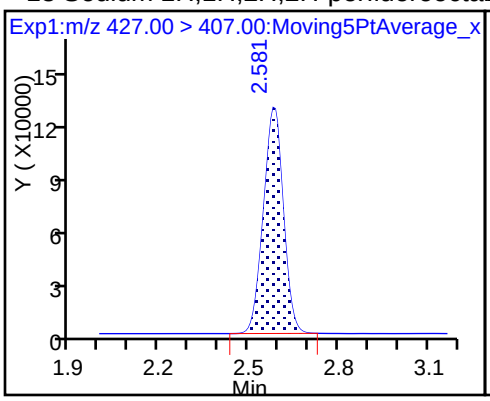
8 Perfluorohexanesulfonic acid



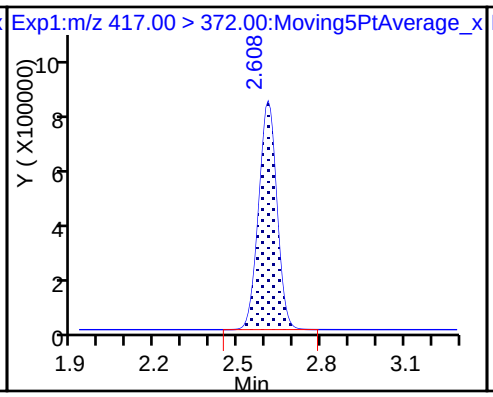
D 12 M2-6:2FTS



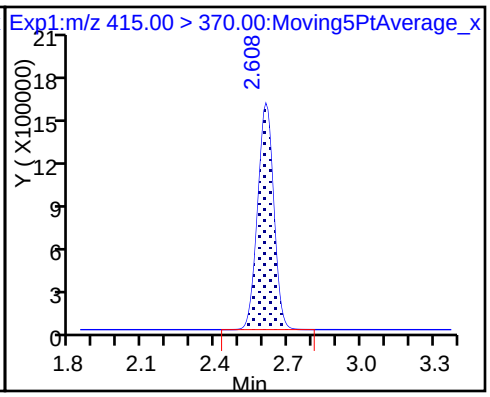
13 Sodium 1H,1H,2H,2H-perfluorooctane



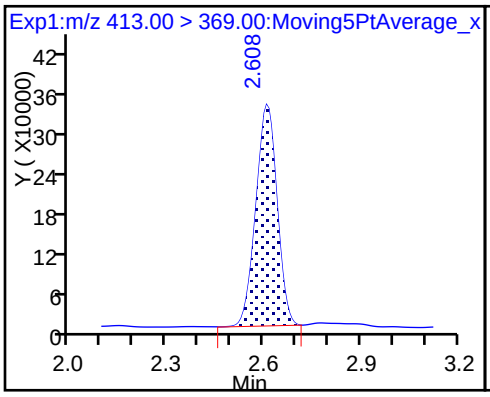
D 14 13C4 PFOA



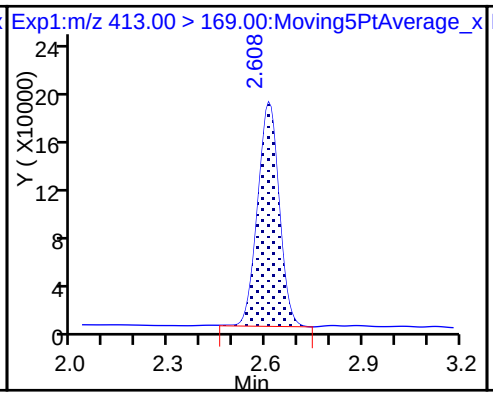
* 62 13C2-PFOA



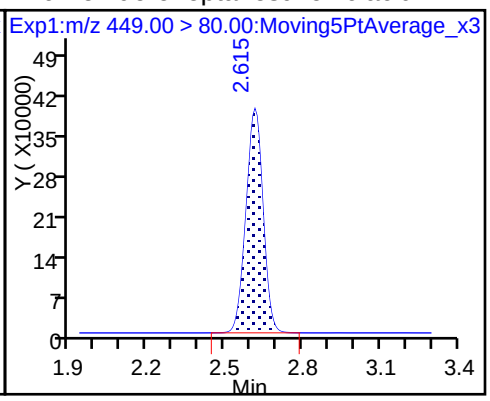
15 Perfluorooctanoic acid



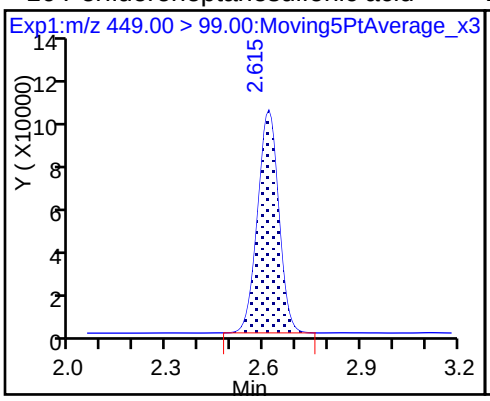
15 Perfluorooctanoic acid



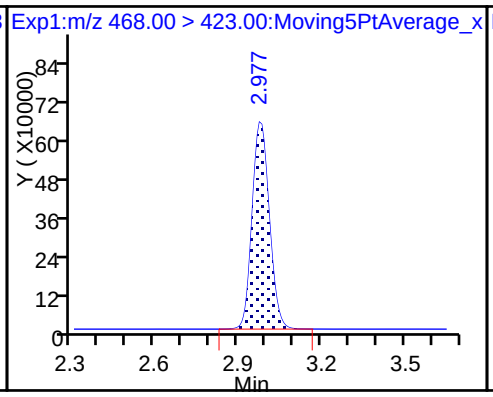
16 Perfluoroheptanesulfonic acid



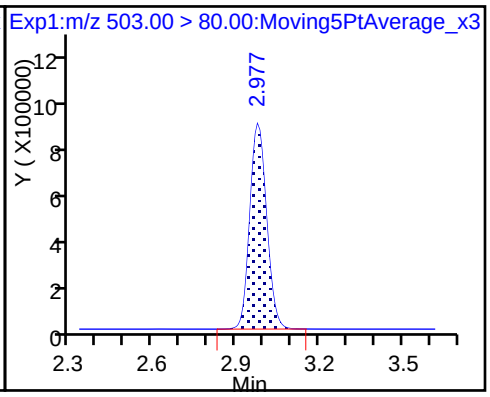
16 Perfluoroheptanesulfonic acid



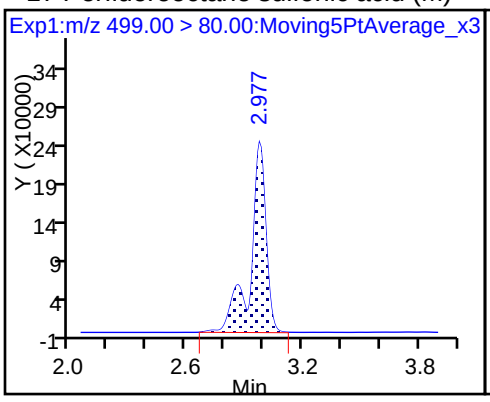
D 19 13C5 PFNA



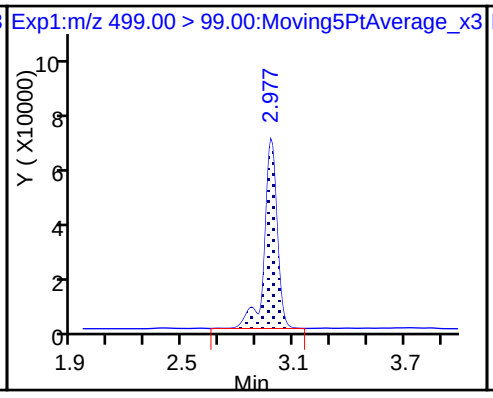
D 18 13C4 PFOS



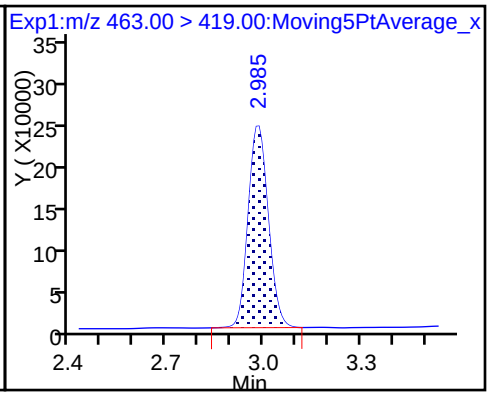
17 Perfluorooctane sulfonic acid (M)



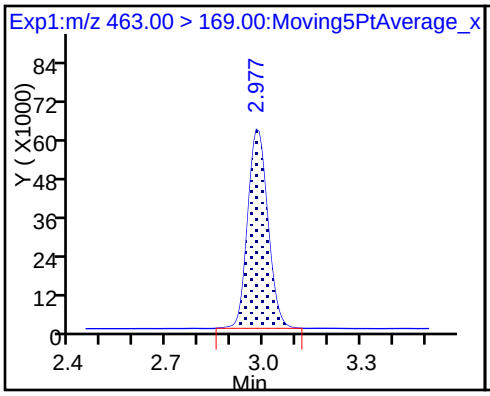
17 Perfluorooctane sulfonic acid



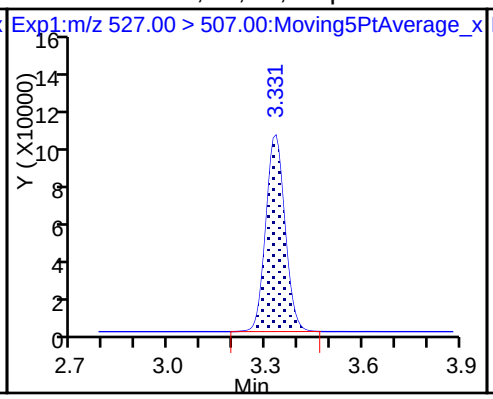
20 Perfluorononanoic acid



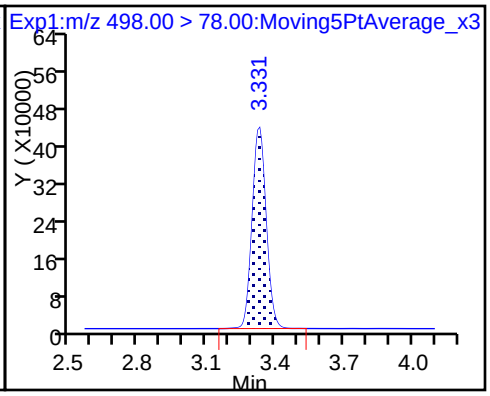
20 Perfluorononanoic acid



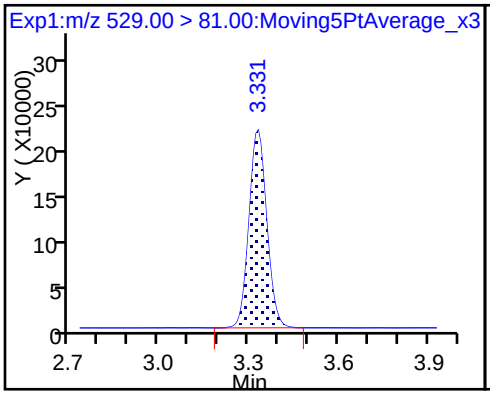
25 Sodium 1H,1H,2H,2H-perfluorodecane



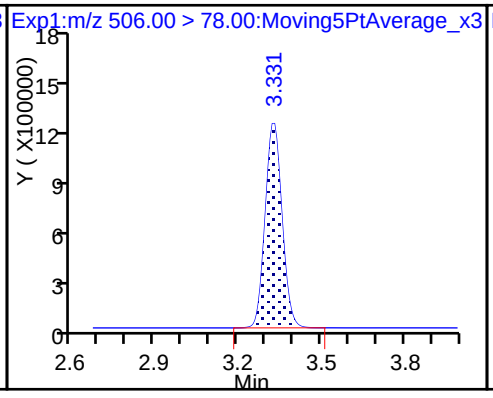
22 Perfluorooctane Sulfonamide



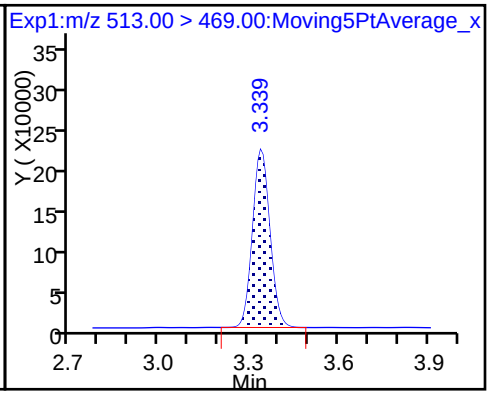
D 26 M2-8:2FTS



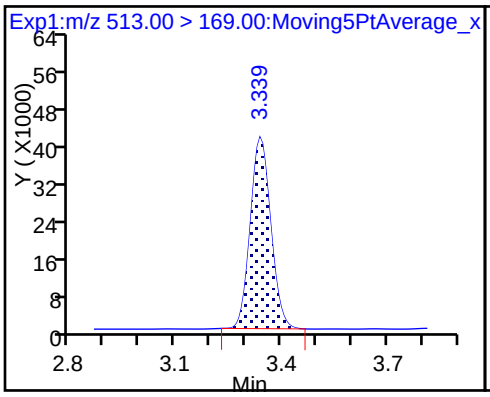
D 21 13C8 FOSA



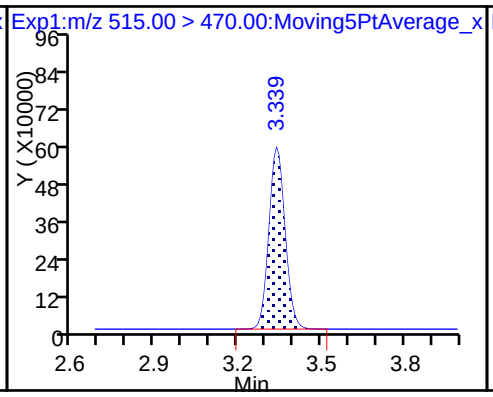
24 Perfluorodecanoic acid



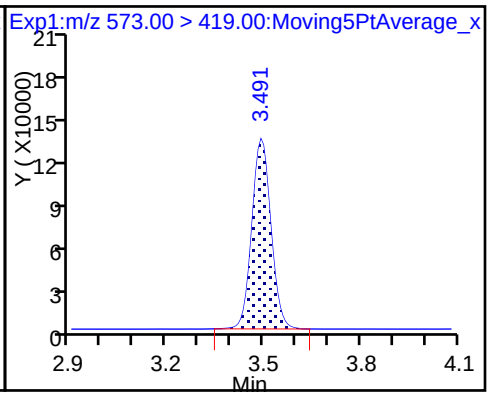
24 Perfluorodecanoic acid



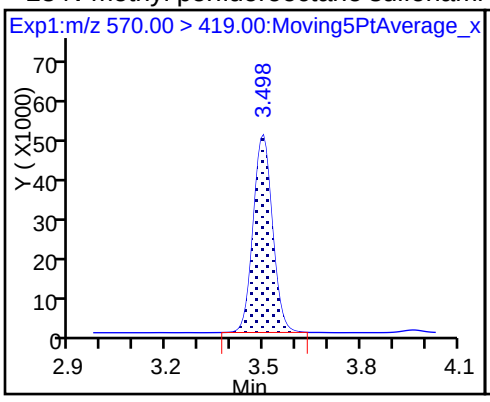
D 23 13C2 PFDA



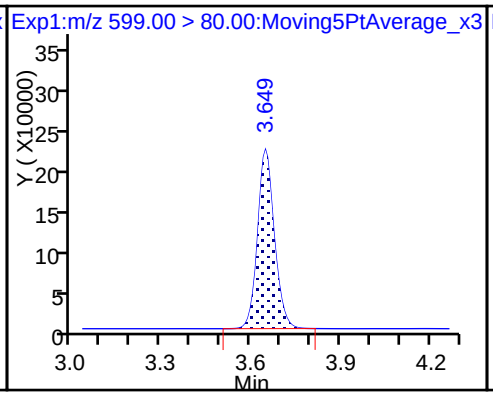
D 27 d3-NMeFOSAA



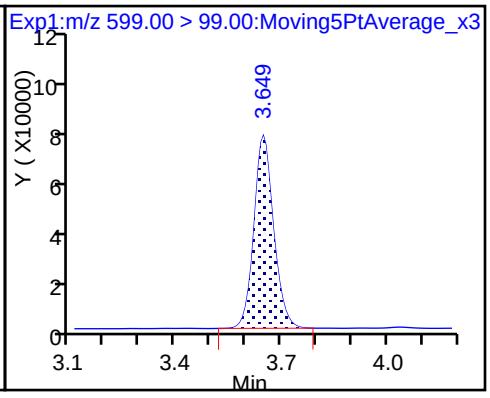
28 N-methyl perfluorooctane sulfonami



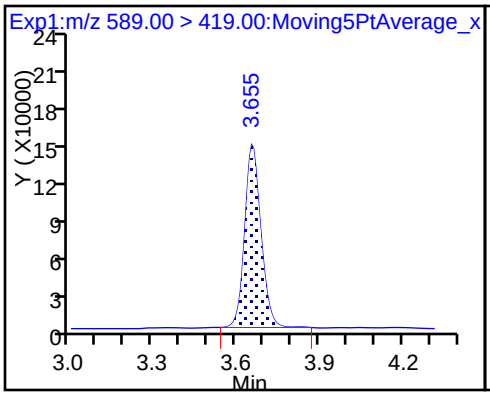
29 Perfluorodecane Sulfonic acid



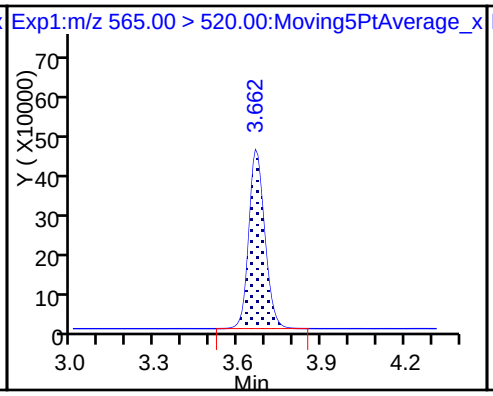
29 Perfluorodecane Sulfonic acid



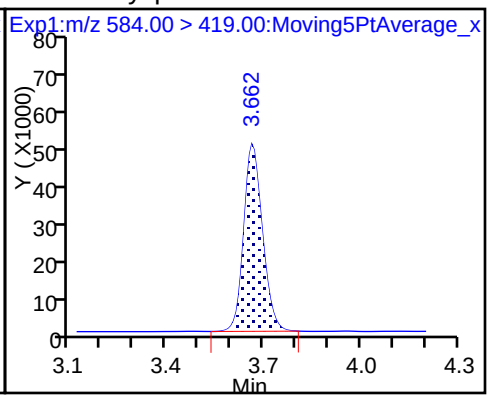
D 32 d5-NEtFOSAA



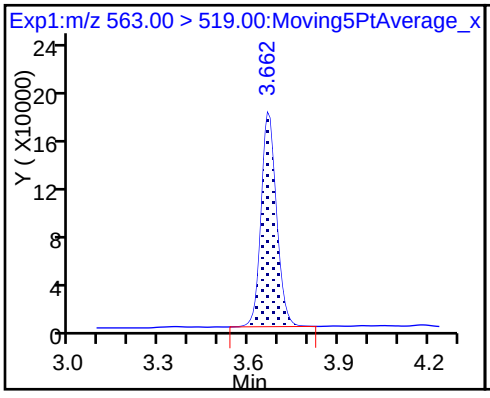
D 30 13C2 PFUnA



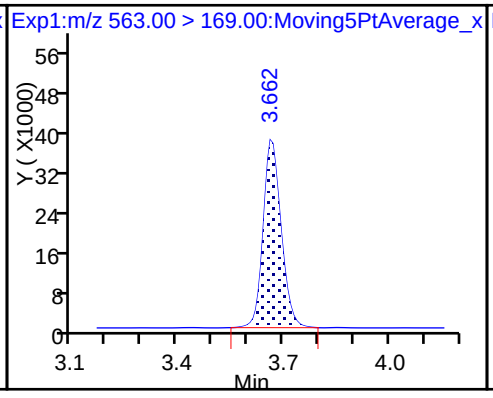
33 N-ethyl perfluorooctane sulfonamid



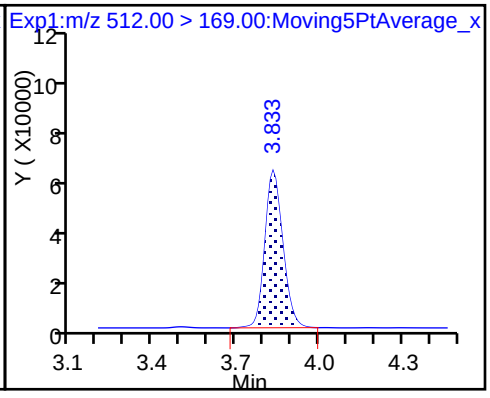
31 Perfluoroundecanoic acid



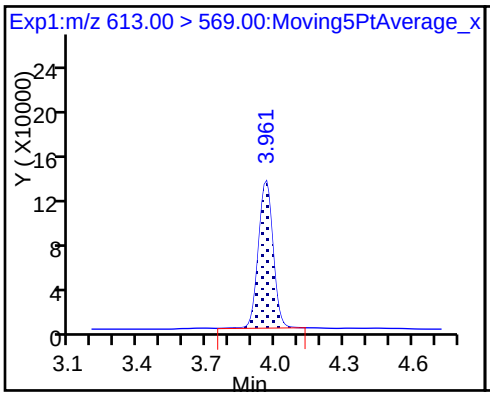
31 Perfluoroundecanoic acid



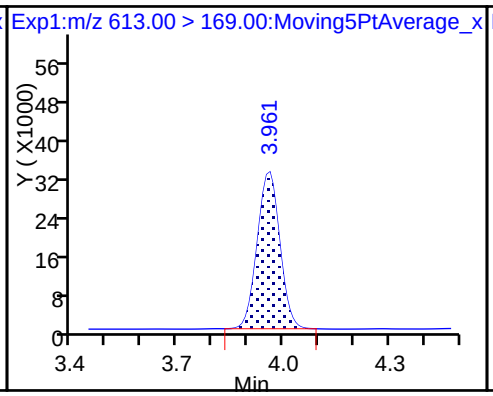
35 MeFOSA



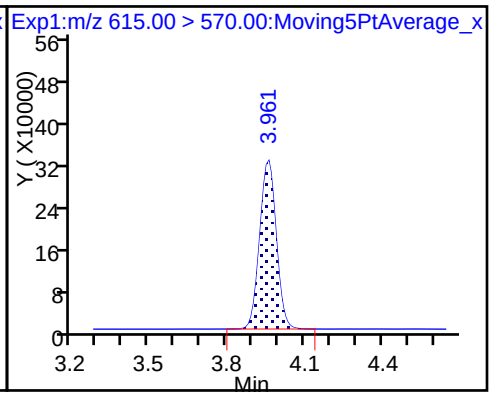
37 Perfluorododecanoic acid



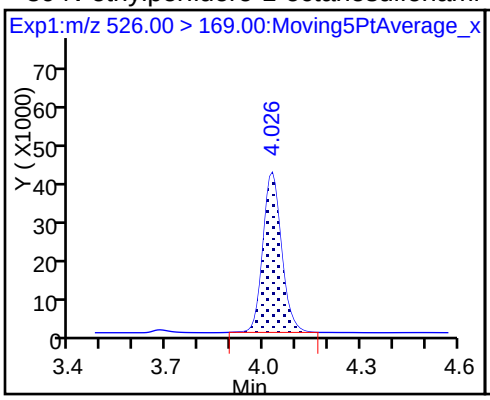
37 Perfluorododecanoic acid



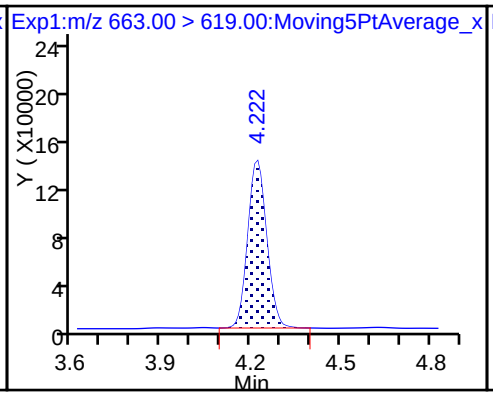
D 36 13C2 PFDoA



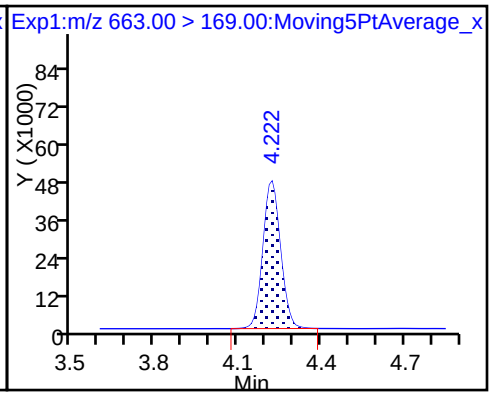
39 N-ethylperfluoro-1-octanesulfonami



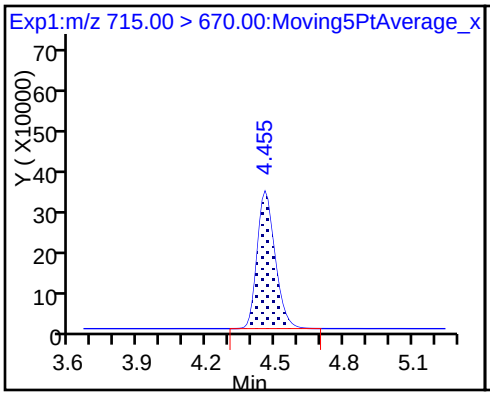
41 Perfluorotridecanoic acid



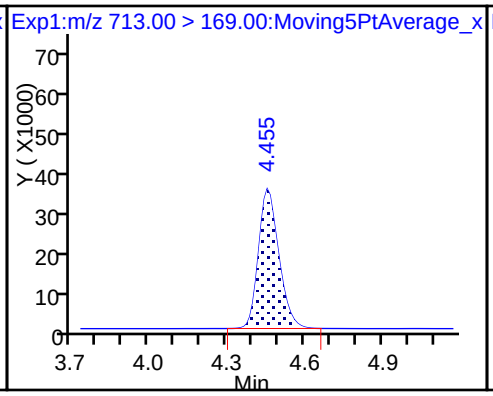
41 Perfluorotridecanoic acid



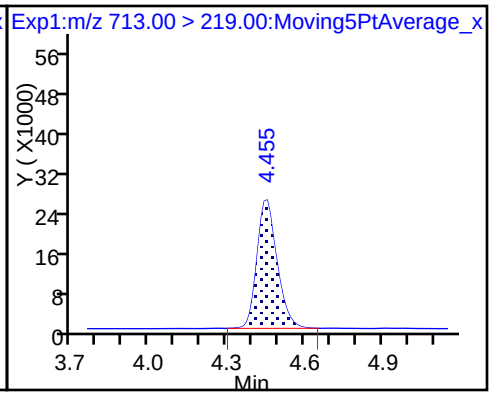
D 43 13C2-PFTeDA



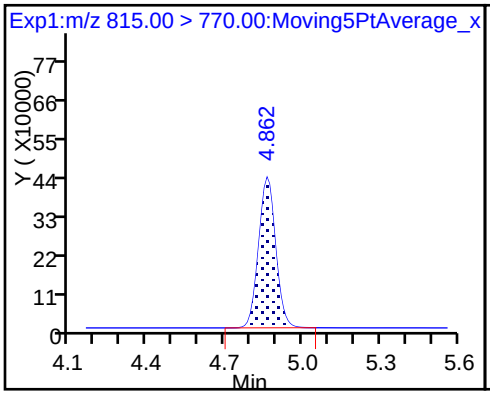
42 Perfluorotetradecanoic acid



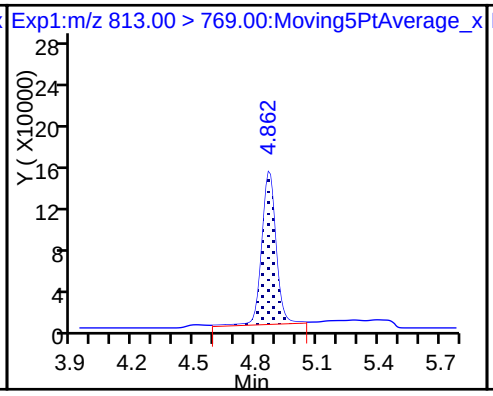
42 Perfluorotetradecanoic acid



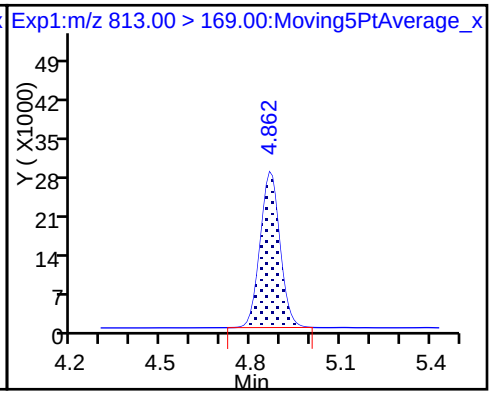
D 44 13C2-PFHxDA



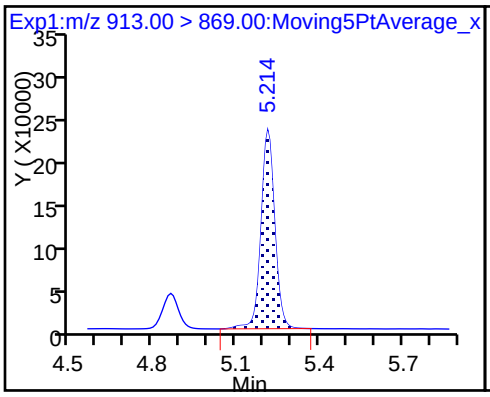
45 Perfluorohexadecanoic acid



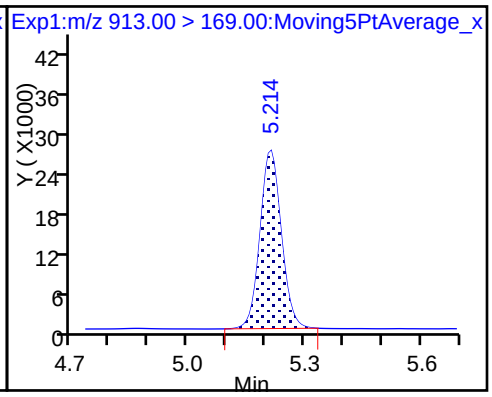
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

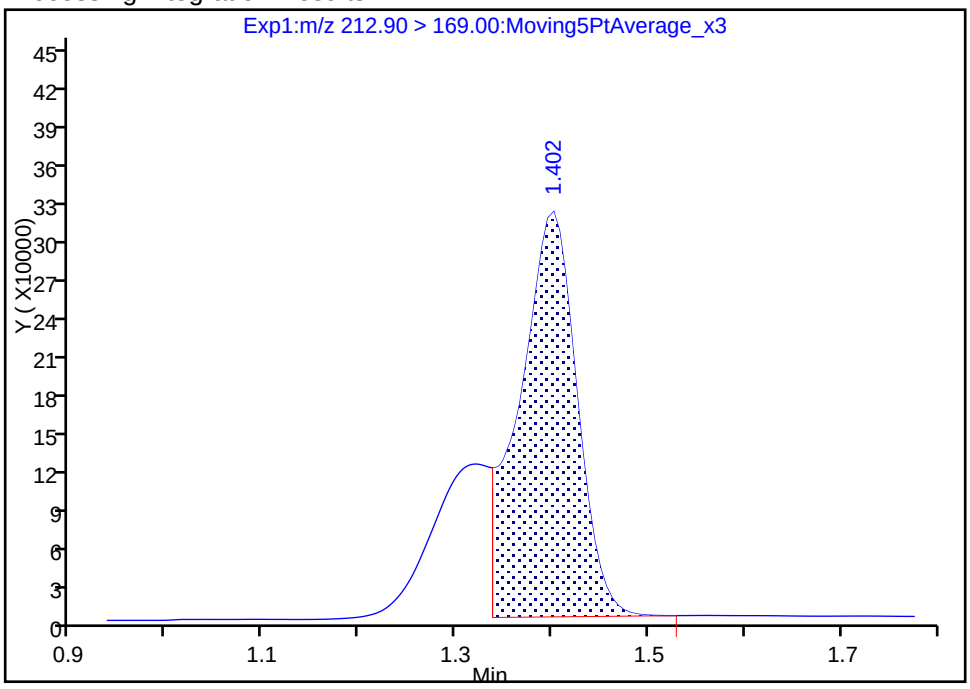
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_011.d
Injection Date: 16-Feb-2018 16:28:05 Instrument ID: A8_N
Lims ID: LCSD 320-208463/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

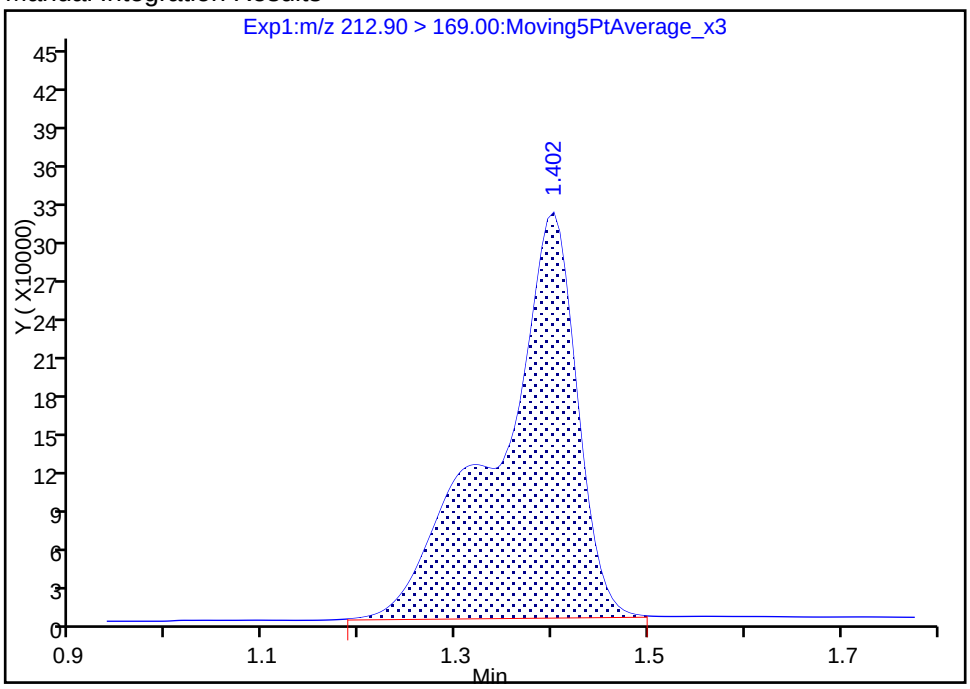
Processing Integration Results

RT: 1.40
Area: 1299842
Amount: 0.681427
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 1804601
Amount: 0.946041
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:07:38
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

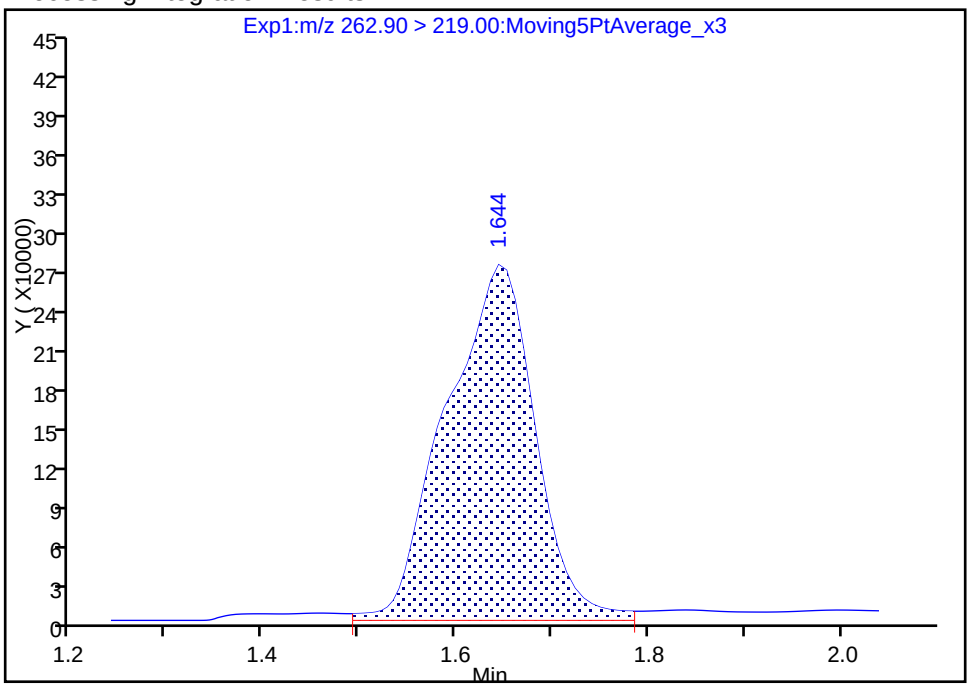
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_011.d				
Injection Date:	16-Feb-2018 16:28:05	Instrument ID:	A8_N		
Lims ID:	LCSD 320-208463/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

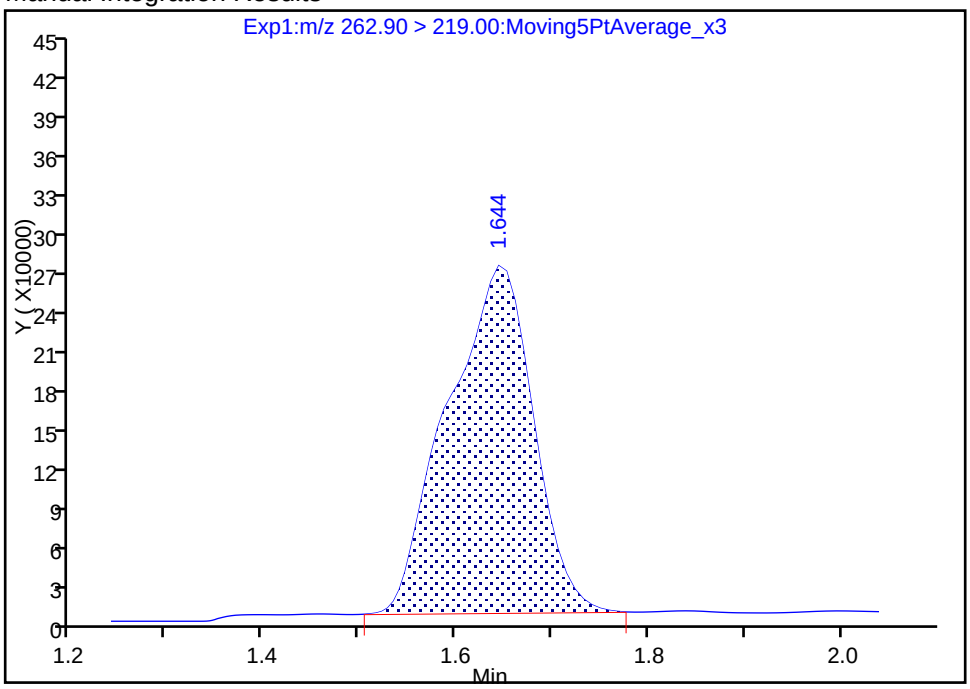
Processing Integration Results

RT: 1.64
Area: 1748970
Amount: 0.936927
Amount Units: ng/ml



Manual Integration Results

RT: 1.64
Area: 1644606
Amount: 0.881019
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:07:59
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

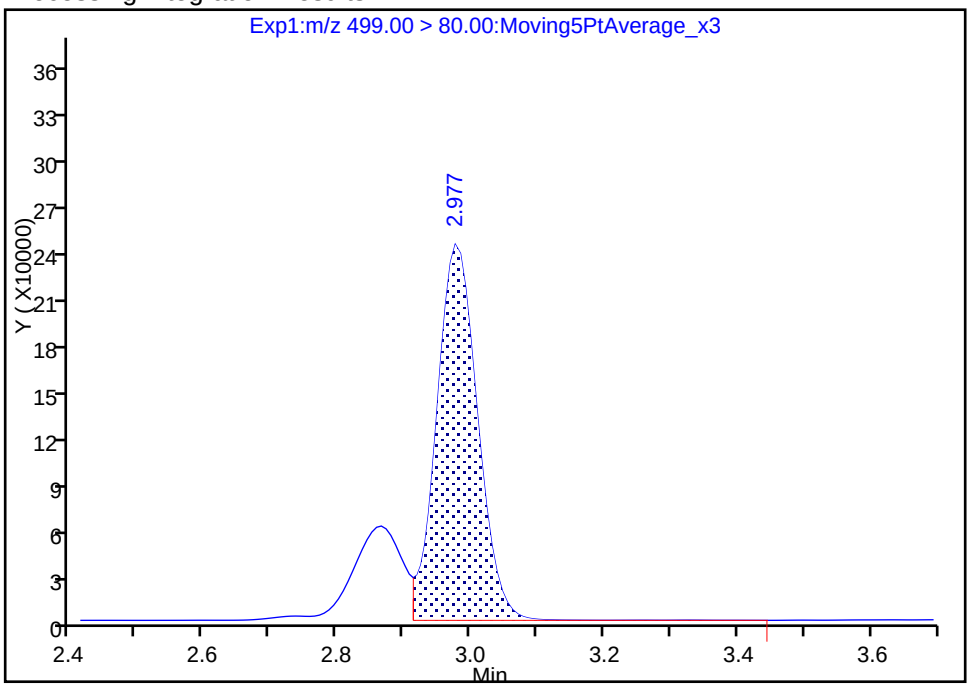
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_011.d				
Injection Date:	16-Feb-2018 16:28:05	Instrument ID:	A8_N		
Lims ID:	LCSD 320-208463/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

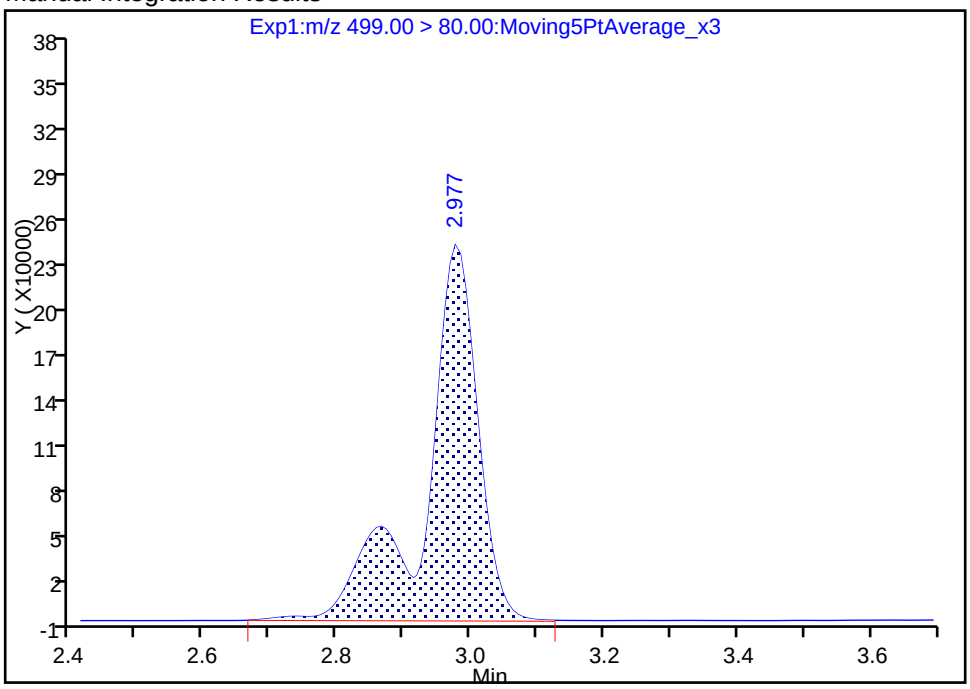
Processing Integration Results

RT: 2.98
Area: 1028047
Amount: 0.658496
Amount Units: ng/ml



Manual Integration Results

RT: 2.98
Area: 1342868
Amount: 0.860149
Amount Units: ng/ml



Reviewer: roycea, 17-Feb-2018 09:53:30

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

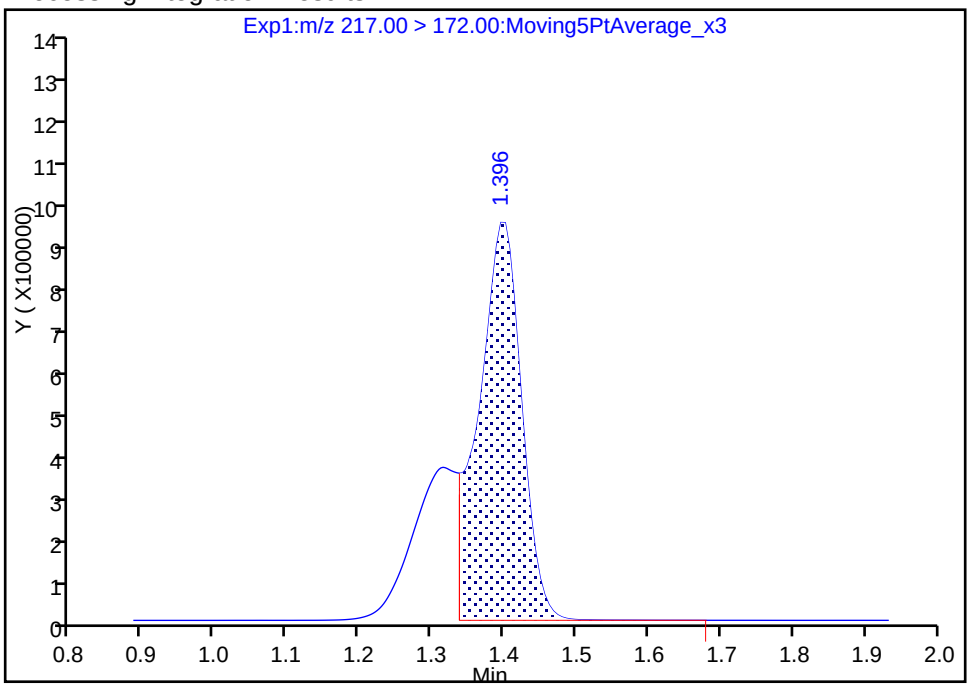
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b\2018.02.16LLA_011.d
Injection Date: 16-Feb-2018 16:28:05 Instrument ID: A8_N
Lims ID: LCSD 320-208463/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

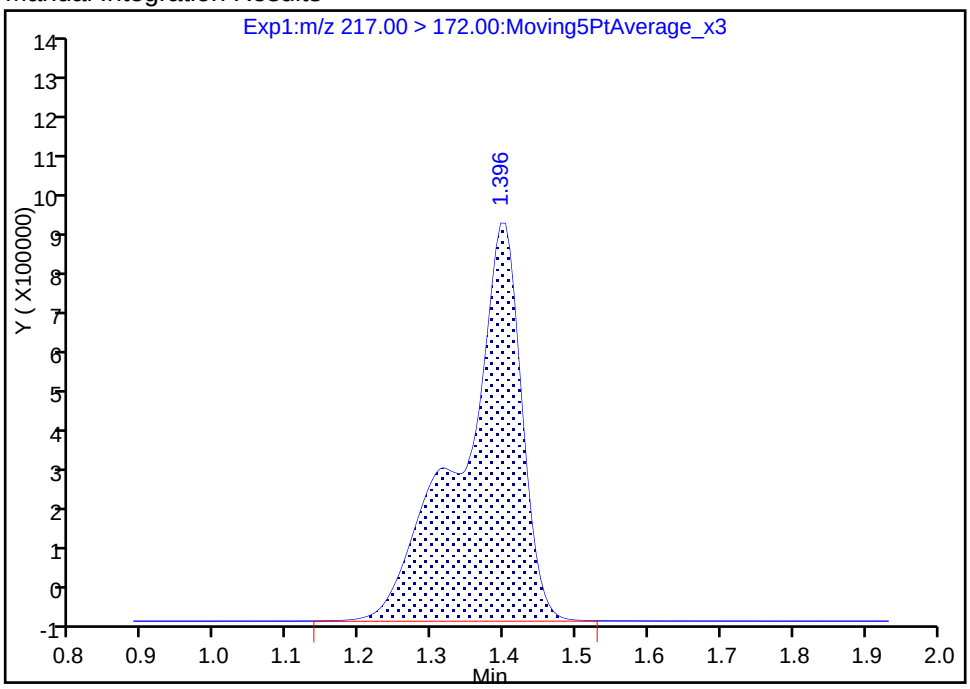
Processing Integration Results

RT: 1.40
Area: 3634428
Amount: 1.002921
Amount Units: ng/ml



Manual Integration Results

RT: 1.40
Area: 5092470
Amount: 1.405268
Amount Units: ng/ml



Reviewer: barnettj, 17-Feb-2018 13:07:28
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/01/2018 21:14

Analysis Batch Number: 206706 End Date: 02/01/2018 22:32

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-206706/2		02/01/2018 21:14	1	2018.02.01LLICAL 002.d	GeminiC18 3x100 3(mm)
IC 320-206706/3		02/01/2018 21:22	1	2018.02.01LLICAL 003.d	GeminiC18 3x100 3(mm)
IC 320-206706/4		02/01/2018 21:30	1	2018.02.01LLICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-206706/5		02/01/2018 21:38	1	2018.02.01LLICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-206706/6		02/01/2018 21:45	1	2018.02.01LLICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-206706/7		02/01/2018 21:53	1	2018.02.01LLICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-206706/8		02/01/2018 22:01	1	2018.02.01LLICAL 008.d	GeminiC18 3x100 3(mm)
ICB 320-206706/9		02/01/2018 22:09	1		GeminiC18 3x100 3(mm)
ICV 320-206706/10		02/01/2018 22:17	1	2018.02.01LLICAL 010.d	GeminiC18 3x100 3(mm)
CCVL 320-206706/12		02/01/2018 22:32	1		GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/07/2018 05:40

Analysis Batch Number: 207314 End Date: 02/07/2018 05:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207314/1		02/07/2018 05:40	1	2018.02.07LLA_055.d	GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/07/2018 13:09

Analysis Batch Number: 207472 End Date: 02/07/2018 15:30

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207472/1		02/07/2018 13:09	1	2018.02.07LLAA_036.d	GeminiC18 3x100 3(mm)
MB 320-207074/1-A		02/07/2018 13:17	1	2018.02.07LLAA_037.d	GeminiC18 3x100 3(mm)
LCS 320-207074/2-A		02/07/2018 13:25	1	2018.02.07LLAA_038.d	GeminiC18 3x100 3(mm)
LCSD 320-207074/3-A		02/07/2018 13:33	1	2018.02.07LLAA_039.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 13:41	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 13:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 13:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:20	1		GeminiC18 3x100 3(mm)
CCV 320-207472/11		02/07/2018 14:28	1	2018.02.07LLAA_046.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:36	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:51	1		GeminiC18 3x100 3(mm)
320-35682-1		02/07/2018 14:59	1	2018.02.07LLAA_050.d	GeminiC18 3x100 3(mm)
320-35682-2		02/07/2018 15:07	1	2018.02.07LLAA_051.d	GeminiC18 3x100 3(mm)
320-35682-3		02/07/2018 15:15	1	2018.02.07LLAA_052.d	GeminiC18 3x100 3(mm)
320-35682-4		02/07/2018 15:23	1	2018.02.07LLAA_053.d	GeminiC18 3x100 3(mm)
CCV 320-207472/19		02/07/2018 15:30	1	2018.02.07LLAA_054.d	GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 16:40

Analysis Batch Number: 207668 End Date: 02/08/2018 17:27

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207668/1		02/08/2018 16:40	1	2018.02.08LLAA_005.d	GeminiC18 3x100 3(mm)
CCV 320-207668/2		02/08/2018 16:48	1		GeminiC18 3x100 3(mm)
CCB 320-207668/3		02/08/2018 16:56	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 17:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 17:11	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 17:19	1		GeminiC18 3x100 3(mm)
CCV 320-207668/7		02/08/2018 17:27	1		GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 23:04

Analysis Batch Number: 207696 End Date: 02/08/2018 23:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207696/1		02/08/2018 23:04	1	2018.02.08LLAAX 054.d	GeminiC18 3x100 3(mm)
320-35682-1 DL		02/08/2018 23:12	10	2018.02.08LLAAX 055.d	GeminiC18 3x100 3(mm)
CCV 320-207696/3		02/08/2018 23:19	1	2018.02.08LLAAX 056.d	GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/15/2018 14:00

Analysis Batch Number: 208660 End Date: 02/15/2018 15:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-208660/2		02/15/2018 14:00	1	2018.02.15LLICAL 002.d	GeminiC18 3x100 3(mm)
IC 320-208660/3		02/15/2018 14:08	1	2018.02.15LLICAL 003.d	GeminiC18 3x100 3(mm)
IC 320-208660/4		02/15/2018 14:16	1	2018.02.15LLICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-208660/5 ICIS		02/15/2018 14:50	1	2018.02.15LLICALA 005.d	GeminiC18 3x100 3(mm)
IC 320-208660/6		02/15/2018 14:58	1	2018.02.15LLICALA 006.d	GeminiC18 3x100 3(mm)
IC 320-208660/7		02/15/2018 15:06	1	2018.02.15LLICALA 007.d	GeminiC18 3x100 3(mm)
IC 320-208660/8		02/15/2018 15:14	1	2018.02.15LLICALA 008.d	GeminiC18 3x100 3(mm)
ICB 320-208660/9		02/15/2018 15:22	1		GeminiC18 3x100 3(mm)
ICV 320-208660/10		02/15/2018 15:29	1	2018.02.15LLICALA 010.d	GeminiC18 3x100 3(mm)
CCVL 320-208660/12 CCVIS		02/15/2018 15:45	1		GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/16/2018 15:25

Analysis Batch Number: 208863 End Date: 02/16/2018 15:56

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-208863/3		02/16/2018 15:25	1	2018.02.16LLA_003.d	GeminiC18 3x100 3(mm)
CCV 320-208863/4		02/16/2018 15:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 15:49	1		GeminiC18 3x100 3(mm)
CCV 320-208863/7		02/16/2018 15:56	1		GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/16/2018 16:04

Analysis Batch Number: 208866 End Date: 02/16/2018 16:51

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-208866/1		02/16/2018 16:04	1	2018.02.16LLA_008.d	GeminiC18 3x100 3(mm)
MB 320-208463/1-A		02/16/2018 16:12	1	2018.02.16LLA_009.d	GeminiC18 3x100 3(mm)
LCS 320-208463/2-A		02/16/2018 16:20	1	2018.02.16LLA_010.d	GeminiC18 3x100 3(mm)
LCSD 320-208463/3-A		02/16/2018 16:28	1	2018.02.16LLA_011.d	GeminiC18 3x100 3(mm)
320-35682-3 RE		02/16/2018 16:35	1	2018.02.16LLA_012.d	GeminiC18 3x100 3(mm)
320-35682-4 RE		02/16/2018 16:43	1	2018.02.16LLA_013.d	GeminiC18 3x100 3(mm)
CCV 320-208866/7		02/16/2018 16:51	1	2018.02.16LLA_014.d	GeminiC18 3x100 3(mm)

537 (modified)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 207074 Batch Start Date: 02/06/18 08:49 Batch Analyst: Santos, Jonathan

Batch Method: 3535 Batch End Date: 02/06/18 12:27

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00036	LCPFC-IS 00027
MB 320-207074/1		3535, 537 (modified)				250.0 mL	10.00 mL	500 uL	500 uL
LCS 320-207074/2		3535, 537 (modified)				250.0 mL	10.00 mL	500 uL	500 uL
LCSD 320-207074/3		3535, 537 (modified)				250.0 mL	10.00 mL	500 uL	500 uL
320-35682-C-1	TP-PFC-026-TPI	3535, 537 (modified)	T	286.69 g	26.84 g	259.9 mL	10.00 mL	500 uL	500 uL
320-35682-C-2	TP-PFC-026-MID-CARBON	3535, 537 (modified)	T	286.80 g	26.70 g	260.1 mL	10.00 mL	500 uL	500 uL
320-35682-B-3	TP-PFC-026-TPE	3535, 537 (modified)	T	287.99 g	27.30 g	260.7 mL	10.00 mL	500 uL	500 uL
320-35682-D-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T	279.01 g	26.78 g	252.2 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00118					
MB 320-207074/1		3535, 537 (modified)							
LCS 320-207074/2		3535, 537 (modified)		500 uL					
LCSD 320-207074/3		3535, 537 (modified)		500 uL					
320-35682-C-1	TP-PFC-026-TPI	3535, 537 (modified)	T						
320-35682-C-2	TP-PFC-026-MID-CARBON	3535, 537 (modified)	T						
320-35682-B-3	TP-PFC-026-TPE	3535, 537 (modified)	T						
320-35682-D-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 207074 Batch Start Date: 02/06/18 08:49 Batch Analyst: Santos, Jonathan

Batch Method: 3535 Batch End Date: 02/06/18 12:27

Batch Notes	
Analyst ID - Aliquot Step	JNS
Balance ID	QA-070
Batch Comment	Sample labels match client ID's JNS 2/6/18
Analyst ID - Final Volume Step	JNS
H2O ID	2/5/18
Hexane ID	1095480
Internal Standard ID#	1140901
Manifold ID	8, 14
Methanol ID	1147519
Sodium Hydroxide ID	1132905
Pipette ID	N32728F
Analyst ID - Reagent Drop	HJA
Analyst ID - IS Reagent Drop	TWL
Analyst ID - IS Reagent Drop Witness	JNS
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	JNS
Solvent Lot #	1147630
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 208463 Batch Start Date: 02/14/18 19:07 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 02/15/18 16:55

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00036	LCPFC-IS 00028
MB 320-208463/1		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
LCS 320-208463/2		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
LCSD 320-208463/3		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
320-35682-D-3	TP-PFC-026-TPE	3535, 537 (modified)	T	320.64 g	26.91 g	293.7 mL	10.00 mL	500 uL	500 uL
320-35682-B-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T	320.97 g	27.10 g	293.9 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00119					
MB 320-208463/1		3535, 537 (modified)							
LCS 320-208463/2		3535, 537 (modified)		500 uL					
LCSD 320-208463/3		3535, 537 (modified)		500 uL					
320-35682-D-3	TP-PFC-026-TPE	3535, 537 (modified)	T						
320-35682-B-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 208463 Batch Start Date: 02/14/18 19:07 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 02/15/18 16:55

Batch Notes	
Analyst ID - Aliquot Step	JER
Balance ID	QA-070
Batch Comment	Sample labels match client IDs JER 2/14/18
Analyst ID - Final Volume Step	JER
H2O ID	2/09/18
Hexane ID	1134406
Internal Standard ID#	1140902
Manifold ID	17
Methanol ID	1152896
Sodium Hydroxide ID	1142835
Pipette ID	N32728F
Analyst ID - Reagent Drop	JER
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	GXL
Solvent Lot #	1153379
Solvent Name	0.3% NH4OH/MEOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

West Sacramento

HPLC/LCMS Data Review Checklist

Job Number(s): 35617, 35682 Work List ID(s): 53821, 53874

Extraction Batch: 207074 Analysis Batch(es): 207472, 207696

Delivery Rank 4 Due Date: 2-13-18

A. Calibration/Instrument Run QC	1st Level	2nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# 206706	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• $RF_{average}$ criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).			✓
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?			✓
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?	✓	✓	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted. Ncm	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?			✓
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation 115878 115877			
1. Are all non-conformances documented/attached? NCM# 115876	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?		✓	
5. Was QC Checker run for this job?	✓	✓	

**Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.*

1st Level (Analyst): JRB Date: 2-9-18

2nd Level Reviewer: [signature] Date: 2/12/18

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 07FEB2018NCE_PFC Worklist Number: 53821
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 207472
# 1 CCV L4	# 1 CCV L4
# 2 MB 320-207074/1-A	# 2 MB 320-207074/1-A
# 3 LCS 320-207074/2-A	# 3 LCS 320-207074/2-A
# 4 LCSD 320-207074/3-A	# 4 LCSD 320-207074/3-A
# 5 320-35617-A-1-A	# 5 320-35617-A-1-A
# 6 320-35617-A-2-A	# 6 320-35617-A-2-A
# 7 320-35617-A-3-A	# 7 320-35617-A-3-A
# 8 320-35617-A-4-A	# 8 320-35617-A-4-A
# 9 320-35617-A-4-B MS	# 9 320-35617-A-4-B MS
#10 320-35617-B-4-A MSD	#10 320-35617-B-4-A MSD
#11 CCV L5	#11 CCV L5
#12 320-35617-A-5-A	#12 320-35617-A-5-A
#13 320-35617-A-6-A	#13 320-35617-A-6-A
#14 320-35617-A-7-A	#14 320-35617-A-7-A
#15 320-35682-C-1-A	#15 320-35682-C-1-A
#16 320-35682-C-2-A	#16 320-35682-C-2-A
#17 320-35682-B-3-A	#17 320-35682-B-3-A
#18 320-35682-D-4-A	#18 320-35682-D-4-A
#19 CCV L4	#19 CCV L4

CCVL in AB 207314

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08FEB2018NCD_PFC Worklist Number: 53874
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 207696
# 1 CCV L4	# 1 CCV L4
# 2 320-35682-C-1-A	# 2 320-35682-C-1-A
# 3 CCV L5	# 3 CCV L5

CCVL in AB 207668

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 07FEB2018NCA_PFC Worklist Num: 53786
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b
Anaylysis Type: SemiVOA Creator: Hannigan, Alyssa B
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0053786-001	CCVL	07-Feb-2018 05:40:59	2018.02.07LLA_055.d	21	1.0		sv
CCV L4	320-0053786-002	CCV	07-Feb-2018 05:48:47	2018.02.07LLA_056.d	28	1.0		sv
CCB	320-0053786-003	CCB	07-Feb-2018 05:56:34	2018.02.07LLA_057.d	20	1.0		sv
MB 320-206753/1-A	320-0053786-004	MB	07-Feb-2018 06:04:22	2018.02.07LLA_002.d	1	1.0		sv
LCS 320-206753/2-A	320-0053786-005	LCS	07-Feb-2018 06:12:12	2018.02.07LLA_003.d	2	1.0		sv
320-35382-A-1-A	320-0053786-006	Client	07-Feb-2018 06:20:01	2018.02.07LLA_004.d	3	1.0	SB031 (0-2")	sv
320-35382-A-2-A	320-0053786-007	Client	07-Feb-2018 06:27:49	2018.02.07LLA_005.d	4	1.0	SB031 (2"-2')	sv
320-35382-A-2-B MS	320-0053786-008	MS	07-Feb-2018 06:35:41	2018.02.07LLA_006.d	5	1.0	SB031 (2"-2')	sv
320-35382-A-2-C MSD	320-0053786-009	MSD	07-Feb-2018 06:43:34	2018.02.07LLA_007.d	6	1.0	SB031 (2"-2')	sv
320-35382-A-3-A	320-0053786-010	Client	07-Feb-2018 06:51:25	2018.02.07LLA_008.d	7	1.0	SB032 (0-2")	sv
320-35382-A-4-A	320-0053786-011	Client	07-Feb-2018 06:59:16	2018.02.07LLA_009.d	8	1.0	SB032 (2"-2')	sv
320-35382-A-5-A	320-0053786-012	Client	07-Feb-2018 07:07:06	2018.02.07LLA_010.d	9	1.0	SB033 (0-2")	sv
320-35382-A-6-A	320-0053786-013	Client	07-Feb-2018 07:14:56	2018.02.07LLA_011.d	10	1.0	SB033 (2"-2')	sv
CCV L5	320-0053786-014	CCV	07-Feb-2018 07:22:44	2018.02.07LLA_012.d	29	1.0		sv
320-35382-A-7-A	320-0053786-015	Client	07-Feb-2018 07:30:34	2018.02.07LLA_013.d	11	1.0	SB034 (0-2")	sv
320-35382-A-8-A	320-0053786-016	Client	07-Feb-2018 07:38:24	2018.02.07LLA_014.d	12	1.0	SB034 (2"-2')	sv
320-35382-A-9-A	320-0053786-017	Client	07-Feb-2018 07:46:13	2018.02.07LLA_015.d	13	1.0	SB035 (0-2")	sv
320-35382-A-10-A	320-0053786-018	Client	07-Feb-2018 07:54:04	2018.02.07LLA_016.d	14	1.0	SB035 (2"-2')	sv
320-35382-A-11-A	320-0053786-019	Client	07-Feb-2018 08:01:53	2018.02.07LLA_017.d	15	1.0	SB036 (0-2")	sv
CCV L4	320-0053786-020	CCV	07-Feb-2018 08:09:42	2018.02.07LLA_018.d	28	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 07FEB2018NCE_PFC Worklist Num: 53821
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b
Anaylysis Type: SemiVOA Creator: Hannigan, Alyssa B
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L4	320-0053821-001	CCV	07-Feb-2018 13:09:56	2018.02.07LLAA_036.d	28	1.0		sv
MB 320-207074/1-A	320-0053821-002	MB	07-Feb-2018 13:17:48	2018.02.07LLAA_037.d	30	1.0		sv
LCS 320-207074/2-A	320-0053821-003	LCS	07-Feb-2018 13:25:40	2018.02.07LLAA_038.d	31	1.0		sv
LCSD 320-207074/3-A	320-0053821-004	LCSD	07-Feb-2018 13:33:30	2018.02.07LLAA_039.d	32	1.0		sv
320-35617-A-1-A	320-0053821-005	Client	07-Feb-2018 13:41:22	2018.02.07LLAA_040.d	33	1.0	INF-013118	sv
320-35617-A-2-A	320-0053821-006	Client	07-Feb-2018 13:49:13	2018.02.07LLAA_041.d	34	1.0	INF-013118-D	sv
320-35617-A-3-A	320-0053821-007	Client	07-Feb-2018 13:57:02	2018.02.07LLAA_042.d	35	1.0	EFF-013118	sv
320-35617-A-4-A	320-0053821-008	Client	07-Feb-2018 14:04:51	2018.02.07LLAA_043.d	36	1.0	Train1-013118	sv
320-35617-A-4-B MS	320-0053821-009	MS	07-Feb-2018 14:12:39	2018.02.07LLAA_044.d	37	1.0	Train1-013118	sv
320-35617-B-4-A MSD	320-0053821-010	MSD	07-Feb-2018 14:20:28	2018.02.07LLAA_045.d	38	1.0	Train1-013118	sv
CCV L5	320-0053821-011	CCV	07-Feb-2018 14:28:17	2018.02.07LLAA_046.d	29	1.0		sv
320-35617-A-5-A	320-0053821-012	Client	07-Feb-2018 14:36:05	2018.02.07LLAA_047.d	39	1.0	Train2-013118	sv
320-35617-A-6-A	320-0053821-013	Client	07-Feb-2018 14:43:56	2018.02.07LLAA_048.d	40	1.0	Train3-013118	sv
320-35617-A-7-A	320-0053821-014	Client	07-Feb-2018 14:51:48	2018.02.07LLAA_049.d	41	1.0	Blank-013118	sv
320-35682-C-1-A	320-0053821-015	Client	07-Feb-2018 14:59:39	2018.02.07LLAA_050.d	42	1.0	TP-PFC-026-TPI	sv
320-35682-C-2-A	320-0053821-016	Client	07-Feb-2018 15:07:28	2018.02.07LLAA_051.d	43	1.0	TP-PFC-026-MID-CARBON	sv
320-35682-B-3-A	320-0053821-017	Client	07-Feb-2018 15:15:16	2018.02.07LLAA_052.d	44	1.0	TP-PFC-026-TPE	sv
320-35682-D-4-A	320-0053821-018	Client	07-Feb-2018 15:23:05	2018.02.07LLAA_053.d	45	1.0	TP-PFC-026-TPE-D	sv
CCV L4	320-0053821-019	CCV	07-Feb-2018 15:30:53	2018.02.07LLAA_054.d	28	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018NCA_PFC Worklist Num: 53869
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b
Anaylysis Type: SemiVOA Creator: Royce, Amani A
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Fract
CCVL	320-0053869-001	CCVL	08-Feb-2018 16:40:40	2018.02.08LLAA_005.d	21	1.0	sv
CCV L4	320-0053869-002	CCV	08-Feb-2018 16:48:28	2018.02.08LLAA_006.d	13	1.0	sv
CCB	320-0053869-003	CCB	08-Feb-2018 16:56:16	2018.02.08LLAA_007.d	20	1.0	sv
CARTRIDGE QC 017537327A MB	320-0053869-004	Client	08-Feb-2018 17:04:08	2018.02.08LLAA_037.d	25	1.0	sv
CARTRIDGE QC 017537327A LCS	320-0053869-005	Client	08-Feb-2018 17:11:59	2018.02.08LLAA_038.d	26	1.0	sv
MANIFOLD QC 18-4	320-0053869-006	Client	08-Feb-2018 17:19:50	2018.02.08LLAA_039.d	27	1.0	sv
CCV L4	320-0053869-007	CCV	08-Feb-2018 17:27:41	2018.02.08LLAA_040.d	13	1.0	sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018NCD_PFC Worklist Num: 53874
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b
Anaylysis Type: SemiVOA Creator: Royce, Amani A
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L4	320-0053874-001	CCV	08-Feb-2018 23:04:17	2018.02.08LLAAX_054.d	13	1.0		sv
320-35682-C-1-A	320-0053874-002	Client	08-Feb-2018 23:12:05	2018.02.08LLAAX_055.d	49	10.0	TP-PFC-026-TPI	sv
CCV L5	320-0053874-003	CCV	08-Feb-2018 23:19:53	2018.02.08LLAAX_056.d	14	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

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AR 2/6/18

Batch Number: 320-207074

Method Code: 320-3535_PFC-320

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Batch End: 2/6/2018 12:27:00PM

Solid-Phase Extraction (SPE)

2/15

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1	MB~320-207074/1 N/A	N/A		250.0 mL	NA			N/A	N/A	N/A		MB 320-207074/1-A
				10.00 mL								
2	LCS~320-207074/2 N/A	N/A		250.0 mL	NA			N/A	N/A	N/A		LCS 320-207074/2-A
				10.00 mL								
3	LCSD~320-207074/3 N/A	N/A		250.0 mL	NA			N/A	N/A	N/A		LCSD 320-207074/3-A
				10.00 mL								
4	320-35617-A-1 (PFC_IDA_DOD5)	GAC (320-35617-1)	290.38 g	262.8 mL	NA			2/13/18	8_Days	4		320-35617-A-1-A
			27.59 g	10.00 mL								
5	320-35617-A-2 (PFC_IDA_DOD5)	GAC (320-35617-1)	287.09 g	259.2 mL	NA			2/13/18	8_Days	4		320-35617-A-2-A
			27.89 g	10.00 mL								
6	320-35617-A-3 (PFC_IDA_DOD5)	GAC (320-35617-1)	283.42 g	255.9 mL	NA			2/13/18	8_Days	4		320-35617-A-3-A
			27.53 g	10.00 mL								
7	320-35617-A-4 (PFC_IDA_DOD5)	GAC (320-35617-1)	286.25 g	258.5 mL	NA			2/13/18	8_Days	4		320-35617-A-4-A
			27.76 g	10.00 mL								
8	320-35617-A-4~MS (PFC_IDA_DOD5)	GAC (320-35617-1)	285.19 g	257.4 mL	NA			2/13/18	8_Days	4		320-35617-A-4-B MS
			27.78 g	10.00 mL								
9	320-35617-B-4~MSD (PFC_IDA_DOD5)	GAC (320-35617-1)	284.73 g	256.6 mL	NA			2/13/18	8_Days	4		320-35617-B-4-A MSD
			28.14 g	10.00 mL								
10	320-35617-A-5 (PFC_IDA_DOD5)	GAC (320-35617-1)	280.51 g	252.8 mL	NA			2/13/18	8_Days	4		320-35617-A-5-A
			27.68 g	10.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End: 2/6/2018 12:27:00PM

11	320-35617-A-6 (PFC_IDA_DOD5)	GAC (320-35617-1)	287.58 g / 27.77 g	259.8 mL / 10.00 mL	NA			2/13/18	8_Days	4		320-35617-A-6-A
12	320-35617-A-7 (PFC_IDA_DOD5)	GAC (320-35617-1)	281.68 g / 27.68 g	254 mL / 10.00 mL	NA			2/13/18	8_Days	4		320-35617-A-7-A
13	320-35682-C-1 (PFC_IDA_DOD5)	N/A (320-35682-1)	286.69 g / 26.84 g	259.9 mL / 10.00 mL	NA			2/18/18	16_Days	4	10X	320-35682-C-1-A
14	320-35682-C-2 (PFC_IDA_DOD5)	N/A (320-35682-1)	286.80 g / 26.70 g	260.1 mL / 10.00 mL	NA			2/18/18	16_Days	4		320-35682-C-2-A
15	320-35682-B-3 (PFC_IDA_DOD5)	N/A (320-35682-1)	287.99 g / 27.30 g	260.7 mL / 10.00 mL	NA			2/18/18	16_Days	4	RA from archive	320-35682-B-3-A
16	320-35682-D-4 (PFC_IDA_DOD5)	N/A (320-35682-1)	279.01 g / 26.78 g	252.2 mL / 10.00 mL	NA			2/18/18	16_Days	4	RA from archive	320-35682-D-4-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

Batch Notes

Manifold ID	8, 14
Methanol ID	1147519
Hexane ID	1095480
Sodium Hydroxide ID	1132905
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A
Balance ID	QA-070
H2O ID	2/5/18
Pipette ID	N32728F
Solvent Name	0.3% NH4OH/MeOH
Solvent Lot #	1147630
Analyst ID - Reagent Drop	HJA
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	JNS
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
Analyst ID - IS Reagent Drop	TWC

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

Analyst ID - IS Reagent Drop Witness	JNS
Internal Standard ID#	1140901
Analyst ID - Concentration	NA
Analyst ID - Aliquot Step	JNS
Analyst ID - Final Volume Step	JNS
SOP Number	WS-LC-0025
Batch Comment	Sample labels match client ID's JNS 2/6/18

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-207074/1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	HSA 2-6-18	JNC 2/6/18
LCS 320-207074/2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
LCS 320-207074/2	LCPFCSP_00118	500 uL	10.00 mL		
LCSD 320-207074/3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
LCSD 320-207074/3	LCPFCSP_00118	500 uL	10.00 mL		
320-35617-A-1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-4	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-4 MS	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-4 MS	LCPFCSP_00118	500 uL	10.00 mL		
320-35617-B-4 MSD	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-B-4 MSD	LCPFCSP_00118	500 uL	10.00 mL		
320-35617-A-5	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-6	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-7	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35682-C-1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35682-C-2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

320-35682-B-3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	HJD 2-8-18	JM 2/6/18
320-35682-D-4	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	↓	↓

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 270744 Test PFC

Earliest Holding Time ~~2/14/18~~ 2/14/18
VPM 2/16/18

Batch Information	1st Level Reviewer	2nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary batch information complete and entered into TALS correctly	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	**1st Level Reviewer**	**2nd Level Reviewer**
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	n/a	NA
MS/MSD or MS/DU NCM filed	n/a	NA
NCM for any anomalies filed	n/a	NA
All NCMs include method code, matrix, and prep batch	n/a	NA
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and Cl Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: JN Date: 2.16.18

2nd Level Reviewer: VPM Date: 2/16/18

Comments:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Test America – Sacramento

Sample Dilution Record

Method ID PFC-IDA **Lot #** See below

Analyst (Print Name) Amani Royce **Analyst Initials** aar

Date 2/8/18

Job #	Sample #	Original F.V. (uL)	Aliquot (uL)	Dilution F.V. (uL)	Dilution Factor	
~~320-35210~~	~~4~~	~~10,000~~	30	1500	50	aar 2/8/18
480-130806	1	↓	15	↓	100	
↓	4		↓	↓	↓	
	1		30	300	10	
↓	4	↓	↓		↓	
						aar 2/8/18
320-35682	1	10,000	30	300	10X	

aar 2/8/18

Comments:

aar 2/8/18

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

West Sacramento

HPLC/LCMS Data Review Checklist

Job Number(s): 35682 Work List ID(s): 54186

Extraction Batch: 208463 Analysis Batch(es): 208866

Delivery Rank 4 Due Date: 2-18-18

A. Calibration/Instrument Run QC	1st Level	2nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# 208660	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• $RF_{average}$ criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).			✓
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?		2/21/2018 MW ✓	✓
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?			✓
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?			✓
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM# 116514	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?		✓	
5. Was QC Checker run for this job?	✓	✓	

**Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.*

1st Level (Analyst): JRB Date: 2-17-18

2nd Level Reviewer: MWay Date: 2/21/2018

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 16FEB2018LLB_PFC Worklist Number: 54186
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 208866
# 1 CCV L5	# 1 CCV L5
# 2 MB 320-208463/1-A	# 2 MB 320-208463/1-A
# 3 LCS 320-208463/2-A	# 3 LCS 320-208463/2-A
# 4 LCSD 320-208463/3-A	# 4 LCSD 320-208463/3-A
# 5 320-35682-D-3-A	# 5 320-35682-D-3-A
# 6 320-35682-B-4-A	# 6 320-35682-B-4-A
# 7 CCV L4	# 7 CCV L4

CCVL in AB 208863

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 16FEB2018LLB_PFC Worklist Num: 54186
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b
Anaylysis Type: SemiVOA Creator: Phomsopha, Thep
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0054186-001	CCV	16-Feb-2018 16:04:41	2018.02.16LLA_008.d	14	1.0		sv
MB 320-208463/1-A	320-0054186-002	MB	16-Feb-2018 16:12:29	2018.02.16LLA_009.d	30	1.0		sv
LCS 320-208463/2-A	320-0054186-003	LCS	16-Feb-2018 16:20:16	2018.02.16LLA_010.d	31	1.0		sv
LCSD 320-208463/3-A	320-0054186-004	LCSD	16-Feb-2018 16:28:05	2018.02.16LLA_011.d	32	1.0		sv
320-35682-D-3-A	320-0054186-005	Client	16-Feb-2018 16:35:54	2018.02.16LLA_012.d	33	1.0	TP-PFC-026-TPE	sv
320-35682-B-4-A	320-0054186-006	Client	16-Feb-2018 16:43:43	2018.02.16LLA_013.d	34	1.0	TP-PFC-026-TPE-D	sv
CCV L4	320-0054186-007	CCV	16-Feb-2018 16:51:32	2018.02.16LLA_014.d	13	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 16FEB2018LLA_PFC Worklist Num: 54185
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54185.b
Anaylysis Type: SemiVOA Creator: Phomsopha, Thep
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Fract
RB	320-0054185-001	RB	16-Feb-2018 15:09:50	2018.02.16LLA_001.d	54	1.0	sv
RB	320-0054185-002	RB	16-Feb-2018 15:17:39	2018.02.16LLA_002.d	54	1.0	sv
CCVL	320-0054185-003	CCVIS	16-Feb-2018 15:25:29	2018.02.16LLA_003.d	21	1.0	sv
CCV L4	320-0054185-004	CCV	16-Feb-2018 15:33:21	2018.02.16LLA_004.d	13	1.0	sv
RB	320-0054185-005	RB	16-Feb-2018 15:41:15	2018.02.16LLA_005.d	20	1.0	sv
LCS 320-208004/2-A	320-0054185-006	LCS	16-Feb-2018 15:49:03	2018.02.16LLA_006.d	2	1.0	sv
CCV L5	320-0054185-007	CCV	16-Feb-2018 15:56:52	2018.02.16LLA_007.d	14	1.0	sv

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

AB 2/16/18
AB 2/17/18

Batch Number: 320-208463 ✓

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End: 2/15/2018 4:55:00PM

Solid-Phase Extraction (SPE)

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-208463/1 N/A	N/A		250.00 mL				N/A	N/A	N/A		
				10.00 mL								
2	LCS~320-208463/2 N/A	N/A		250.00 mL				N/A	N/A	N/A	R1	
				10.00 mL								
3	LCSD~320-208463/3 N/A	N/A		250.00 mL				N/A	N/A	N/A		
				10.00 mL								
4	320-35682-D-3 (PFC_IDA_DOD5)	N/A (320-35682-1)	320.64 g	293.7 mL				2/18/18	16_Days	4		
			26.91 g	10.00 mL								
5	320-35682-B-4 (PFC_IDA_DOD5)	N/A (320-35682-1)	320.97 g	293.9 mL				2/18/18	16_Days	4		
			27.10 g	10.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End: 2/15/2018 4:55:00PM

Batch Notes

Manifold ID	17
Methanol ID	1152896
Hexane ID	1134406
Sodium Hydroxide ID	1142835
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A
Balance ID	QA-070
H2O ID	2/09/18
Pipette ID	N32728F
Solvent Name	0.3% NH4OH/MEOH
Solvent Lot #	1153379
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
Analyst ID - IS Reagent Drop	JER

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Method Code: 320-3535_PFC-320

Batch End: 2/15/2018 4:55:00PM

Analyst ID - IS Reagent Drop Witness	KMK
Internal Standard ID#	1140902
Analyst ID - Concentration	NA
Analyst ID - Aliquot Step	JER
Analyst ID - Final Volume Step	JER
SOP Number	WS-LC-0025
Batch Comment	Sample labels match client IDs JER 2/14/18

Comments

320-35682-D-3

Rework Comments: PFOA results don't match b/w Sample and DUP

320-35682-B-4

Rework Comments: PFOA results don't match b/w Sample and DUP

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End:

Batch Notes

Manifold ID	17
Methanol ID	1152896
Hexane ID	1134406
Sodium Hydroxide ID	1142835
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A
Balance ID	QA-070
H2O ID	2/09/18
Pipette ID	N32728F
Solvent Name	0.3% NH4OH/MEOH
Solvent Lot #	1153379
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
Analyst ID - IS Reagent Drop	JER

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Method Code: 320-3535_PFC-320

Batch End:

Analyst ID - IS Reagent Drop Witness	KMK
Internal Standard ID#	1140902
Analyst ID - Concentration	NA
Analyst ID - Aliquot Step	JER
Analyst ID - Final Volume Step	JER
SOP Number	WS-LC-0025
Batch Comment	Sample labels match client IDs JER 2/14/18

Comments

320-35682-D-3

Rework Comments: PFOA results don't match b/w Sample and DUP

320-35682-B-4

Rework Comments: PFOA results don't match b/w Sample and DUP

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463
Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM
Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-208463/1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	2/14/18	* GXL 2/14/18
LCS 320-208463/2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	↓	↓
LCS 320-208463/2	LCPFCSP_00119	500 uL	10.00 mL		
LCSD 320-208463/3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
LCSD 320-208463/3	LCPFCSP_00119	500 uL	10.00 mL		
320-35682-D-3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35682-B-4	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End: 2/15/2018 4:55:00PM

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 208463 Test PFC

Earliest Holding Time 2/14/18

Batch Information	1st Level Reviewer	2nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary batch information complete and entered into TALS correctly	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	**1st Level Reviewer**	**2nd Level Reviewer**
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	NA	NA
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: [signature] Date: 2/15/18

2nd Level Reviewer: VPM Date: 3/16/18

Comments: _____

Shipping and Receiving Documents

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916.373.5600 Fax:

Chain of Custody Record

242412

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Jeff Orient	Site Contact: Kevin Lamontagne	Date: 2/1/2018	COC No: 242412
Company Name: Tetra Tech	Tel/Fax: (412)921-8650	Lab Contact: David Althizer	Carrier: Fed Ex	1 of 1 COCs
Address: 661 Anderson Dr. Foster Plaza 7	Analysis Turnaround Time			Sampler: Kevin Lamontagne
City/State/Zip: Pittsburg, PA 015220-2700	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (412) 921-8650	TAT if different from Below ____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Brunswick GWETS	☐ 1 week			
Site: Former NAS Brunswick GWETS	☐ 2 days			Job / SDG No.:
PO # 112G08005-WE21	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFC (Full List)	Sample Specific Notes:
TP-PFC-026-TPI	2/1/18	0945	G	W	4	N	N	X	
TP-PFC-026-MID-CARBON	2/1/18	0950	G	W	4	N	N	X	
TP-PFC-026-TPE	2/1/18	0955	G	W	4	N	N	X	
TP-PFC-026-TPE-D	2/1/18	0000	G	W	4	N	N	X	

KOL

320-35682 Chain of Custody

KOL

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: Seal0 | Cooler Temp. (°C): Obs'd: 5.9 Corr'd: ____ | Therm ID No.: AK-4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	2/1/18 1430			2/2/18 905
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35682-1

Login Number: 35682
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","330","ng/L","D","11","DL","","TRG","","","38","LOQ","NO","-99","","259.9","10.00","29",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","2058-94-8","Perfluoroundecanoic acid (PFUnA)","14","ng/L","U","6.9","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","2706-90-3","Perfluoropentanoic acid (PFPeA)","190","ng/L","D","4.1","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","9.6",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","307-24-4","Perfluorohexanoic acid (PFHxA)","340","ng/L","D","4.5","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","9.6",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","307-55-1","Perfluorododecanoic acid (PFDoA)","14","ng/L","U","5.0","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","1800","ng/L","D M","5.2","DL","","TRG","","","19","LOQ","YES","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","335-76-2","Perfluorodecanoic acid (PFDA)","9.6","ng/L","U","4.6","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","9.6",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","14","ng/L","U","5.4","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","410","ng/L","D","3.7","DL","","TRG","","","19","LOQ","YES","-99","","259.9","10.00","9.6",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","69","ng/L","D","5.7","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","47","ng/L","D","4.4","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","9.6",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","66","ng/L","D","5.9","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","8.8","ng/L","J D","3.6","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","9.6",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","14","ng/L","U","5.0","DL","","TRG","","","19","LOQ","NO","-99","","259.9","10.00","14",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","29","ng/L","U","8.0","DL","","TRG","","","38","LOQ","NO","-99","","259.9","10.00","29",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","72629-94-8","Perfluorotridecanoic Acid (PFTriA)","29","ng/L","U","7.3","DL","","TRG","","","38","LOQ","NO","-99","","259.9","10.00","29",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","754-91-6","Perfluorooctane Sulfonamide (FOSA)","29","ng/L","U","13","DL","","TRG","","","38","LOQ","NO","-99","","259.9","10.00","29",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00990","13C4 PFOA","93","ng/L","","-99","DL","","TRG","97","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00991","13C4 PFOS","85","ng/L","","-99","DL","","TRG","93","","-99","LOQ","YES","92.0","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00992","13C4 PFBA","99","ng/L","","-99","DL","","TRG","102","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00993","13C2 PFHxA","96","ng/L","","-99","DL","","TRG","100","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00994","18O2 PFHxS","88","ng/L","","-99","DL","","TRG","97","","-99","LOQ","YES","91.0","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00995","13C5 PFNA","97","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00996","13C2 PFDA","81","ng/L","","-99","DL","","TRG","85","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00997","13C2 PFUnA","72","ng/L","","-99","DL","","TRG","74","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL00998","13C2 PFDoA","50","ng/L","","-99","DL","","TRG","52","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL01056","13C8

FOSA","83","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL01892","13C4-
PFHpA","99","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL01893","13C5
PFPeA","98","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL02116","13C2-
PFTeDA","8.0","ng/L","Q","-99","DL","","TRG","8","","-99","LOQ","YES","96.2","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","DL","320-35682-1","TALSAC","STL02337","13C3-
PFBS","90","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","89.5","","259.9","10.00","960",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","340","ng/L","","1.1","DL","","TRG","","","3.8","LOQ","YES","-99","","259.9","10.00","2.9",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA)","1.4","ng/L","U","0.69","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","2706-90-3","Perfluoropentanoic acid
(PFPeA)","190","ng/L","","0.41","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","0.96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA)","340","ng/L","","0.45","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","0.96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDoA)","1.4","ng/L","U","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","1400","ng/L","M E","0.52","DL","","TRG","","","1.9","LOQ","NO","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","335-76-2","Perfluorodecanoic acid
(PFDA)","0.81","ng/L","J","0.46","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","0.96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","335-77-3","Perfluorodecanesulfonic acid
(PFDS)","1.4","ng/L","U","0.54","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","370","ng/L","E","0.37","DL","","TRG","","","1.9","LOQ","NO","-99","","259.9","10.00","0.96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","69","ng/L","M","0.57","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","51","ng/L","","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","0.96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","71","ng/L","","0.59","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid
(PFHpS)","7.0","ng/L","","0.36","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","0.96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","2.6","ng/L","","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","259.9","10.00","1.4",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","376-06-7","Perfluorotetradecanoic acid
(PFTeA)","2.9","ng/L","U","0.80","DL","","TRG","","","3.8","LOQ","YES","-99","","259.9","10.00","2.9",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","72629-94-8","Perfluorotridecanoic Acid
(PFTriA)","2.9","ng/L","U","0.73","DL","","TRG","","","3.8","LOQ","YES","-99","","259.9","10.00","2.9",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","754-91-6","Perfluorooctane Sulfonamide
(FOSA)","2.9","ng/L","U","1.3","DL","","TRG","","","3.8","LOQ","YES","-99","","259.9","10.00","2.9",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00990","13C4
PFOA","92","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00991","13C4
PFOS","110","ng/L","","-99","DL","","TRG","116","","-99","LOQ","YES","92.0","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00992","13C4
PFBA","120","ng/L","","-99","DL","","TRG","120","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00993","13C2
PFHxA","110","ng/L","","-99","DL","","TRG","115","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00994","18O2
PFHxS","110","ng/L","","-99","DL","","TRG","116","","-99","LOQ","YES","91.0","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00995","13C5

PFNA","110","ng/L","","-99","DL","","TRG","119","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00996","13C2
PFDA","120","ng/L","","-99","DL","","TRG","128","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00997","13C2
PFUnA","110","ng/L","","-99","DL","","TRG","118","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL00998","13C2
PFDoA","110","ng/L","","-99","DL","","TRG","115","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL01056","13C8
FOSA","110","ng/L","","-99","DL","","TRG","112","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL01892","13C4-
PFHpA","110","ng/L","","-99","DL","","TRG","116","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL01893","13C5
PFPeA","120","ng/L","","-99","DL","","TRG","124","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL02116","13C2-
PFTeDA","130","ng/L","","-99","DL","","TRG","134","","-99","LOQ","YES","96.2","","259.9","10.00","96",""
"TP-PFC-026-TPI","537 (modified)","RES","320-35682-1","TALSAC","STL02337","13C3-
PFBS","100","ng/L","","-99","DL","","TRG","116","","-99","LOQ","YES","89.5","","259.9","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid (PFOS)","2.9","ng/L","U
M","1.1","DL","","TRG","","","3.8","LOQ","YES","-99","","260.1","10.00","2.9",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","2058-94-8","Perfluoroundecanoic
acid (PFUnA)","1.4","ng/L","U","0.69","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","2706-90-3","Perfluoropentanoic
acid (PFPeA)","180","ng/L","","0.41","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","0.96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","85","ng/L","","0.45","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","0.96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","307-55-1","Perfluorododecanoic
acid (PFDoA)","1.4","ng/L","U","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","335-67-1","Perfluorooctanoic
acid (PFOA)","17","ng/L","M","0.52","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","0.96","ng/L","U","0.46","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","0.96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","335-77-
3","Perfluorodecanesulfonic acid
(PFDS)","1.4","ng/L","U","0.54","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","355-46-
4","Perfluorohexanesulfonic acid
(PFHxS)","1.3","ng/L","J","0.37","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","0.96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","375-22-4","Perfluorobutanoic
acid (PFBA)","120","ng/L","","0.57","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","375-73-
5","Perfluorobutanesulfonic acid
(PFBS)","2.2","ng/L","","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","0.96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","375-85-9","Perfluoroheptanoic
acid (PFHpA)","3.3","ng/L","","0.59","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","0.96","ng/L","U","0.36","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","0.96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","375-95-1","Perfluorononanoic
acid (PFNA)","1.4","ng/L","U","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","260.1","10.00","1.4",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","376-06-
7","Perfluorotetradecanoic acid
(PFTeA)","2.9","ng/L","U","0.80","DL","","TRG","","","3.8","LOQ","YES","-99","","260.1","10.00","2.9",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","72629-94-

8","Perfluorotridecanoic Acid
(PFTriA)","2.9","ng/L","U","0.73","DL","","TRG","","","3.8","LOQ","YES","-99","","260.1","10.00","2.9",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","754-91-6","Perfluorooctane
Sulfonamide
(FOSA)","2.9","ng/L","U","1.2","DL","","TRG","","","3.8","LOQ","YES","-99","","260.1","10.00","2.9",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00990","13C4
PFOA","100","ng/L","","-99","DL","","TRG","106","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00991","13C4
PFOS","90","ng/L","","-99","DL","","TRG","98","","-99","LOQ","YES","91.9","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00992","13C4
PFBA","100","ng/L","","-99","DL","","TRG","109","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00993","13C2
PFHxA","100","ng/L","","-99","DL","","TRG","105","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00994","18O2
PFHxS","90","ng/L","","-99","DL","","TRG","99","","-99","LOQ","YES","90.9","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00995","13C5
PFNA","100","ng/L","","-99","DL","","TRG","106","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00996","13C2
PFDA","110","ng/L","","-99","DL","","TRG","110","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00997","13C2
PFUnA","100","ng/L","","-99","DL","","TRG","104","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL00998","13C2
PFDoA","99","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL01056","13C8
FOSA","93","ng/L","","-99","DL","","TRG","97","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL01892","13C4-
PFHpA","99","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL01893","13C5
PFPeA","95","ng/L","","-99","DL","","TRG","99","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL02116","13C2-
PFTeDA","110","ng/L","","-99","DL","","TRG","111","","-99","LOQ","YES","96.1","","260.1","10.00","96",""
"TP-PFC-026-MID-CARBON","537 (modified)","RES","320-35682-2","TALSAC","STL02337","13C3-
PFBS","92","ng/L","","-99","DL","","TRG","102","","-99","LOQ","YES","89.4","","260.1","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","2.6","ng/L","U","0.94","DL","","TRG","","","3.4","LOQ","NO","-99","","293.7","10.00","2.6",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA)","1.3","ng/L","U","0.61","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","2706-90-3","Perfluoropentanoic acid
(PFPeA)","130","ng/L","","0.37","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","0.85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA)","34","ng/L","","0.40","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","0.85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDoA)","1.3","ng/L","U","0.44","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","0.68","ng/L","J","0.46","DL","","TRG","","","1.7","LOQ","YES","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","335-76-2","Perfluorodecanoic acid
(PFDA)","0.85","ng/L","U","0.41","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","0.85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","335-77-3","Perfluorodecanesulfonic acid
(PFDS)","1.3","ng/L","U","0.48","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","0.37","ng/L","J","0.32","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","0.85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","130","ng/L","M","0.50","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","0.54","ng/L","J","0.39","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","0.85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","1.3","ng/L","U M","0.52","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid
(PFHpS)","0.85","ng/L","U","0.31","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","0.85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","1.3","ng/L","U","0.44","DL","","TRG","","","1.7","LOQ","NO","-99","","293.7","10.00","1.3",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","376-06-7","Perfluorotetradecanoic acid
(PFTeA)","2.6","ng/L","U","0.71","DL","","TRG","","","3.4","LOQ","NO","-99","","293.7","10.00","2.6",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","72629-94-8","Perfluorotridecanoic Acid
(PFTriA)","2.6","ng/L","U","0.65","DL","","TRG","","","3.4","LOQ","NO","-99","","293.7","10.00","2.6",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","754-91-6","Perfluorooctane Sulfonamide
(FOSA)","2.6","ng/L","U","1.1","DL","","TRG","","","3.4","LOQ","NO","-99","","293.7","10.00","2.6",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00990","13C4
PFOA","51","ng/L","","-99","DL","","TRG","60","","-99","LOQ","YES","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00991","13C4
PFOS","45","ng/L","","-99","DL","","TRG","56","","-99","LOQ","NO","81.4","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00992","13C4
PFBA","50","ng/L","","-99","DL","","TRG","59","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00993","13C2
PFHxA","51","ng/L","","-99","DL","","TRG","60","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00994","18O2
PFHxS","48","ng/L","","-99","DL","","TRG","59","","-99","LOQ","NO","80.5","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00995","13C5
PFNA","50","ng/L","","-99","DL","","TRG","58","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00996","13C2
PFDA","49","ng/L","","-99","DL","","TRG","57","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00997","13C2
PFUnA","50","ng/L","","-99","DL","","TRG","58","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL00998","13C2
PFDoA","47","ng/L","","-99","DL","","TRG","55","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL01056","13C8
FOSA","49","ng/L","","-99","DL","","TRG","58","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL01892","13C4-
PFHpA","52","ng/L","","-99","DL","","TRG","61","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL01893","13C5
PFPeA","53","ng/L","","-99","DL","","TRG","62","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL02116","13C2-
PFTeDA","57","ng/L","","-99","DL","","TRG","67","","-99","LOQ","NO","85.1","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RE","320-35682-3","TALSAC","STL02337","13C3-
PFBS","46","ng/L","","-99","DL","","TRG","58","","-99","LOQ","NO","79.2","","293.7","10.00","85",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","1.2","ng/L","J","1.1","DL","","TRG","","","3.8","LOQ","YES","-99","","260.7","10.00","2.9",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA)","1.4","ng/L","U","0.69","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","2706-90-3","Perfluoropentanoic acid
(PFPeA)","130","ng/L","","0.41","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","0.96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA)","33","ng/L","","0.45","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","0.96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDoA)","1.4","ng/L","U","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","0.71","ng/L","J M","0.52","DL","","TRG","","","1.9","LOQ","NO","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","335-76-2","Perfluorodecanoic acid

(PFDA)","0.96","ng/L","U","0.46","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","0.96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","335-77-3","Perfluorodecanesulfonic acid
(PFDS)","1.4","ng/L","U","0.54","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","0.96","ng/L","U","0.36","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","0.96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","130","ng/L","","0.57","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","0.51","ng/L","J","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","0.96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","1.4","ng/L","U M","0.58","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid
(PFHpS)","0.96","ng/L","U","0.35","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","0.96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","1.4","ng/L","U","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","260.7","10.00","1.4",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","376-06-7","Perfluorotetradecanoic acid
(PFTeA)","2.9","ng/L","U","0.80","DL","","TRG","","","3.8","LOQ","YES","-99","","260.7","10.00","2.9",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","72629-94-8","Perfluorotridecanoic Acid
(PFTriA)","2.9","ng/L","U","0.73","DL","","TRG","","","3.8","LOQ","YES","-99","","260.7","10.00","2.9",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","754-91-6","Perfluorooctane Sulfonamide
(FOSA)","2.9","ng/L","U","1.2","DL","","TRG","","","3.8","LOQ","YES","-99","","260.7","10.00","2.9",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00990","13C4
PFOA","93","ng/L","","-99","DL","","TRG","97","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00991","13C4
PFOS","88","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","91.7","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00992","13C4
PFBA","100","ng/L","","-99","DL","","TRG","105","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00993","13C2
PFHxA","97","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00994","18O2
PFHxS","89","ng/L","","-99","DL","","TRG","98","","-99","LOQ","YES","90.7","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00995","13C5
PFNA","89","ng/L","","-99","DL","","TRG","93","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00996","13C2
PFDA","98","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00997","13C2
PFUnA","90","ng/L","","-99","DL","","TRG","94","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL00998","13C2
PFDoA","88","ng/L","","-99","DL","","TRG","92","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL01056","13C8
FOSA","90","ng/L","","-99","DL","","TRG","94","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL01892","13C4-
PFHpA","100","ng/L","","-99","DL","","TRG","106","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL01893","13C5
PFPeA","97","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL02116","13C2-
PFTeDA","98","ng/L","","-99","DL","","TRG","102","","-99","LOQ","YES","95.9","","260.7","10.00","96",""
"TP-PFC-026-TPE","537 (modified)","RES","320-35682-3","TALSAC","STL02337","13C3-
PFBS","91","ng/L","","-99","DL","","TRG","102","","-99","LOQ","YES","89.2","","260.7","10.00","96",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","2.6","ng/L","U","0.94","DL","","TRG","","","3.4","LOQ","NO","-99","","293.9","10.00","2.6",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA)","1.3","ng/L","U","0.61","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","2706-90-3","Perfluoropentanoic acid

(PFPeA)","130","ng/L","","0.37","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","0.85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA)","33","ng/L","","0.40","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","0.85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDoA)","1.3","ng/L","U","0.44","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","0.66","ng/L","J","0.46","DL","","TRG","","","1.7","LOQ","YES","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","335-76-2","Perfluorodecanoic acid
(PFDA)","0.85","ng/L","U","0.41","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","0.85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","335-77-3","Perfluorodecanesulfonic acid
(PFDS)","1.3","ng/L","U","0.48","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","0.85","ng/L","U","0.32","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","0.85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","130","ng/L","M","0.50","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","0.54","ng/L","J","0.39","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","0.85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","0.64","ng/L","J M","0.52","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid
(PFHpS)","0.85","ng/L","U","0.31","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","0.85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","1.3","ng/L","U","0.44","DL","","TRG","","","1.7","LOQ","NO","-99","","293.9","10.00","1.3",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","376-06-7","Perfluorotetradecanoic acid
(PFTeA)","2.6","ng/L","U","0.71","DL","","TRG","","","3.4","LOQ","NO","-99","","293.9","10.00","2.6",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","72629-94-8","Perfluorotridecanoic Acid
(PFTriA)","2.6","ng/L","U","0.65","DL","","TRG","","","3.4","LOQ","NO","-99","","293.9","10.00","2.6",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","754-91-6","Perfluorooctane Sulfonamide
(FOSA)","2.6","ng/L","U","1.1","DL","","TRG","","","3.4","LOQ","NO","-99","","293.9","10.00","2.6",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00990","13C4
PFOA","50","ng/L","","-99","DL","","TRG","59","","-99","LOQ","YES","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00991","13C4
PFOS","44","ng/L","","-99","DL","","TRG","54","","-99","LOQ","NO","81.3","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00992","13C4
PFBA","49","ng/L","","-99","DL","","TRG","58","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00993","13C2
PFHxA","51","ng/L","","-99","DL","","TRG","60","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00994","18O2
PFHxS","47","ng/L","","-99","DL","","TRG","59","","-99","LOQ","NO","80.5","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00995","13C5
PFNA","50","ng/L","","-99","DL","","TRG","59","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00996","13C2
PFDA","50","ng/L","","-99","DL","","TRG","59","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00997","13C2
PFUnA","49","ng/L","","-99","DL","","TRG","58","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL00998","13C2
PFDoA","46","ng/L","","-99","DL","","TRG","54","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL01056","13C8
FOSA","49","ng/L","","-99","DL","","TRG","57","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL01892","13C4-
PFHpA","53","ng/L","","-99","DL","","TRG","62","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL01893","13C5
PFPeA","52","ng/L","","-99","DL","","TRG","61","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL02116","13C2-

PFTeDA","60","ng/L","","-99","DL","","TRG","70","","-99","LOQ","NO","85.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RE","320-35682-4","TALSAC","STL02337","13C3-
PFBS","47","ng/L","","-99","DL","","TRG","59","","-99","LOQ","NO","79.1","","293.9","10.00","85",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","3.0","ng/L","U","1.1","DL","","TRG","","","4.0","LOQ","YES","-99","","252.2","10.00","3.0",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA)","1.5","ng/L","U","0.71","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","2706-90-3","Perfluoropentanoic acid
(PFPeA)","130","ng/L","","0.43","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","0.99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA)","33","ng/L","","0.47","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","0.99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDoA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","15","ng/L","M","0.54","DL","","TRG","","","2.0","LOQ","NO","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","335-76-2","Perfluorodecanoic acid
(PFDA)","0.99","ng/L","U","0.48","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","0.99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","335-77-3","Perfluorodecanesulfonic acid
(PFDS)","1.5","ng/L","U","0.56","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","0.99","ng/L","U","0.38","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","0.99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","120","ng/L","M","0.58","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","0.53","ng/L","J","0.46","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","0.99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","0.82","ng/L","J","0.60","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid
(PFHpS)","0.99","ng/L","U","0.37","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","0.99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","252.2","10.00","1.5",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","376-06-7","Perfluorotetradecanoic acid
(PFTeA)","3.0","ng/L","U","0.82","DL","","TRG","","","4.0","LOQ","YES","-99","","252.2","10.00","3.0",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","72629-94-8","Perfluorotridecanoic Acid
(PFTriA)","3.0","ng/L","U","0.75","DL","","TRG","","","4.0","LOQ","YES","-99","","252.2","10.00","3.0",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","754-91-6","Perfluorooctane Sulfonamide
(FOSA)","3.0","ng/L","U","1.3","DL","","TRG","","","4.0","LOQ","YES","-99","","252.2","10.00","3.0",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00990","13C4
PFOA","99","ng/L","","-99","DL","","TRG","100","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00991","13C4
PFOS","91","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","94.8","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00992","13C4
PFBA","100","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00993","13C2
PFHxA","100","ng/L","","-99","DL","","TRG","102","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00994","18O2
PFHxS","97","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","93.8","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00995","13C5
PFNA","100","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00996","13C2
PFDA","110","ng/L","","-99","DL","","TRG","107","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00997","13C2
PFUnA","100","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL00998","13C2

PFDoA","100","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL01056","13C8
FOSA","93","ng/L","","-99","DL","","TRG","94","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL01892","13C4-
PFHpA","99","ng/L","","-99","DL","","TRG","100","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL01893","13C5
PFPeA","98","ng/L","","-99","DL","","TRG","99","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL02116","13C2-
PFTeDA","110","ng/L","","-99","DL","","TRG","106","","-99","LOQ","YES","99.1","","252.2","10.00","99",""
"TP-PFC-026-TPE-D","537 (modified)","RES","320-35682-4","TALSAC","STL02337","13C3-
PFBS","88","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","92.2","","252.2","10.00","99",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid
(PFOS)","37.6","ng/L","","1.1","DL","","SPK","101","","4.0","LOQ","YES","37.1","","250.0","10.00","3.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","2058-94-
8","Perfluoroundecanoic acid
(PFUnA)","39.9","ng/L","","0.72","DL","","SPK","100","","2.0","LOQ","YES","40.0","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","2706-90-3","Perfluoropentanoic
acid (PFPeA)","41.7","ng/L","","0.43","DL","","SPK","104","","2.0","LOQ","YES","40.0","","250.0","10.00","1.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","39.4","ng/L","","0.47","DL","","SPK","98","","2.0","LOQ","YES","40.0","","250.0","10.00","1.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","307-55-1","Perfluorododecanoic
acid (PFDoA)","41.8","ng/L","","0.52","DL","","SPK","105","","2.0","LOQ","YES","40.0","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","335-67-1","Perfluorooctanoic
acid (PFOA)","40.3","ng/L","","0.54","DL","","SPK","101","","2.0","LOQ","YES","40.0","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","42.1","ng/L","","0.48","DL","","SPK","105","","2.0","LOQ","YES","40.0","","250.0","10.00","1.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","335-77-
3","Perfluorodecanesulfonic acid
(PFDS)","39.1","ng/L","","0.56","DL","","SPK","101","","2.0","LOQ","YES","38.6","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","355-46-
4","Perfluorohexanesulfonic acid
(PFHxS)","33.9","ng/L","","0.38","DL","","SPK","93","","2.0","LOQ","YES","36.4","","250.0","10.00","1.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","375-22-4","Perfluorobutanoic
acid
(PFBA)","41.3","ng/L","M","0.59","DL","","SPK","103","","2.0","LOQ","YES","40.0","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","375-73-
5","Perfluorobutanesulfonic acid
(PFBS)","37.8","ng/L","","0.46","DL","","SPK","107","","2.0","LOQ","YES","35.4","","250.0","10.00","1.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","375-85-9","Perfluoroheptanoic
acid (PFHpA)","40.1","ng/L","","0.61","DL","","SPK","100","","2.0","LOQ","YES","40.0","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","41.2","ng/L","","0.37","DL","","SPK","108","","2.0","LOQ","YES","38.1","","250.0","10.00","1.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","375-95-1","Perfluorononanoic
acid (PFNA)","41.2","ng/L","","0.52","DL","","SPK","103","","2.0","LOQ","YES","40.0","","250.0","10.00","1.5",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","376-06-
7","Perfluorotetradecanoic acid
(PFTeA)","42.5","ng/L","","0.83","DL","","SPK","106","","4.0","LOQ","YES","40.0","","250.0","10.00","3.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","72629-94-
8","Perfluorotridecanoic Acid
(PFTriA)","43.9","ng/L","","0.76","DL","","SPK","110","","4.0","LOQ","YES","40.0","","250.0","10.00","3.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","754-91-6","Perfluorooctane
Sulfonamide

(FOSA)","40.1","ng/L","","1.3","DL","","SPK","100","","4.0","LOQ","YES","40.0","","250.0","10.00","3.0",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00990","13C4
PFOA","104","ng/L","","-99","DL","","SPK","104","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00991","13C4
PFOS","98.4","ng/L","","-99","DL","","SPK","103","","-99","LOQ","YES","95.6","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00992","13C4
PFBA","107","ng/L","M","-99","DL","","SPK","107","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00993","13C2
PFHxA","102","ng/L","","-99","DL","","SPK","102","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00994","18O2
PFHxS","101","ng/L","","-99","DL","","SPK","106","","-99","LOQ","YES","94.6","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00995","13C5
PFNA","103","ng/L","","-99","DL","","SPK","103","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00996","13C2
PFDA","109","ng/L","","-99","DL","","SPK","109","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00997","13C2
PFUnA","103","ng/L","","-99","DL","","SPK","103","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL00998","13C2
PFDoA","99.0","ng/L","","-99","DL","","SPK","99","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL01056","13C8
FOSA","97.4","ng/L","","-99","DL","","SPK","97","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL01892","13C4-
PFHpA","104","ng/L","","-99","DL","","SPK","104","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL01893","13C5
PFPeA","101","ng/L","","-99","DL","","SPK","101","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL02116","13C2-
PFTeDA","113","ng/L","","-99","DL","","SPK","113","","-99","LOQ","YES","100","","250.0","10.00","100",""
"LCS 320-207074/2-A","537 (modified)","RES","LCS 320-207074/2-A","TALSAC","STL02337","13C3-
PFBS","98.8","ng/L","","-99","DL","","SPK","106","","-99","LOQ","YES","93.0","","250.0","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid
(PFOS)","37.8","ng/L","M","1.1","DL","","SPK","102","","4.0","LOQ","YES","37.1","","250.00","10.00","3.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","2058-94-
8","Perfluoroundecanoic acid
(PFUnA)","35.7","ng/L","","0.72","DL","","SPK","89","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","2706-90-3","Perfluoropentanoic
acid
(PFPeA)","37.7","ng/L","M","0.43","DL","","SPK","94","","2.0","LOQ","YES","40.0","","250.00","10.00","1.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","38.5","ng/L","","0.47","DL","","SPK","96","","2.0","LOQ","YES","40.0","","250.00","10.00","1.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","307-55-1","Perfluorododecanoic
acid
(PFDoA)","41.2","ng/L","","0.52","DL","","SPK","103","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","335-67-1","Perfluorooctanoic
acid (PFOA)","39.7","ng/L","","0.54","DL","","SPK","99","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","40.3","ng/L","","0.48","DL","","SPK","101","","2.0","LOQ","YES","40.0","","250.00","10.00","1.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","335-77-
3","Perfluorodecanesulfonic acid
(PFDS)","39.5","ng/L","","0.56","DL","","SPK","102","","2.0","LOQ","YES","38.6","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","355-46-
4","Perfluorohexanesulfonic acid
(PFHxS)","34.9","ng/L","","0.38","DL","","SPK","96","","2.0","LOQ","YES","36.4","","250.00","10.00","1.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","375-22-4","Perfluorobutanoic

acid
(PFBA)","40.2","ng/L","M","0.59","DL","","SPK","100","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","375-73-
5","Perfluorobutanesulfonic acid
(PFBS)","40.0","ng/L","","0.46","DL","","SPK","113","","2.0","LOQ","YES","35.4","","250.00","10.00","1.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","375-85-9","Perfluoroheptanoic
acid (PFHpA)","38.4","ng/L","","0.61","DL","","SPK","96","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","40.9","ng/L","","0.37","DL","","SPK","107","","2.0","LOQ","YES","38.1","","250.00","10.00","1.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","375-95-1","Perfluorononanoic
acid (PFNA)","37.6","ng/L","","0.52","DL","","SPK","94","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","376-06-
7","Perfluorotetradecanoic acid
(PFTeA)","41.3","ng/L","","0.83","DL","","SPK","103","","4.0","LOQ","YES","40.0","","250.00","10.00","3.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","72629-94-
8","Perfluorotridecanoic Acid
(PFTriA)","44.1","ng/L","","0.76","DL","","SPK","110","","4.0","LOQ","YES","40.0","","250.00","10.00","3.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","754-91-6","Perfluorooctane
Sulfonamide
(FOSA)","41.1","ng/L","","1.3","DL","","SPK","103","","4.0","LOQ","YES","40.0","","250.00","10.00","3.0",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00990","13C4
PFOA","72.6","ng/L","","-99","DL","","SPK","73","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00991","13C4
PFOS","65.9","ng/L","","-99","DL","","SPK","69","","-99","LOQ","YES","95.6","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00992","13C4
PFBA","73.6","ng/L","M","-99","DL","","SPK","74","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00993","13C2
PFHxA","73.4","ng/L","","-99","DL","","SPK","73","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00994","18O2
PFHxS","67.3","ng/L","","-99","DL","","SPK","71","","-99","LOQ","YES","94.6","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00995","13C5
PFNA","72.9","ng/L","","-99","DL","","SPK","73","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00996","13C2
PFDA","71.3","ng/L","","-99","DL","","SPK","71","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00997","13C2
PFUnA","71.3","ng/L","","-99","DL","","SPK","71","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL00998","13C2
PFDoA","65.0","ng/L","","-99","DL","","SPK","65","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL01056","13C8
FOSA","66.0","ng/L","","-99","DL","","SPK","66","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL01892","13C4-
PFHpA","73.1","ng/L","","-99","DL","","SPK","73","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL01893","13C5
PFPeA","75.5","ng/L","","-99","DL","","SPK","76","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL02116","13C2-
PFTeDA","81.6","ng/L","","-99","DL","","SPK","82","","-99","LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-208463/2-A","537 (modified)","RES","LCS 320-208463/2-A","TALSAC","STL02337","13C3-
PFBS","61.4","ng/L","","-99","DL","","SPK","66","","-99","LOQ","YES","93.0","","250.00","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid
(PFOS)","38.1","ng/L","","1.1","DL","","SPK","103","1","4.0","LOQ","YES","37.1","LCS 320-207074/2-
A","250.0","10.00","3.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","2058-94-

8","Perfluoroundecanoic acid
(PFUnA)","37.7","ng/L","","0.72","DL","","SPK","94","6","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","2706-90-
3","Perfluoropentanoic acid
(PFPeA)","38.6","ng/L","","0.43","DL","","SPK","96","8","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","307-24-
4","Perfluorohexanoic acid
(PFHxA)","39.0","ng/L","","0.47","DL","","SPK","98","1","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","307-55-
1","Perfluorododecanoic acid
(PFDoA)","38.3","ng/L","","0.52","DL","","SPK","96","9","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","335-67-
1","Perfluorooctanoic acid
(PFOA)","41.8","ng/L","","0.54","DL","","SPK","104","4","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","335-76-
2","Perfluorodecanoic acid
(PFDA)","40.1","ng/L","","0.48","DL","","SPK","100","5","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","335-77-
3","Perfluorodecanesulfonic acid
(PFDS)","38.1","ng/L","","0.56","DL","","SPK","99","3","2.0","LOQ","YES","38.6","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","355-46-
4","Perfluorohexanesulfonic acid
(PFHxS)","35.8","ng/L","","0.38","DL","","SPK","98","5","2.0","LOQ","YES","36.4","LCS 320-207074/2-
A","250.0","10.00","1.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","375-22-
4","Perfluorobutanoic acid
(PFBA)","40.5","ng/L","M","0.59","DL","","SPK","101","2","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","375-73-
5","Perfluorobutanesulfonic acid
(PFBS)","40.7","ng/L","","0.46","DL","","SPK","115","7","2.0","LOQ","YES","35.4","LCS 320-207074/2-
A","250.0","10.00","1.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","375-85-
9","Perfluoroheptanoic acid
(PFHpA)","41.0","ng/L","","0.61","DL","","SPK","103","2","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","39.1","ng/L","","0.37","DL","","SPK","103","5","2.0","LOQ","YES","38.1","LCS 320-207074/2-
A","250.0","10.00","1.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","375-95-
1","Perfluorononanoic acid
(PFNA)","40.1","ng/L","","0.52","DL","","SPK","100","3","2.0","LOQ","YES","40.0","LCS 320-207074/2-
A","250.0","10.00","1.5",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","376-06-
7","Perfluorotetradecanoic acid
(PFTeA)","44.4","ng/L","","0.83","DL","","SPK","111","5","4.0","LOQ","YES","40.0","LCS 320-207074/2-

A","250.0","10.00","3.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","72629-94-8","Perfluorotridecanoic Acid (PFTriA)","40.9","ng/L","","0.76","DL","","SPK","102","7","4.0","LOQ","YES","40.0","LCS 320-207074/2-A","250.0","10.00","3.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","754-91-6","Perfluorooctane Sulfonamide (FOSA)","41.5","ng/L","","1.3","DL","","SPK","104","4","4.0","LOQ","YES","40.0","LCS 320-207074/2-A","250.0","10.00","3.0",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00990","13C4 PFOA","102","ng/L","","-99","DL","","SPK","102","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00991","13C4 PFOS","98.9","ng/L","","-99","DL","","SPK","103","","-99","LOQ","YES","95.6","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00992","13C4 PFBA","108","ng/L","","-99","DL","","SPK","108","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00993","13C2 PFHxA","108","ng/L","","-99","DL","","SPK","108","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00994","18O2 PFHxS","97.8","ng/L","","-99","DL","","SPK","103","","-99","LOQ","YES","94.6","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00995","13C5 PFNA","106","ng/L","","-99","DL","","SPK","106","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00996","13C2 PFDA","113","ng/L","","-99","DL","","SPK","113","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00997","13C2 PFUnA","109","ng/L","","-99","DL","","SPK","109","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL00998","13C2 PFDoA","104","ng/L","","-99","DL","","SPK","104","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL01056","13C8 FOSA","94.6","ng/L","","-99","DL","","SPK","95","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL01892","13C4-PFHpA","106","ng/L","","-99","DL","","SPK","106","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL01893","13C5 PFPeA","103","ng/L","","-99","DL","","SPK","103","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL02116","13C2-PFTeDA","111","ng/L","","-99","DL","","SPK","111","","-99","LOQ","YES","100","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-207074/3-A","537 (modified)","RES","LCSD 320-207074/3-A","TALSAC","STL02337","13C3-PFBS","89.8","ng/L","","-99","DL","","SPK","97","","-99","LOQ","YES","93.0","LCS 320-207074/2-A","250.0","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","34.4","ng/L","M","1.1","DL","","SPK","93","10","4.0","LOQ","YES","37.1","LCS 320-208463/2-A","250.00","10.00","3.0",""

"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","2058-94-8","Perfluoroundecanoic acid (PFUnA)","32.3","ng/L","","0.72","DL","","SPK","81","10","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","2706-90-3","Perfluoropentanoic acid (PFPeA)","35.2","ng/L","M","0.43","DL","","SPK","88","7","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","307-24-4","Perfluorohexanoic acid (PFHxA)","36.2","ng/L","","0.47","DL","","SPK","90","6","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","307-55-1","Perfluorododecanoic acid (PFDoA)","41.3","ng/L","","0.52","DL","","SPK","103","0","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","37.8","ng/L","","0.54","DL","","SPK","95","5","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","335-76-2","Perfluorodecanoic acid (PFDA)","38.1","ng/L","","0.48","DL","","SPK","95","6","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","35.9","ng/L","","0.56","DL","","SPK","93","10","2.0","LOQ","YES","38.6","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","32.6","ng/L","","0.38","DL","","SPK","89","7","2.0","LOQ","YES","36.4","LCS 320-208463/2-A","250.00","10.00","1.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","37.8","ng/L","M","0.59","DL","","SPK","95","6","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36.2","ng/L","","0.46","DL","","SPK","102","10","2.0","LOQ","YES","35.4","LCS 320-208463/2-A","250.00","10.00","1.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","38.3","ng/L","","0.61","DL","","SPK","96","0","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","37.2","ng/L","","0.37","DL","","SPK","98","9","2.0","LOQ","YES","38.1","LCS 320-208463/2-A","250.00","10.00","1.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","36.8","ng/L","","0.52","DL","","SPK","92","2","2.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","1.5",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","39.3","ng/L","","0.83","DL","","SPK","98","5","4.0","LOQ","YES","40.0","LCS 320-208463/2-A","250.00","10.00","3.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","72629-94-

8","Perfluorotridecanoic Acid
(PFTriA)","46.3","ng/L","","0.76","DL","","SPK","116","5","4.0","LOQ","YES","40.0","LCS 320-208463/2-
A","250.00","10.00","3.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","754-91-6","Perfluorooctane
Sulfonamide (FOSA)","37.2","ng/L","","1.3","DL","","SPK","93","10","4.0","LOQ","YES","40.0","LCS 320-
208463/2-A","250.00","10.00","3.0",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00990","13C4
PFOA","56.9","ng/L","","-99","DL","","SPK","57","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00991","13C4
PFOS","54.4","ng/L","","-99","DL","","SPK","57","","-99","LOQ","YES","95.6","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00992","13C4
PFBA","56.2","ng/L","M","-99","DL","","SPK","56","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00993","13C2
PFHxA","58.3","ng/L","","-99","DL","","SPK","58","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00994","18O2
PFHxS","55.3","ng/L","","-99","DL","","SPK","58","","-99","LOQ","YES","94.6","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00995","13C5
PFNA","57.2","ng/L","","-99","DL","","SPK","57","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00996","13C2
PFDA","58.2","ng/L","","-99","DL","","SPK","58","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00997","13C2
PFUnA","58.4","ng/L","","-99","DL","","SPK","58","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL00998","13C2
PFDoA","48.5","ng/L","","-99","DL","","SPK","48","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL01056","13C8
FOSA","54.8","ng/L","","-99","DL","","SPK","55","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL01892","13C4-
PFHpA","57.7","ng/L","","-99","DL","","SPK","58","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL01893","13C5
PFPeA","60.6","ng/L","","-99","DL","","SPK","61","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL02116","13C2-
PFTeDA","71.0","ng/L","","-99","DL","","SPK","71","","-99","LOQ","YES","100","LCS 320-208463/2-
A","250.00","10.00","100",""
"LCSD 320-208463/3-A","537 (modified)","RES","LCSD 320-208463/3-A","TALSAC","STL02337","13C3-
PFBS","50.2","ng/L","","-99","DL","","SPK","54","","-99","LOQ","YES","93.0","LCS 320-208463/2-
A","250.00","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid
(PFOS)","3.0","ng/L","U","1.1","DL","","TRG","","","4.0","LOQ","YES","-99","","250.0","10.00","3.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","2058-94-8","Perfluoroundecanoic
acid (PFUnA)","1.5","ng/L","U","0.72","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","2706-90-3","Perfluoropentanoic

acid (PFPeA)","1.0","ng/L","U","0.43","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","1.0","ng/L","U M","0.47","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","307-55-1","Perfluorododecanoic
acid (PFDoA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","1.5","ng/L","U","0.54","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","1.0","ng/L","U","0.48","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","335-77-
3","Perfluorodecanesulfonic acid
(PFDS)","1.5","ng/L","U","0.56","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","355-46-
4","Perfluorohexanesulfonic acid
(PFHxS)","1.0","ng/L","U","0.38","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","1.5","ng/L","U","0.59","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","375-73-
5","Perfluorobutanesulfonic acid
(PFBS)","1.0","ng/L","U","0.46","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","375-85-9","Perfluoroheptanoic
acid (PFHpA)","1.5","ng/L","U","0.61","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","1.0","ng/L","U","0.37","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","375-95-1","Perfluorononanoic
acid (PFNA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","250.0","10.00","1.5",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","376-06-7","Perfluorotetradecanoic
acid (PFTeA)","3.0","ng/L","U","0.83","DL","","TRG","","","4.0","LOQ","YES","-99","","250.0","10.00","3.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","72629-94-
8","Perfluorotridecanoic Acid
(PFTriA)","3.0","ng/L","U","0.76","DL","","TRG","","","4.0","LOQ","YES","-99","","250.0","10.00","3.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","754-91-6","Perfluorooctane
Sulfonamide
(FOSA)","3.0","ng/L","U","1.3","DL","","TRG","","","4.0","LOQ","YES","-99","","250.0","10.00","3.0",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00990","13C4
PFOA","99.4","ng/L","","-99","DL","","TRG","99","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00991","13C4
PFOS","92.2","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","95.6","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00992","13C4
PFBA","103","ng/L","M","-99","DL","","TRG","103","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00993","13C2
PFHxA","101","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00994","18O2
PFHxS","94.2","ng/L","","-99","DL","","TRG","100","","-99","LOQ","YES","94.6","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00995","13C5
PFNA","95.5","ng/L","","-99","DL","","TRG","95","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00996","13C2
PFDA","107","ng/L","","-99","DL","","TRG","107","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00997","13C2
PFUnA","103","ng/L","","-99","DL","","TRG","103","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL00998","13C2
PFDoA","94.5","ng/L","","-99","DL","","TRG","94","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL01056","13C8

FOSA","89.4","ng/L","","-99","DL","","TRG","89","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL01892","13C4-
PFHpA","101","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL01893","13C5
PFPeA","96.4","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL02116","13C2-
PFTeDA","108","ng/L","","-99","DL","","TRG","108","","-99","LOQ","YES","100","","250.0","10.00","100",""
"MB 320-207074/1-A","537 (modified)","RES","MB 320-207074/1-A","TALSAC","STL02337","13C3-
PFBS","89.5","ng/L","","-99","DL","","TRG","96","","-99","LOQ","YES","93.0","","250.0","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid
(PFOS)","3.0","ng/L","U","1.1","DL","","TRG","","","4.0","LOQ","YES","-99","","250.00","10.00","3.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","2058-94-8","Perfluoroundecanoic
acid (PFUnA)","1.5","ng/L","U","0.72","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","2706-90-3","Perfluoropentanoic
acid (PFPeA)","1.0","ng/L","U M","0.43","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","1.0","ng/L","U M","0.47","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","307-55-1","Perfluorododecanoic
acid (PFDoA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","1.5","ng/L","U M","0.54","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","1.0","ng/L","U","0.48","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","335-77-
3","Perfluorodecanesulfonic acid
(PFDS)","1.5","ng/L","U","0.56","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","355-46-
4","Perfluorohexanesulfonic acid
(PFHxS)","1.0","ng/L","U","0.38","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","1.5","ng/L","U","0.59","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","375-73-
5","Perfluorobutanesulfonic acid
(PFBS)","1.0","ng/L","U","0.46","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","375-85-9","Perfluoroheptanoic
acid (PFHpA)","1.5","ng/L","U","0.61","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","1.0","ng/L","U","0.37","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","375-95-1","Perfluorononanoic
acid (PFNA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","376-06-7","Perfluorotetradecanoic
acid (PFTeA)","3.0","ng/L","U","0.83","DL","","TRG","","","4.0","LOQ","YES","-99","","250.00","10.00","3.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","72629-94-
8","Perfluorotridecanoic Acid
(PFTriA)","3.0","ng/L","U","0.76","DL","","TRG","","","4.0","LOQ","YES","-99","","250.00","10.00","3.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","754-91-6","Perfluorooctane
Sulfonamide
(FOSA)","3.0","ng/L","U","1.3","DL","","TRG","","","4.0","LOQ","YES","-99","","250.00","10.00","3.0",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00990","13C4
PFOA","70.4","ng/L","","-99","DL","","TRG","70","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00991","13C4
PFOS","64.4","ng/L","","-99","DL","","TRG","67","","-99","LOQ","YES","95.6","","250.00","10.00","100",""

"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00992","13C4
PFBA","70.4","ng/L","M","-99","DL","","TRG","70","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00993","13C2
PFHxA","71.5","ng/L","","-99","DL","","TRG","71","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00994","18O2
PFHxS","68.6","ng/L","","-99","DL","","TRG","72","","-99","LOQ","YES","94.6","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00995","13C5
PFNA","69.8","ng/L","","-99","DL","","TRG","70","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00996","13C2
PFDA","71.5","ng/L","","-99","DL","","TRG","72","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00997","13C2
PFUnA","71.7","ng/L","","-99","DL","","TRG","72","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL00998","13C2
PFDoA","62.4","ng/L","","-99","DL","","TRG","62","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL01056","13C8
FOSA","65.5","ng/L","","-99","DL","","TRG","66","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL01892","13C4-
PFHpA","73.7","ng/L","","-99","DL","","TRG","74","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL01893","13C5
PFPeA","74.4","ng/L","","-99","DL","","TRG","74","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL02116","13C2-
PFTeDA","77.5","ng/L","","-99","DL","","TRG","77","","-99","LOQ","YES","100","","250.00","10.00","100",""
"MB 320-208463/1-A","537 (modified)","RES","MB 320-208463/1-A","TALSAC","STL02337","13C3-
PFBS","65.4","ng/L","","-99","DL","","TRG","70","","-99","LOQ","YES","93.0","","250.00","10.00","100",""
"Unknown","Unknown","TP-PFC-026-TPI","02/01/2018 09:45","AQ","320-35682-1","NM","","5.90","537
(modified)","3535","RES","02/06/2018 08:50","02/07/2018
14:59","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-
207472","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","TP-PFC-026-TPI","02/01/2018 09:45","AQ","320-35682-1","NM","","5.90","537
(modified)","3535","DL","02/06/2018 08:50","02/08/2018
23:12","TALSAC","COA","WET","NA","10","NA","NA","","100","320-207074","320-207074","NA","320-
207696","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","TP-PFC-026-MID-CARBON","02/01/2018 09:50","AQ","320-35682-
2","NM","","5.90","537 (modified)","3535","RES","02/06/2018 08:50","02/07/2018
15:07","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-
207472","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","TP-PFC-026-TPE","02/01/2018 09:55","AQ","320-35682-3","NM","","5.90","537
(modified)","3535","RES","02/06/2018 08:50","02/07/2018
15:15","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-
207472","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","TP-PFC-026-TPE","02/01/2018 09:55","AQ","320-35682-3","NM","","5.90","537
(modified)","3535","RE","02/14/2018 19:07","02/16/2018
16:35","TALSAC","COA","WET","NA","1","NA","NA","","100","320-208463","320-208463","NA","320-
208866","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","TP-PFC-026-TPE-D","02/01/2018 00:00","AQ","320-35682-4","FD","","5.90","537
(modified)","3535","RES","02/06/2018 08:50","02/07/2018
15:23","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-
207472","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","TP-PFC-026-TPE-D","02/01/2018 00:00","AQ","320-35682-4","FD","","5.90","537
(modified)","3535","RE","02/14/2018 19:07","02/16/2018
16:43","TALSAC","COA","WET","NA","1","NA","NA","","100","320-208463","320-208463","NA","320-
208866","320-35682-1","02/02/2018 09:05","02/05/2018 10:10",""
"Unknown","Unknown","LCS 320-207074/2-A","","AQ","LCS 320-207074/2-A","LCS","","-99","537
(modified)","3535","RES","02/06/2018 08:50","02/07/2018

13:25","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-207472","320-35682-1","02/06/2018 08:50","02/05/2018 10:10",""
"Unknown","Unknown","LCS 320-208463/2-A","","AQ","LCS 320-208463/2-A","LCS","","-99","537 (modified)","3535","RES","02/14/2018 19:07","02/16/2018 16:20","TALSAC","COA","WET","NA","1","NA","NA","","100","320-208463","320-208463","NA","320-208866","320-35682-1","02/14/2018 19:07","02/05/2018 10:10",""
"Unknown","Unknown","LCSD 320-207074/3-A","","AQ","LCSD 320-207074/3-A","LCSD","","-99","537 (modified)","3535","RES","02/06/2018 08:50","02/07/2018 13:33","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-207472","320-35682-1","02/06/2018 08:50","02/05/2018 10:10",""
"Unknown","Unknown","LCSD 320-208463/3-A","","AQ","LCSD 320-208463/3-A","LCSD","","-99","537 (modified)","3535","RES","02/14/2018 19:07","02/16/2018 16:28","TALSAC","COA","WET","NA","1","NA","NA","","100","320-208463","320-208463","NA","320-208866","320-35682-1","02/14/2018 19:07","02/05/2018 10:10",""
"Unknown","Unknown","MB 320-207074/1-A","","AQ","MB 320-207074/1-A","MB","","-99","537 (modified)","3535","RES","02/06/2018 08:50","02/07/2018 13:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207074","320-207074","NA","320-207472","320-35682-1","02/06/2018 08:50","02/05/2018 10:10",""
"Unknown","Unknown","MB 320-208463/1-A","","AQ","MB 320-208463/1-A","MB","","-99","537 (modified)","3535","RES","02/14/2018 19:07","02/16/2018 16:12","TALSAC","COA","WET","NA","1","NA","NA","","100","320-208463","320-208463","NA","320-208866","320-35682-1","02/14/2018 19:07","02/05/2018 10:10",""

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **J. ORIENT** **DATE:** **MARCH 22, 2018**

FROM: **MICHELLE L. WOEBER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)**
FORMER NAVAL AIR STATION (NAS) BRUNSWICK, BRUNSWICK, ME
CTO WE21 PFC ASSESSMENT
SAMPLE DELIVERY GROUP (SDG) 320-35682-1

SAMPLES: 4/Aqueous/PFAS

TP-PFC-026-MID-CARBON TP-PFC-026-TPE TP-PFC-026-TPE-D
TP-PFC-026-TPI

Overview

The sample set for former NAS Brunswick, SDG 320-35682-1 consisted of four (4) aqueous environmental samples. All four (4) aqueous samples were analyzed for Polyfluoroalkyl Substances (PFAS). One field duplicate pair was included in these Sample Delivery Groups (SDG): TP-PFC-025-TPE/TP-PFC-025-TPE-D.

The samples were collected by Tetra Tech, Inc. on February 1, 2018 and analyzed by Test America, Inc. The analyses were conducted using EPA Method 537 Modified analytical and reporting protocols. The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times/Sample Preservation
* • LC/MS/MS Tuning
* • Ion Transfer Check
* • Initial and Continuing Calibration Results
* • Laboratory Method Blank Results
* • Surrogate Spike Recoveries
* • Laboratory Control Sample/Laboratory Control Sample Duplicate Results
* • Field Duplicate Precision
* • Detection Limits
* • Compound Identification and Quantification

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B, and Appendix C contains the documentation to support the findings as discussed in this data validation report. An EPA Region 1 tier II validation was performed on the data in this SDG. The text of this report has been formulated to address only those areas affecting data quality.

NOTES

Field Reagent Blanks (FRBs) were not provided with the environmental samples.

The initial results for pentadecafluorooctanoic acid (perfluorooctanoic acid (PFOA)) in the field duplicate pair, TP-PFC-026-TPE/TP-PFC-026-TPE-D, differed by more than a factor of 10 in the initial analyses. The

laboratory re-extracted/reanalyzed the samples within holding times. The detected results in the reanalyses were comparable and , therefore, the reanalyses of the field duplicate pair were used in the data validation.

The concentrations of PFOA and perfluorohexanesulfonic acid (PFHxS) exceeded the instrument calibration range in sample TP-PFC-026-TPI. The sample was reanalyzed at a 10X dilution. The results for these compounds from the dilution were used in the data validation. Additionally, the extraction internal standard for 13C2 PFTeDA was below 10% (actual %R = 8%) but no action was required because the aforementioned compounds were not quantified using that internal standard.

Detected results reported below the LOQ but above the Detection Limit (DL) were qualified as estimated, (J). Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance: The lab re-prepared the field duplicate pair samples due to likely lab contamination causing PFOA results to differ. The re-extraction of the pair yielded results that were comparable.

Other Factors Affecting Data Quality: The field duplicate pair was re-extracted/reanalyzed. One sample was further diluted. Detected results below the LOQ were estimated.

The data for these analyses were reviewed with reference to the EPA New England Environmental Data Review Supplement for Regional Data Review Elements Superfund Guidance/Procedures (April 2013), National Functional Guidelines for Organic Data Validation (January 2017), and the Department of Defense (DoD) document entitled, “Quality Systems Manual (QSM) for Environmental Laboratories” (July 2013). The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Woeber
for Environmental Chemist

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

Attachments:

Appendix A - Qualified Analytical Results
Appendix B - Results as reported by the Laboratory
Appendix C - Support Documentation

Data Qualifier Definitions

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

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

APPENDIX A

QUALIFIED LABORATORY RESULTS

Qualifier Codes:

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

PROJ_NO: 08005-WE21	NSAMPLE	TP-PFC-026-MID-CARBON			TP-PFC-026-TPE-D-RE			TP-PFC-026-TPE-RE			TP-PFC-026-TPI		
SDG: 320-35682-1	LAB_ID	320-35682-2			320-35682-4			320-35682-3			320-35682-1		
FRACTION: PFAS	SAMP_DATE	2/1/2018			2/1/2018			2/1/2018			2/1/2018		
MEDIA: WATER	QC_TYPE	NM			FD			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		17			0.66	J	P	0.68	J	P			
PERFLUOROBUTANESULFONIC ACID		2.2			0.54	J	P	0.54	J	P	51		
PERFLUOROBUTANOIC ACID		120			130			130			69		
PERFLUORODECANE SULFONIC ACID		1.4	U		1.3	U		1.3	U		1.4	U	
PERFLUORODECANOIC ACID		0.96	U		0.85	U		0.85	U		0.81	J	P
PERFLUORODODECANOIC ACID		1.4	U		1.3	U		1.3	U		1.4	U	
PERFLUOROHEPTANESULFONIC ACID		0.96	U		0.85	U		0.85	U		7		
PERFLUOROHEPTANOIC ACID		3.3			0.64	J	P	1.3	U		71		
PERFLUOROHEXANESULFONIC ACID		1.3	J	P	0.85	U		0.37	J	P			
PERFLUOROHEXANOIC ACID		85			33			34			340		
PERFLUORONONANOIC ACID		1.4	U		1.3	U		1.3	U		2.6		
PERFLUOROOCTANE SULFONAMIDE		2.9	U		2.6	U		2.6	U		2.9	U	
PERFLUOROOCTANE SULFONIC ACID		2.9	U		2.6	U		2.6	U		340		
PERFLUOROPENTANOIC ACID		180			130			130			190		
PERFLUOROTETRADECANOIC ACID		2.9	U		2.6	U		2.6	U		2.9	U	
PERFLUOROTRIDECANOIC ACID		2.9	U		2.6	U		2.6	U		2.9	U	
PERFLUOROUNDECANOIC ACID		1.4	U		1.3	U		1.3	U		1.4	U	

PROJ_NO: 08005-WE21	NSAMPLE	TP-PFC-026-TPI-DL		
SDG: 320-35682-1	LAB_ID	320-35682-1		
FRACTION: PFAS	SAMP_DATE	2/1/2018		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		1800		
PERFLUOROBUTANESULFONIC ACID				
PERFLUOROBUTANOIC ACID				
PERFLUORODECANE SULFONIC ACID				
PERFLUORODECANOIC ACID				
PERFLUORODODECANOIC ACID				
PERFLUOROHEPTANESULFONIC ACID				
PERFLUOROHEPTANOIC ACID				
PERFLUOROHEXANESULFONIC ACID		410		
PERFLUOROHEXANOIC ACID				
PERFLUORONONANOIC ACID				
PERFLUOROOCTANE SULFONAMIDE				
PERFLUOROOCTANE SULFONIC ACID				
PERFLUOROPENTANOIC ACID				
PERFLUOROTETRADECANOIC ACID				
PERFLUOROTRIDECANOIC ACID				
PERFLUOROUNDECANOIC ACID				

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI | Lab Sample ID: 320-35682-1

Matrix: Water | Lab File ID: 2018.02.07LLAA_050.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:45

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 02/07/2018 14:59

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	69	M	1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	190		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	340		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	71		1.9	1.4	0.59
335-67-1	*Perfluorooctanoic acid (PFOA)*	*1400*	*M E*	*1.9*	1.4	*0.52*
375-95-1	Perfluorononanoic acid (PFNA)	2.6		1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	0.81	J	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	51		1.9	0.96	0.44
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*370*	*E*	*1.9*	0.96	*0.37*
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	7.0		1.9	0.96	0.36
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	340		3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	2.9	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI | Lab Sample ID: 320-35682-1

Matrix: Water | Lab File ID: 2018.02.07LLAA_050.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:45

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 02/07/2018 14:59

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	112		25-150
STL00992	13C4 PFBA	120		25-150
STL00993	13C2 PFHxA	115		25-150
STL00990	13C4 PFOA	96		25-150
STL00995	13C5 PFNA	119		25-150
STL00996	13C2 PFDA	128		25-150
STL00997	13C2 PFUnA	118		25-150
STL00998	13C2 PFDoA	115		25-150
STL00994	18O2 PFHxS	116		25-150
STL00991	13C4 PFOS	116		25-150
STL02116	13C2-PFTeDA	134		25-150
STL01892	13C4-PFHpA	116		25-150
STL01893	13C5 PFPeA	124		25-150
STL02337	13C3-PFBS	116		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI DL | Lab Sample ID: 320-35682-1 DL

Matrix: Water | Lab File ID: 2018.02.08LLAAX_055.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:45

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 02/08/2018 23:12

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207696 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	*Perfluorobutanoic acid (PFBA)*	*69*	*D*	*19*	14	*5.7*
2706-90-3	*Perfluoropentanoic acid (PFPeA)*	*190*	*D*	*19*	9.6	*4.1*
307-24-4	*Perfluorohexanoic acid (PFHxA)*	*340*	*D*	*19*	9.6	*4.5*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*66*	*D*	*19*	14	*5.9*
335-67-1	Perfluorooctanoic acid (PFOA)	1800	D M	19	14	5.2
375-95-1	*Perfluorononanoic acid (PFNA)*	*14*	*U*	*19*	14	*5.0*
335-76-2	*Perfluorodecanoic acid (PFDA)*	*9.6*	*U*	*19*	9.6	*4.6*
2058-94-8	*Perfluoroundecanoic acid (PFUnA)*	*14*	*U*	*19*	14	*6.9*
307-55-1	*Perfluorododecanoic acid (PFDoA)*	*14*	*U*	*19*	14	*5.0*
72629-94-8	*Perfluorotridecanoic Acid (PFTriA)*	*29*	*U*	*38*	29	*7.3*
376-06-7	*Perfluorotetradecanoic acid (PFTeA)*	*29*	*U*	*38*	29	*8.0*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*47*	*D*	*19*	9.6	*4.4*
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	410	D	19	9.6	3.7
375-92-8	*Perfluoroheptanesulfonic Acid (PFHpS)*	*8.8*	*J D*	*19*	9.6	*3.6*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*330*	*D*	*38*	29	*11*
335-77-3	*Perfluorodecanesulfonic acid (PFDS)*	*14*	*U*	*19*	14	*5.4*
754-91-6	*Perfluorooctane Sulfonamide (FOSA)*	*29*	*U*	*38*	29	*13*

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPI DL Lab Sample ID: 320-35682-1 DL

Matrix: Water Lab File ID: 2018.02.08LLAAX_055.d

Analysis Method: 537 (modified) Date Collected: 02/01/2018 09:45

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 259.9(mL) Date Analyzed: 02/08/2018 23:12

Con. Extract Vol.: 10.00(mL) Dilution Factor: 10

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207696 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	86		25-150
STL00992	13C4 PFBA	102		25-150
STL00993	13C2 PFHxA	100		25-150
STL00990	13C4 PFOA	97		25-150
STL00995	13C5 PFNA	101		25-150
STL00996	13C2 PFDA	85		25-150
STL00997	13C2 PFUnA	74		25-150
STL00998	13C2 PFDoA	52		25-150
STL00994	18O2 PFHxS	97		25-150
STL00991	13C4 PFOS	93		25-150
STL02116	13C2-PFTeDA	8	Q	25-150
STL01892	13C4-PFHpA	103		25-150
STL01893	13C5 PFPeA	101		25-150
STL02337	13C3-PFBS	101		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-MID-CARBON | Lab Sample ID: 320-35682-2

Matrix: Water | Lab File ID: 2018.02.07LLAA_051.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:50

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.1(mL) | Date Analyzed: 02/07/2018 15:07

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	120		1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	180		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	85		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.3		1.9	1.4	0.59
335-67-1	Perfluorooctanoic acid (PFOA)	17	M	1.9	1.4	0.52
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U	1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	0.96	U	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.96	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.3	J	1.9	0.96	0.37
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.96	U	1.9	0.96	0.36
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9	U M	3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	2.9	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-MID-CARBON Lab Sample ID: 320-35682-2

Matrix: Water Lab File ID: 2018.02.07LLAA_051.d

Analysis Method: 537 (modified) Date Collected: 02/01/2018 09:50

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.1(mL) Date Analyzed: 02/07/2018 15:07

Con. Extract Vol.: 10.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	97		25-150
STL00992	13C4 PFBA	109		25-150
STL00993	13C2 PFHxA	105		25-150
STL00990	13C4 PFOA	106		25-150
STL00995	13C5 PFNA	106		25-150
STL00996	13C2 PFDA	110		25-150
STL00997	13C2 PFUnA	104		25-150
STL00998	13C2 PFDoA	103		25-150
STL00994	18O2 PFHxS	99		25-150
STL00991	13C4 PFOS	98		25-150
STL02116	13C2-PFTeDA	111		25-150
STL01892	13C4-PFHpA	103		25-150
STL01893	13C5 PFPeA	99		25-150
STL02337	13C3-PFBS	102		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE | Lab Sample ID: 320-35682-3

Matrix: Water | Lab File ID: 2018.02.07LLAA_052.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.7(mL) | Date Analyzed: 02/07/2018 15:15

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	130		1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	130		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	33		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.4	U M	1.9	1.4	0.58
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.71*	*J M*	*1.9*	1.4	*0.52*
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U	1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	0.96	U	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.51	J	1.9	0.96	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.96	U	1.9	0.96	0.36
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.96	U	1.9	0.96	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.2	J	3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.9	U	3.8	2.9	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE | Lab Sample ID: 320-35682-3

Matrix: Water | Lab File ID: 2018.02.07LLAA_052.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 260.7(mL) | Date Analyzed: 02/07/2018 15:15

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	94		25-150
STL00992	13C4 PFBA	105		25-150
STL00993	13C2 PFHxA	101		25-150
STL00990	13C4 PFOA	97		25-150
STL00995	13C5 PFNA	93		25-150
STL00996	13C2 PFDA	103		25-150
STL00997	13C2 PFUnA	94		25-150
STL00998	13C2 PFDoA	92		25-150
STL00994	18O2 PFHxS	98		25-150
STL00991	13C4 PFOS	96		25-150
STL02116	13C2-PFTeDA	102		25-150
STL01892	13C4-PFHpA	106		25-150
STL01893	13C5 PFPeA	101		25-150
STL02337	13C3-PFBS	102		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE RE | Lab Sample ID: 320-35682-3 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_012.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.7(mL) | Date Analyzed: 02/16/2018 16:35

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	*Perfluorobutanoic acid (PFBA)*	*130*	*M*	*1.7*	1.3	*0.50*
2706-90-3	*Perfluoropentanoic acid (PFPeA)*	*130*		*1.7*	0.85	*0.37*
307-24-4	*Perfluorohexanoic acid (PFHxA)*	*34*		*1.7*	0.85	*0.40*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*1.3*	*U M*	*1.7*	1.3	*0.52*
335-67-1	Perfluorooctanoic acid (PFOA)	0.68	J	1.7	1.3	0.46
375-95-1	*Perfluorononanoic acid (PFNA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
335-76-2	*Perfluorodecanoic acid (PFDA)*	*0.85*	*U*	*1.7*	0.85	*0.41*
2058-94-8	*Perfluoroundecanoic acid (PFUnA)*	*1.3*	*U*	*1.7*	1.3	*0.61*
307-55-1	*Perfluorododecanoic acid (PFDoA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
72629-94-8	*Perfluorotridecanoic Acid (PFTriA)*	*2.6*	*U*	*3.4*	2.6	*0.65*
376-06-7	*Perfluorotetradecanoic acid (PFTeA)*	*2.6*	*U*	*3.4*	2.6	*0.71*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*0.54*	*J*	*1.7*	0.85	*0.39*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*0.37*	*J*	*1.7*	0.85	*0.32*
375-92-8	*Perfluoroheptanesulfonic Acid (PFHpS)*	*0.85*	*U*	*1.7*	0.85	*0.31*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*2.6*	*U*	*3.4*	2.6	*0.94*
335-77-3	*Perfluorodecanesulfonic acid (PFDS)*	*1.3*	*U*	*1.7*	1.3	*0.48*
754-91-6	*Perfluorooctane Sulfonamide (FOSA)*	*2.6*	*U*	*3.4*	2.6	*1.1*

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE RE | Lab Sample ID: 320-35682-3 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_012.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 09:55

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.7(mL) | Date Analyzed: 02/16/2018 16:35

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	58		25-150
STL00992	13C4 PFBA	59		25-150
STL00993	13C2 PFHxA	60		25-150
STL00990	13C4 PFOA	60		25-150
STL00995	13C5 PFNA	58		25-150
STL00996	13C2 PFDA	57		25-150
STL00997	13C2 PFUnA	58		25-150
STL00998	13C2 PFDoA	55		25-150
STL00994	18O2 PFHxS	59		25-150
STL00991	13C4 PFOS	56		25-150
STL02116	13C2-PFTeDA	67		25-150
STL01892	13C4-PFHpA	61		25-150
STL01893	13C5 PFPeA	62		25-150
STL02337	13C3-PFBS	58		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D | Lab Sample ID: 320-35682-4

Matrix: Water | Lab File ID: 2018.02.07LLAA_053.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 00:00

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 252.2(mL) | Date Analyzed: 02/07/2018 15:23

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	120	M	2.0	1.5	0.58
2706-90-3	Perfluoropentanoic acid (PFPeA)	130		2.0	0.99	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	33		2.0	0.99	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.82	J	2.0	1.5	0.60
335-67-1	*Perfluorooctanoic acid (PFOA)*	*15*	*M*	*2.0*	1.5	*0.54*
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	0.99	U	2.0	0.99	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.71
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	3.0	0.75
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.82
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.53	J	2.0	0.99	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.99	U	2.0	0.99	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.99	U	2.0	0.99	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D Lab Sample ID: 320-35682-4

Matrix: Water Lab File ID: 2018.02.07LLAA_053.d

Analysis Method: 537 (modified) Date Collected: 02/01/2018 00:00

Extraction Method: 3535 Date Extracted: 02/06/2018 08:50

Sample wt/vol: 252.2(mL) Date Analyzed: 02/07/2018 15:23

Con. Extract Vol.: 10.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	94		25-150
STL00992	13C4 PFBA	101		25-150
STL00993	13C2 PFHxA	102		25-150
STL00990	13C4 PFOA	100		25-150
STL00995	13C5 PFNA	101		25-150
STL00996	13C2 PFDA	107		25-150
STL00997	13C2 PFUnA	103		25-150
STL00998	13C2 PFDoA	101		25-150
STL00994	18O2 PFHxS	103		25-150
STL00991	13C4 PFOS	96		25-150
STL02116	13C2-PFTeDA	106		25-150
STL01892	13C4-PFHpA	100		25-150
STL01893	13C5 PFPeA	99		25-150
STL02337	13C3-PFBS	96		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D RE | Lab Sample ID: 320-35682-4 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_013.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 00:00

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.9(mL) | Date Analyzed: 02/16/2018 16:43

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	*Perfluorobutanoic acid (PFBA)*	*130*	*M*	*1.7*	1.3	*0.50*
2706-90-3	*Perfluoropentanoic acid (PFPeA)*	*130*		*1.7*	0.85	*0.37*
307-24-4	*Perfluorohexanoic acid (PFHxA)*	*33*		*1.7*	0.85	*0.40*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.64*	*J M*	*1.7*	1.3	*0.52*
335-67-1	Perfluorooctanoic acid (PFOA)	0.66	J	1.7	1.3	0.46
375-95-1	*Perfluorononanoic acid (PFNA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
335-76-2	*Perfluorodecanoic acid (PFDA)*	*0.85*	*U*	*1.7*	0.85	*0.41*
2058-94-8	*Perfluoroundecanoic acid (PFUnA)*	*1.3*	*U*	*1.7*	1.3	*0.61*
307-55-1	*Perfluorododecanoic acid (PFDoA)*	*1.3*	*U*	*1.7*	1.3	*0.44*
72629-94-8	*Perfluorotridecanoic Acid (PFTriA)*	*2.6*	*U*	*3.4*	2.6	*0.65*
376-06-7	*Perfluorotetradecanoic acid (PFTeA)*	*2.6*	*U*	*3.4*	2.6	*0.71*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*0.54*	*J*	*1.7*	0.85	*0.39*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*0.85*	*U*	*1.7*	0.85	*0.32*
375-92-8	*Perfluoroheptanesulfonic Acid (PFHpS)*	*0.85*	*U*	*1.7*	0.85	*0.31*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*2.6*	*U*	*3.4*	2.6	*0.94*
335-77-3	*Perfluorodecanesulfonic acid (PFDS)*	*1.3*	*U*	*1.7*	1.3	*0.48*
754-91-6	*Perfluorooctane Sulfonamide (FOSA)*	*2.6*	*U*	*3.4*	2.6	*1.1*

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: TP-PFC-026-TPE-D RE | Lab Sample ID: 320-35682-4 RE

Matrix: Water | Lab File ID: 2018.02.16LLA_013.d

Analysis Method: 537 (modified) | Date Collected: 02/01/2018 00:00

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 293.9(mL) | Date Analyzed: 02/16/2018 16:43

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	57		25-150
STL00992	13C4 PFBA	58		25-150
STL00993	13C2 PFHxA	60		25-150
STL00990	13C4 PFOA	59		25-150
STL00995	13C5 PFNA	59		25-150
STL00996	13C2 PFDA	59		25-150
STL00997	13C2 PFUnA	58		25-150
STL00998	13C2 PFDoA	54		25-150
STL00994	18O2 PFHxS	59		25-150
STL00991	13C4 PFOS	54		25-150
STL02116	13C2-PFTeDA	70		25-150
STL01892	13C4-PFHpA	62		25-150
STL01893	13C5 PFPeA	61		25-150
STL02337	13C3-PFBS	59		25-150

APPENDIX C

SUPPORT DOCUMENTATION

NAS BRUNSWICK
SDG 320-35682-1

SAMPLE IDENTIFICATION	TP-PFC-024-TPI
COMPOUND	PENTADECAFLUOROOCTANOIC ACID
COMPOUND AREA	9370911
INTERNAL STANDARD AMOUNT (ng/ml)	0.25
DILUTION FACTOR	10
INTERNAL STANDARD AREA	438918
AVERAGE RRF	1.1027
SAMPLE VOLUME (ml)	259.9
VOLUME EXTRACT (ml)	10
VOLUME INJECTED (µl)	1
ml to L	1000
CONCENTRATION =	1862.41 ng/L

9370911 x 0.25ng/ml x 10ml x 1000ml x 10/(438918 x 1.1027 x 259.9ml x 1µl x 1L)

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\2018.02.08LLAAX_055.d
Lims ID: 320-35682-C-1-A
Client ID: TP-PFC-026-TPI
Sample Type: Client
Inject. Date: 08-Feb-2018 23:12:05 ALS Bottle#: 49 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 10.0000
Sample Info: 320-35682-c-1-a 10X
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 09-Feb-2018 16:13:41 Calib Date: 01-Feb-2018 22:01:37
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180202-53633.b\2018.02.01LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 16:09:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.418	1.412	0.006	0.541	745469	0.2562		102	4644	
2 Perfluorobutyric acid										
212.90 > 169.00	1.418	1.412	0.006	1.000	504670	0.1786			151	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.669	1.660	0.009	1.000	1037853	0.4872			746	
D 3 13C5-PFPeA										
267.90 > 223.00	1.669	1.660	0.009	0.637	447870	0.2536		101	6171	
D 47 13C3-PFBS										
301.90 > 83.00	1.704	1.695	0.009	0.650	9275	0.2349		101	322	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.704	1.695	0.009	1.000	375009	0.1223			2595	
298.90 > 99.00	1.704	1.695	0.009	1.000	166863		2.25(1.25-3.74)		1937	
D 7 13C2 PFHxA										
315.00 > 270.00	1.951	1.930	0.021	0.744	477849	0.2505		100	8420	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.951	1.940	0.011	1.000	1737752	0.8790			4177	
313.00 > 119.00	1.951	1.940	0.011	1.000	148306		11.72(5.03-15.10)		3929	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.275	2.262	0.013	1.000	340716	0.1714			405	
363.00 > 169.00	2.275	2.262	0.013	1.000	144301		2.36(1.13-3.40)		894	
D 9 13C4-PFHpA										
367.00 > 322.00	2.275	2.262	0.013	0.868	477677	0.2583		103	7677	
D 11 18O2 PFHxS										
403.00 > 84.00	2.288	2.275	0.013	0.873	523017	0.2290		96.8	9248	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.288	2.275	0.013	1.000	2683887	1.07			9896	
399.00 > 99.00	2.288	2.275	0.013	1.000	836079		3.21(1.50-4.49)		5076	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.620	2.606	0.014	1.000	438918	0.2426		97.0	8267	
* 62 13C2-PFOA										
415.00 > 370.00	2.620	2.606	0.014		503605	0.2500			6989	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.620	2.606	0.014	1.000	9370911	4.69			3176	M
413.00 > 169.00	2.620	2.606	0.014	1.000	5527533		1.70(0.84-2.52)		14728	M
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.628	2.613	0.015	1.000	43441	0.0230			146	
449.00 > 99.00	2.628	2.613	0.015	1.000	13200		3.29(1.94-5.82)		209	
D 18 13C4 PFOS										
503.00 > 80.00	2.984	2.976	0.008	1.139	331993	0.2212		92.6	5631	
D 19 13C5 PFNA										
468.00 > 423.00	2.984	2.976	0.008	1.139	370616	0.2517		101	5553	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.984	2.976	0.008	1.000	1331436	0.8684			2440	
499.00 > 99.00	2.984	2.976	0.008	1.000	316648		4.20(2.31-6.93)		2700	
20 Perfluorononanoic acid										
463.00 > 419.00	2.984	2.976	0.008	1.000	9666	0.006406			12.7	
463.00 > 169.00	2.984	2.976	0.008	1.000	2281		4.24(1.90-5.69)		42.2	
D 21 13C8 FOSA										
506.00 > 78.00	3.331	3.331	0.0	1.271	448506	0.2161		86.4	6018	
D 23 13C2 PFDA										
515.00 > 470.00	3.338	3.331	0.007	1.274	268112	0.2114		84.5	4196	
D 30 13C2 PFUnA										
565.00 > 520.00	3.662	3.655	0.007	1.398	182649	0.1861		74.5	3831	
D 36 13C2 PFDoA										
615.00 > 570.00	3.961	3.952	0.009	1.512	131307	0.1310		52.4	1269	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.455	4.443	0.012	1.700	25618	0.0207		8.3	269	

QC Flag Legend

Review Flags

M - Manually Integrated

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2xRL
PENTADECAFLUOROOCTANOIC ACID	0.68	0.66	1.7	2.99	FALSE	FALSE	FALSE	FALSE
PERFLUOROBUTANESULFONIC ACID	0.54	0.54	1.7	0.00	FALSE	FALSE	FALSE	FALSE
PERFLUOROBUTANOIC ACID	130	130	1.7	0.00	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEPTANOIC ACID	1.3	0.64	1.7	68.04	TRUE	FALSE	FALSE	FALSE
PERFLUOROHEXANESULFONIC ACID	0.37	0.85	1.7	78.69	TRUE	FALSE	FALSE	FALSE
PERFLUOROHEXANOIC ACID	34	33	1.7	2.99	FALSE	TRUE	TRUE	FALSE
PERFLUOROPENTANOIC ACID	130	130	1.7	0.00	FALSE	TRUE	TRUE	FALSE

SDG 320-35682-1

TP-PFC-026-TPE/TP-PFC-026-TPE-D

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916.373.5600 Fax:

Chain of Custody Record

242412

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Jeff Orient	Site Contact: Kevin Lamontagne	Date: 2/1/2018	COC No: 242412
Company Name: Tetra Tech	Tel/Fax: (412)921-8650	Lab Contact: David Althiker	Carrier: Fed Ex	1 of 1 COCs
Address: 661 Anderson Dr. Foster Plaza 7	Analysis Turnaround Time			Sampler: Kevin Lamontagne
City/State/Zip: Pittsburg, PA 015220-2700	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (412) 921-8650	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Brunswick GWETS	☐ 1 week			
Site: Former NAS Brunswick GWETS	☐ 2 days			Job / SDG No.:
PO # 112G08005-WE21	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFC (Full List) Lab/As/MS	Sample Specific Notes:
TP-PFC-026-TPI	2/1/18	0945	G	W	4	N	N	X	
TP-PFC-026-MID-CARBON	2/1/18	0950	G	W	4	N	N	X	
TP-PFC-026-TPE	2/1/18	0955	G	W	4	N	N	X	
TP-PFC-026-TPE-D	2/1/18	0000	G	W	4	N	N	X	

KOL

320-35682 Chain of Custody

KOL

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: Seals | Cooler Temp. (°C): Obs'd: 5.9 Corr'd: _____ | Therm ID No.: AK-4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	2/1/18 1430		TASAC	2/2/18 905
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35682-1

Login Number: 35682
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Narrative
320-35682-1

Receipt
The samples were received on 2/2/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9º C.

LCMS
Method(s) 537 (modified): The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Method(s) 537 (modified): The concentration of Perfluorooctanoic acid (PFOA) and Perfluorohexanesulfonic acid (PFHxS) associated with the following sample exceeded the instrument calibration range: TP-PFC-026-TPI (320-35682-1). These analytes have been qualified; however, the peaks did not saturate the instrument detector. The sample was also run at dilution to bring the analytes within the calibration range.

Method(s) 537 (modified): The following sample was diluted to bring the concentration of target analytes within the calibration range: TP-PFC-026-TPI (320-35682-1). Elevated reporting limits (RLs) are provided.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for 13C2-PFTeDA: TP-PFC-026-TPI (320-35682-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. This IDA compound was within limits in the undiluted analysis of this extract.

Method(s) 537 (modified): The results for Perfluorooctanoic acid (PFOA) did not match between these duplicate samples. The samples were re-extracted and the results matched better. Both sets of data are reported. TP-PFC-026-TPE (320-35682-3) and TP-PFC-026-TPE-D (320-35682-4)

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

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with 320-208463.

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

Qualifiers

LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
E	Result exceeded calibration range.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

Glossary

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

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35682-1	TP-PFC-026-TPI	Water	02/01/18 09:45	02/02/18 09:05
320-35682-2	TP-PFC-026-MID-CARBON	Water	02/01/18 09:50	02/02/18 09:05
320-35682-3	TP-PFC-026-TPE	Water	02/01/18 09:55	02/02/18 09:05
320-35682-4	TP-PFC-026-TPE-D	Water	02/01/18 00:00	02/02/18 09:05

Method Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-35682-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	PFOA #	PFNA #
TP-PFC-026-TPI	320-35682-1	120	124	116	115	116	116	96	119
TP-PFC-026-TPI DL	320-35682-1 DL	102	101	101	100	103	97	97	101
TP-PFC-026-MID-CARBON	320-35682-2	109	99	102	105	103	99	106	106
TP-PFC-026-TPE	320-35682-3	105	101	102	101	106	98	97	93
TP-PFC-026-TPE-D	320-35682-4	101	99	96	102	100	103	100	101
	MB 320-207074/1-A	103 M	96	96	101	101	100	99	95
	LCS 320-207074/2-A	107 M	101	106	102	104	106	104	103
	LCSD 320-207074/3-A	108	103	97	108	106	103	102	106

	QC LIMITS
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3-PFBS	25-150
PFHxA = 13C2 PFHxA	25-150
PFHpA = 13C4-PFHpA	25-150
PFHxS = 18O2 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFNA = 13C5 PFNA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFOS #	PFOSA #	PFDA #	PFUnA #	PFDoA #	PFTDA #	
TP-PFC-026-TPI	320-35682-1	116	112	128	118	115	134	
TP-PFC-026-TPI DL	320-35682-1 DL	93	86	85	74	52	8	Q
TP-PFC-026-MID-CARBON	320-35682-2	98	97	110	104	103	111	
TP-PFC-026-TPE	320-35682-3	96	94	103	94	92	102	
TP-PFC-026-TPE-D	320-35682-4	96	94	107	103	101	106	
	MB 320-207074/1-A	96	89	107	103	94	108	
	LCS 320-207074/2-A	103	97	109	103	99	113	
	LCSD 320-207074/3-A	103	95	113	109	104	111	

	QC LIMITS
PFOS = 13C4 PFOS	25-150
PFOSA = 13C8 FOSA	25-150
PFDA = 13C2 PFDA	25-150
PFUnA = 13C2 PFUnA	25-150
PFDoA = 13C2 PFDoA	25-150
PFTDA = 13C2-PFTeDA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	PFOA #	PFOS #
TP-PFC-026-TPE RE	320-35682-3 RE	59	62	58	60	61	59	60	56
TP-PFC-026-TPE-D RE	320-35682-4 RE	58	61	59	60	62	59	59	54
	MB 320-208463/1-A	70 M	74	70	71	74	72	70	67
	LCS 320-208463/2-A	74 M	76	66	73	73	71	73	69
	LCSD 320-208463/3-A	56 M	61	54	58	58	58	57	57

	QC LIMITS
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3-PFBS	25-150
PFHxA = 13C2 PFHxA	25-150
PFHpA = 13C4-PFHpA	25-150
PFHxS = 18O2 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOSA #	PFDA #	PFUnA #	PFDoA #	PFTDA #
TP-PFC-026-TPE RE	320-35682-3 RE	58	58	57	58	55	67
TP-PFC-026-TPE-D RE	320-35682-4 RE	59	57	59	58	54	70
	MB 320-208463/1-A	70	66	72	72	62	77
	LCS 320-208463/2-A	73	66	71	71	65	82
	LCSD 320-208463/3-A	57	55	58	58	48	71

	QC LIMITS
PFNA = 13C5 PFNA	25-150
PFOSA = 13C8 FOSA	25-150
PFDA = 13C2 PFDA	25-150
PFUnA = 13C2 PFUnA	25-150
PFDoA = 13C2 PFDoA	25-150
PFTDA = 13C2-PFTeDA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab File ID: 2018.02.07LLAA_037.d Lab Sample ID: MB 320-207074/1-A

Matrix: Water Date Extracted: 02/06/2018 08:50

Instrument ID: A8_N Date Analyzed: 02/07/2018 13:17

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-207074/2-A	2018.02.07LLAA_038.d	02/07/2018 13:25
	LCSD 320-207074/3-A	2018.02.07LLAA_039.d	02/07/2018 13:33
TP-PFC-026-TPI	320-35682-1	2018.02.07LLAA_050.d	02/07/2018 14:59
TP-PFC-026-MID-CARBON	320-35682-2	2018.02.07LLAA_051.d	02/07/2018 15:07
TP-PFC-026-TPE	320-35682-3	2018.02.07LLAA_052.d	02/07/2018 15:15
TP-PFC-026-TPE-D	320-35682-4	2018.02.07LLAA_053.d	02/07/2018 15:23
TP-PFC-026-TPI DL	320-35682-1 DL	2018.02.08LLAAX_055.d	02/08/2018 23:12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-207074/1-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_037.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:17

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.5	U	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.0	U	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	1.0	U M	2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	1.5	U	2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	U	2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.0	U	2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-207074/1-A

Matrix: Water | Lab File ID: 2018.02.07LLAA_037.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/06/2018 08:50

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/07/2018 13:17

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 207472 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	89		25-150
STL00992	13C4 PFBA	103	M	25-150
STL00993	13C2 PFHxA	101		25-150
STL00990	13C4 PFOA	99		25-150
STL00995	13C5 PFNA	95		25-150
STL00996	13C2 PFDA	107		25-150
STL00997	13C2 PFUnA	103		25-150
STL00998	13C2 PFDoA	94		25-150
STL00994	18O2 PFHxS	100		25-150
STL00991	13C4 PFOS	96		25-150
STL02116	13C2-PFTeDA	108		25-150
STL01892	13C4-PFHpA	101		25-150
STL01893	13C5 PFPeA	96		25-150
STL02337	13C3-PFBS	96		25-150

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.07LLAA_038.d

Lab ID: LCS 320-207074/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	41.3	103	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	41.7	104	83-108	
Perfluorohexanoic acid (PFHxA)	40.0	39.4	98	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	40.1	100	80-113	
Perfluorooctanoic acid (PFOA)	40.0	40.3	101	80-107	
Perfluorononanoic acid (PFNA)	40.0	41.2	103	83-113	
Perfluorodecanoic acid (PFDA)	40.0	42.1	105	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	39.9	100	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	41.8	105	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	43.9	110	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	42.5	106	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	37.8	107	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.9	93	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.2	108	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	37.6	101	82-112	
Perfluorodecanesulfonic acid (PFDS)	38.6	39.1	101	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	40.1	100	85-114	
13C8 FOSA	100	97.4	97	25-150	
13C4 PFBA	100	107	107	25-150	M
13C2 PFHxA	100	102	102	25-150	
13C4 PFOA	100	104	104	25-150	
13C5 PFNA	100	103	103	25-150	
13C2 PFDA	100	109	109	25-150	
13C2 PFUnA	100	103	103	25-150	
13C2 PFDoA	100	99.0	99	25-150	
18O2 PFHxS	94.6	101	106	25-150	
13C4 PFOS	95.6	98.4	103	25-150	
13C2-PFTeDA	100	113	113	25-150	
13C4-PFHpA	100	104	104	25-150	
13C5 PFPeA	100	101	101	25-150	
13C3-PFBS	93.0	98.8	106	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.07LLAA_039.d

Lab ID: LCSD 320-207074/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	40.5	101	2	30	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	38.6	96	8	30	83-108	
Perfluorohexanoic acid (PFHxA)	40.0	39.0	98	1	30	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	41.0	103	2	30	80-113	
Perfluorooctanoic acid (PFOA)	40.0	41.8	104	4	30	80-107	
Perfluorononanoic acid (PFNA)	40.0	40.1	100	3	30	83-113	
Perfluorodecanoic acid (PFDA)	40.0	40.1	100	5	30	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	37.7	94	6	30	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	38.3	96	9	30	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	40.9	102	7	30	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	44.4	111	5	30	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	40.7	115	7	30	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.8	98	5	30	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.1	103	5	30	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	38.1	103	1	30	82-112	
Perfluorodecanesulfonic acid (PFDS)	38.6	38.1	99	3	30	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	41.5	104	4	30	85-114	
13C8 FOSA	100	94.6	95			25-150	
13C4 PFBA	100	108	108			25-150	
13C2 PFHxA	100	108	108			25-150	
13C4 PFOA	100	102	102			25-150	
13C5 PFNA	100	106	106			25-150	
13C2 PFDA	100	113	113			25-150	
13C2 PFUnA	100	109	109			25-150	
13C2 PFDoA	100	104	104			25-150	
18O2 PFHxS	94.6	97.8	103			25-150	
13C4 PFOS	95.6	98.9	103			25-150	
13C2-PFTeDA	100	111	111			25-150	
13C4-PFHpA	100	106	106			25-150	
13C5 PFPeA	100	103	103			25-150	
13C3-PFBS	93.0	89.8	97			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab File ID: 2018.02.16LLA_009.d Lab Sample ID: MB 320-208463/1-A

Matrix: Water Date Extracted: 02/14/2018 19:07

Instrument ID: A8_N Date Analyzed: 02/16/2018 16:12

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-208463/2-A	2018.02.16LLA_010.d	02/16/2018 16:20
	LCSD 320-208463/3-A	2018.02.16LLA_011.d	02/16/2018 16:28
TP-PFC-026-TPE RE	320-35682-3 RE	2018.02.16LLA_012.d	02/16/2018 16:35
TP-PFC-026-TPE-D RE	320-35682-4 RE	2018.02.16LLA_013.d	02/16/2018 16:43

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-208463/1-A

Matrix: Water | Lab File ID: 2018.02.16LLA_009.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:12

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.5	U	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.0	U M	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	1.0	U M	2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	1.5	U M	2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	U	2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	3.0	U	4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.0	U	2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctane Sulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35682-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-208463/1-A

Matrix: Water | Lab File ID: 2018.02.16LLA_009.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 02/14/2018 19:07

Sample wt/vol: 250.00(mL) | Date Analyzed: 02/16/2018 16:12

Con. Extract Vol.: 10.00(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 208866 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	66		25-150
STL00992	13C4 PFBA	70	M	25-150
STL00993	13C2 PFHxA	71		25-150
STL00990	13C4 PFOA	70		25-150
STL00995	13C5 PFNA	70		25-150
STL00996	13C2 PFDA	72		25-150
STL00997	13C2 PFUnA	72		25-150
STL00998	13C2 PFDoA	62		25-150
STL00994	18O2 PFHxS	72		25-150
STL00991	13C4 PFOS	67		25-150
STL02116	13C2-PFTeDA	77		25-150
STL01892	13C4-PFHpA	74		25-150
STL01893	13C5 PFPeA	74		25-150
STL02337	13C3-PFBS	70		25-150

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.16LLA_010.d

Lab ID: LCS 320-208463/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	40.2	100	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	37.7	94	83-108	M
Perfluorohexanoic acid (PFHxA)	40.0	38.5	96	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	38.4	96	80-113	
Perfluorooctanoic acid (PFOA)	40.0	39.7	99	80-107	
Perfluorononanoic acid (PFNA)	40.0	37.6	94	83-113	
Perfluorodecanoic acid (PFDA)	40.0	40.3	101	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	35.7	89	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	41.2	103	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	44.1	110	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	41.3	103	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0	113	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9	96	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	40.9	107	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	37.8	102	82-112	M
Perfluorodecanesulfonic acid (PFDS)	38.6	39.5	102	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	41.1	103	85-114	
13C8 FOSA	100	66.0	66	25-150	
13C4 PFBA	100	73.6	74	25-150	M
13C2 PFHxA	100	73.4	73	25-150	
13C4 PFOA	100	72.6	73	25-150	
13C5 PFNA	100	72.9	73	25-150	
13C2 PFDA	100	71.3	71	25-150	
13C2 PFUnA	100	71.3	71	25-150	
13C2 PFDoA	100	65.0	65	25-150	
18O2 PFHxS	94.6	67.3	71	25-150	
13C4 PFOS	95.6	65.9	69	25-150	
13C2-PFTeDA	100	81.6	82	25-150	
13C4-PFHpA	100	73.1	73	25-150	
13C5 PFPeA	100	75.5	76	25-150	
13C3-PFBS	93.0	61.4	66	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.16LLA_011.d

Lab ID: LCSD 320-208463/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	37.8	95	6	30	83-118	M
Perfluoropentanoic acid (PFPeA)	40.0	35.2	88	7	30	83-108	M
Perfluorohexanoic acid (PFHxA)	40.0	36.2	90	6	30	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	38.3	96	0	30	80-113	
Perfluorooctanoic acid (PFOA)	40.0	37.8	95	5	30	80-107	
Perfluorononanoic acid (PFNA)	40.0	36.8	92	2	30	83-113	
Perfluorodecanoic acid (PFDA)	40.0	38.1	95	6	30	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	32.3	81	10	30	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	41.3	103	0	30	87-116	
Perfluorotridecanoic Acid (PFTriA)	40.0	46.3	116	5	30	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	39.3	98	5	30	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	36.2	102	10	30	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.6	89	7	30	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.2	98	9	30	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	34.4	93	10	30	82-112	M
Perfluorodecanesulfonic acid (PFDS)	38.6	35.9	93	10	30	81-114	
Perfluorooctane Sulfonamide (FOSA)	40.0	37.2	93	10	30	85-114	
13C8 FOSA	100	54.8	55			25-150	
13C4 PFBA	100	56.2	56			25-150	M
13C2 PFHxA	100	58.3	58			25-150	
13C4 PFOA	100	56.9	57			25-150	
13C5 PFNA	100	57.2	57			25-150	
13C2 PFDA	100	58.2	58			25-150	
13C2 PFUnA	100	58.4	58			25-150	
13C2 PFDoA	100	48.5	48			25-150	
18O2 PFHxS	94.6	55.3	58			25-150	
13C4 PFOS	95.6	54.4	57			25-150	
13C2-PFTeDA	100	71.0	71			25-150	
13C4-PFHpA	100	57.7	58			25-150	
13C5 PFPeA	100	60.6	61			25-150	
13C3-PFBS	93.0	50.2	54			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/01/2018 21:14

Analysis Batch Number: 206706 End Date: 02/01/2018 22:32

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-206706/2		02/01/2018 21:14	1	2018.02.01LLICAL 002.d	GeminiC18 3x100 3(mm)
IC 320-206706/3		02/01/2018 21:22	1	2018.02.01LLICAL 003.d	GeminiC18 3x100 3(mm)
IC 320-206706/4		02/01/2018 21:30	1	2018.02.01LLICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-206706/5		02/01/2018 21:38	1	2018.02.01LLICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-206706/6		02/01/2018 21:45	1	2018.02.01LLICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-206706/7		02/01/2018 21:53	1	2018.02.01LLICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-206706/8		02/01/2018 22:01	1	2018.02.01LLICAL 008.d	GeminiC18 3x100 3(mm)
ICB 320-206706/9		02/01/2018 22:09	1		GeminiC18 3x100 3(mm)
ICV 320-206706/10		02/01/2018 22:17	1	2018.02.01LLICAL 010.d	GeminiC18 3x100 3(mm)
CCVL 320-206706/12		02/01/2018 22:32	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-206706/2	2018.02.01LLICAL_002.d
Level 2	IC 320-206706/3	2018.02.01LLICAL_003.d
Level 3	IC 320-206706/4	2018.02.01LLICAL_004.d
Level 4	IC 320-206706/5	2018.02.01LLICAL_005.d
Level 5	IC 320-206706/6	2018.02.01LLICAL_006.d
Level 6	IC 320-206706/7	2018.02.01LLICAL_007.d
Level 7	IC 320-206706/8	2018.02.01LLICAL_008.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.0196 0.9529	0.9507 0.9304	0.9288	0.9074	0.9431	AveID		0.9476				3.7		35.0			
Perfluoropentanoic acid (PFPeA)	1.4376 1.1584	1.1320 1.1437	1.1500	1.1134	1.1888	AveID		1.1891				9.4		35.0			
Perfluorobutanesulfonic acid (PFBS)	77.986 78.517	71.471 73.883	76.768	79.629	79.800	AveID		76.865				4.1		50.0			
4:2 FTS	16.522 16.717	16.108 15.507	16.125	16.172	15.596	AveID		16.107				2.7		35.0			
Perfluorohexanoic acid (PFHxA)	1.1236 0.9814	1.0710 1.0034	1.0296	0.9776	1.0534	AveID		1.0343				5.1		35.0			
Perfluoroheptanoic acid (PFHpA)	1.0250 1.0441	0.9677 1.0515	1.1169	1.0397	1.0360	AveID		1.0401				4.2		35.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4392 1.0748	1.1878 1.0160	1.0786	1.0088	1.1533	AveID		1.1369				13.1		35.0			
6:2FTS	2.0655 1.7070	1.5245 1.6899	1.7616	1.9320	1.9024	AveID		1.7976				10.1		35.0			
Perfluorooctanoic acid (PFOA)	1.3325 1.1003	1.1286 1.1331	1.0916	1.0700	1.1174	AveID		1.1391				7.7		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.3157 1.3729	1.3553 1.3427	1.3339	1.3227	1.4896	AveID		1.3618				4.4		50.0			
Perfluorooctanesulfonic acid (PFOS)	1.1621 1.0905	1.1054 1.0834	1.0630	1.0965	1.1257	AveID		1.1038				2.9		35.0			
Perfluorononanoic acid (PFNA)	0.9778 1.0564	0.9200 1.0891	0.9927	1.0230	1.0661	AveID		1.0179				5.8		35.0			
Perfluorooctane Sulfonamide (FOSA)	1.0359 0.9838	0.9320 1.0070	0.9356	0.9690	1.0691	AveID		0.9903				5.1		35.0			
8:2FTS	1.2748 1.2384	1.1604 1.2427	1.2442	1.2270	1.2105	AveID		1.2283				2.9		35.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	1.1928 0.9885	0.9507 1.0128	0.9921	1.0017	1.0116	AveID		1.0215				7.7		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0523 1.0398	1.1249 1.1269	1.0023	1.0466	1.1105	AveID		1.0719				4.5		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.6087 0.6854	0.6848 0.6520	0.6388	0.6378	0.7140	AveID		0.6602				5.5		50.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.8645 0.9241	0.8975 0.9801	0.9373	0.9414	0.9537	AveID		0.9284				4.1		35.0			
Perfluoroundecanoic acid (PFUnA)	1.1539 1.0221	1.1171 0.9940	1.0316	0.9073	0.9816	AveID		1.0297				8.1		35.0			
Perfluorododecanoic acid (PFDoA)	1.0160 1.0929	1.0539 1.0294	0.9941	1.0573	1.1114	AveID		1.0507				4.0		35.0			
Perfluorotridecanoic Acid (PFTriA)	1.1446 1.1413	1.0877 1.1303	1.1233	1.0615	1.1219	AveID		1.1158				2.7		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.2644 0.2462	0.2265 0.2566	0.2515	0.2536	0.2353	AveID		0.2477				5.2		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++ 0.9617	1.2240 0.9517	1.0548	0.9595	0.9586	L2ID	0.0135	0.9604							0.9990		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	1.0741 1.0976	1.0050 1.1721	1.1315	1.1300	1.1529	AveID		1.1090				5.1		50.0			
13C4 PFBA	1.4193 1.4632	1.4340 1.4755	1.4111	1.4775	1.4295	Ave		1.4443				1.9		50.0			
13C5 PFPeA	0.8415 0.8831	0.8703 0.9286	0.8608	0.8918	0.8617	Ave		0.8768				3.2		50.0			
13C3-PFBS	0.0194 0.0199	0.0195 0.0209	0.0192	0.0190	0.0193	Ave		0.0196				3.2		50.0			
13C2 PFHxA	0.9040 0.9898	0.9564 0.9677	0.9161	0.9635	0.9318	Ave		0.9470				3.2		50.0			
13C4-PFHpA	0.9050 0.9673	0.9149 0.9168	0.8800	0.9267	0.9156	Ave		0.9180				2.9		50.0			
18O2 PFHxS	1.0986 1.1679	1.1257 1.2030	1.0926	1.1791	1.0691	Ave		1.1337				4.4		50.0			
M2-6:2FTS	0.1916 0.2022	0.2024 0.1820	0.1909	0.2042	0.1901	Ave		0.1948				4.3		50.0			
13C4 PFOA	0.8694 0.9172	0.8969 0.8919	0.9001	0.9268	0.8848	Ave		0.8982				2.1		50.0			
13C4 PFOS	0.7565 0.7658	0.7189 0.7604	0.7412	0.7576	0.7145	Ave		0.7450				2.8		50.0			
13C5 PFNA	0.7251 0.7255	0.7541 0.6994	0.7365	0.7618	0.7153	Ave		0.7311				3.0		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C8 FOSA	1.0149 1.0510	1.0551 0.9842	1.0489	1.0623	0.9960	Ave		1.0303				3.1		50.0			
M2-8:2FTS	0.2157 0.2299	0.2123 0.2207	0.2119	0.2192	0.2088	Ave		0.2169				3.3		50.0			
13C2 PFDA	0.6190 0.6569	0.6287 0.6197	0.6415	0.6339	0.6083	Ave		0.6297				2.6		50.0			
d3-NMeFOSAA	0.3350 0.3543	0.3357 0.3418	0.3398	0.3497	0.3242	Ave		0.3401				2.9		50.0			
d5-NEtFOSAA	0.3573 0.3491	0.3516 0.3321	0.3537	0.3565	0.3416	Ave		0.3488				2.6		50.0			
13C2 PFUnA	0.4828 0.4988	0.4850 0.4732	0.4833	0.5103	0.4765	Ave		0.4871				2.7		50.0			
13C2 PFDoA	0.4966 0.4991	0.5042 0.5062	0.4962	0.4938	0.4881	Ave		0.4977				1.2		50.0			
13C2-PFTeDA	0.6208 0.6323	0.5756 0.5686	0.6267	0.6337	0.6388	Ave		0.6138				4.7		50.0			
13C2-PFHxDA	1.0812 1.0146	1.1341 1.0099	1.0287	1.0893	1.0696	Ave		1.0611				4.3		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-206706/2	2018.02.01LLICAL_002.d
Level 2	IC 320-206706/3	2018.02.01LLICAL_003.d
Level 3	IC 320-206706/4	2018.02.01LLICAL_004.d
Level 4	IC 320-206706/5	2018.02.01LLICAL_005.d
Level 5	IC 320-206706/6	2018.02.01LLICAL_006.d
Level 6	IC 320-206706/7	2018.02.01LLICAL_007.d
Level 7	IC 320-206706/8	2018.02.01LLICAL_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	71084 12224394	127844 23861766	622238	2499458	6229773	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	59426 8968873	92384 18460860	469959	1851126	4733420	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	65637 12131833	115731 23701562	620082	2487038	6291747	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	14692 2729145	27559 5256121	137615	533657	1299241	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	49895 8517033	96050 16877303	447807	1756038	4535539	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	45563 8855043	83030 16755882	466605	1796078	4383188	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	70676 10015084	114107 19331920	509116	2017855	5184901	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
6:2FTS		AveID	18432 2868374	27424 5067031	151335	697301	1584503	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	56903 8848932	94919 17566083	466479	1848801	4568465	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	46546 8776049	86979 16893479	446839	1778356	4682387	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanesulfonic acid (PFOS)		AveID	40074 6794840	69154 13287777	347107	1437074	3449216	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	34825 6720258	65059 13238546	347087	1452902	3523797	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctane Sulfonamide (FOSA)		AveID	51644 9065432	92223 17226340	465839	1919094	4920353	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2FTS		AveID	12942 2390917	22134 4567339	119880	480437	1118867	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorodecanoic acid (PFDA)		AveID	36271 5692957	56051 10909295	302131	1183817	2843548	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	17318 3230498	35409 6693985	161696	682339	1663688	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	21804 4436222	44504 8307600	216689	868374	2272625	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	15171 2828787	29589 5657049	157389	625696	1505408	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid (PFUnA)		AveID	27364 4470571	50811 8175731	236687	863121	2161204	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid (PFDoA)		AveID	24782 4782436	49829 9057396	234155	973391	2506575	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic Acid (PFTriA)		AveID	27920 4994151	51429 9944697	264606	977236	2530301	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	8062 1365222	12225 2535540	74825	299575	694531	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	+++++ 8554866	130172 16705853	515166	1948660	4737919	+++++ 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	57043 9764233	106883 20575557	552620	2294769	5698308	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PFOA	Ave	6971534 6414466	6723718 6411782	6699155	6886461	6605515	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PFOA	Ave	4133630 3871216	4080606 4035315	4086431	4156327	3981793	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3-PFBS	13PFOA	Ave	88545 81276	85177 84373	84977	82145	82947	2.33 2.33	2.33 2.33	2.33	2.33	2.33
13C2 PFHxA	13PFOA	Ave	4440586 4339018	4484315 4205074	4349144	4490722	4305749	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4-PFHpA	13PFOA	Ave	4445271 4240463	4289980 3983850	4177772	4318903	4231077	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PFOA	Ave	5105020 4843508	4993230 4945223	4907017	5198616	4673525	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2FTS	13PFOA	Ave	894268 841952	901347 751178	860903	904201	834642	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PFOA	Ave	4270544 4021101	4205294 3875824	4273175	4319700	4088575	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PFOA	Ave	3552612 3209575	3222402 3158762	3363862	3375435	3156492	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PFOA	Ave	3561575 3180614	3535863 3038951	3496534	3550460	3305211	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PFOA	Ave	4985368 4607275	4947355 4276710	4979259	4951275	4602356	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2FTS	13PFOA	Ave	1015248 965340	953712 918849	963549	978889	924312	2.40 2.40	2.40 2.40	2.40	2.40	2.40

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 206706

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/01/2018 21:14 Calibration End Date: 02/01/2018 22:01 Calibration ID: 37765

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	3040750 2879595	2947731 2692900	3045445	2954400	2811010	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	1645748 1553365	1573808 1485046	1613276	1629965	1498134	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	1754863 1530625	1648421 1443022	1679163	1661617	1578507	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2371378 2186881	2274146 2056325	2294383	2378270	2201724	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	2439210 2187885	2364129 2199580	2355519	2301620	2255382	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFTeDA	13PF OA	Ave	3049294 2772145	2698781 2470800	2975377	2953360	2951842	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFHxDA	13PF OA	Ave	5310945 4447904	5317511 4388543	4883792	5077137	4942588	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-206706/10 Calibration Date: 02/01/2018 22:17

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.01LLICAL_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9425		2.49	2.50	-0.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.103		2.32	2.50	-7.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.03		2.22	2.21	0.2	25.0
4:2 FTS	AveID	16.11	15.72		2.28	2.34	-2.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9938		2.40	2.50	-3.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	0.996		2.39	2.50	-4.3	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.014		2.03	2.28	-10.8	25.0
6:2FTS	AveID	1.798	1.647		2.18	2.38	-8.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.108		2.43	2.50	-2.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.328		2.32	2.38	-2.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.005		2.47	2.50	-1.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.068		2.24	2.31	-3.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	1.031		2.60	2.50	4.1	25.0
8:2FTS	AveID	1.228	1.215		2.37	2.40	-1.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9868		2.42	2.50	-3.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.025		2.39	2.50	-4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.6882		2.51	2.41	4.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9436		2.29	2.50	-8.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9222		2.48	2.50	-0.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.092		2.60	2.50	3.9	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.104		2.47	2.50	-1.0	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2514		2.54	2.50	1.5	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9209		2.38	2.50	-4.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	1.085		2.45	2.50	-2.2	25.0
13C4 PFBA	Ave	1.444	1.511		2.62	2.50	4.6	50.0
13C5 PFPeA	Ave	0.8768	0.9346		2.66	2.50	6.6	50.0
13C3-PFBS	Ave	0.0196	0.0206		2.44	2.33	5.0	50.0
13C2 PFHxA	Ave	0.9470	1.012		2.67	2.50	6.9	50.0
13C4-PFHpA	Ave	0.9180	1.017		2.77	2.50	10.8	50.0
18O2 PFHxS	Ave	1.134	1.213		2.53	2.37	7.0	50.0
M2-6:2FTS	Ave	0.1948	0.2098		2.56	2.38	7.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-206706/10 Calibration Date: 02/01/2018 22:17

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.01LLICAL_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9494		2.64	2.50	5.7	50.0
13C4 PFOS	Ave	0.7450	0.7880		2.53	2.39	5.8	50.0
13C5 PFNA	Ave	0.7311	0.8031		2.75	2.50	9.9	50.0
13C8 FOSA	Ave	1.030	1.076		2.61	2.50	4.5	50.0
M2-8:2FTS	Ave	0.2169	0.2249		2.48	2.40	3.7	50.0
13C2 PFDA	Ave	0.6297	0.6578		2.61	2.50	4.5	50.0
d3-NMeFOSAA	Ave	0.3401	0.3675		2.70	2.50	8.1	50.0
d5-NEtFOSAA	Ave	0.3488	0.3783		2.71	2.50	8.5	50.0
13C2 PFUnA	Ave	0.4871	0.5201		2.67	2.50	6.8	50.0
13C2 PFDoA	Ave	0.4977	0.5203		2.61	2.50	4.5	50.0
13C2-PFTeDA	Ave	0.6138	0.6603		2.69	2.50	7.6	50.0
13C2-PFHxDA	Ave	1.061	1.133		2.67	2.50	6.8	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/07/2018 05:40

Analysis Batch Number: 207314 End Date: 02/07/2018 05:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207314/1		02/07/2018 05:40	1	2018.02.07LLA_055.d	GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207314/1 Calibration Date: 02/07/2018 05:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLA_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.8799		0.0464	0.0500	-7.1	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.180		0.0496	0.0500	-0.7	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	74.22		0.0427	0.0442	-3.4	50.0
4:2 FTS	AveID	16.11	14.06		0.408	0.467	-12.7	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9614		0.0465	0.0500	-7.1	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.078		0.0518	0.0500	3.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.149		0.0460	0.0455	1.1	50.0
6:2FTS	AveID	1.798	1.388		0.366	0.474	-22.8	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.181		0.0518	0.0500	3.7	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.325		0.0463	0.0476	-2.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.018	0.9569		0.0470	0.0500	-6.0	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.155		0.0486	0.0464	4.7	50.0
8:2FTS	AveID	1.228	1.191		0.465	0.479	-3.0	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9602		0.0485	0.0500	-3.0	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9326		0.0456	0.0500	-8.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.004		0.468	0.500	-6.4	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7103		0.0519	0.0482	7.6	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.8791		0.473	0.500	-5.3	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.069		0.0519	0.0500	3.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.057		0.0503	0.0500	0.6	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.132		0.0507	0.0500	1.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2374		0.0479	0.0500	-4.2	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.294		0.0533	0.0500	6.5	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9538		0.0430	0.0500	-14.0	50.0
13C4 PFBA	Ave	1.444	1.468		2.54	2.50	1.6	50.0
13C5 PFPeA	Ave	0.8768	0.8987		2.56	2.50	2.5	50.0
13C3-PFBS	Ave	0.0196	0.0202		2.40	2.33	3.2	50.0
13C2 PFHxA	Ave	0.9470	0.9608		2.54	2.50	1.5	50.0
13C4-PFHpA	Ave	0.9180	0.9394		2.56	2.50	2.3	50.0
18O2 PFHxS	Ave	1.134	1.157		2.41	2.37	2.1	50.0
M2-6:2FTS	Ave	0.1948	0.2021		2.46	2.38	3.8	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207314/1 Calibration Date: 02/07/2018 05:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLA_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9265		2.58	2.50	3.2	50.0
13C4 PFOS	Ave	0.7450	0.7130		2.29	2.39	-4.3	50.0
13C5 PFNA	Ave	0.7311	0.7663		2.62	2.50	4.8	50.0
13C8 FOSA	Ave	1.030	1.063		2.58	2.50	3.1	50.0
M2-8:2FTS	Ave	0.2169	0.2006		2.21	2.40	-7.5	50.0
13C2 PFDA	Ave	0.6297	0.6697		2.66	2.50	6.4	50.0
d3-NMeFOSAA	Ave	0.3401	0.3416		2.51	2.50	0.5	50.0
d5-NEtFOSAA	Ave	0.3488	0.3627		2.60	2.50	4.0	50.0
13C2 PFUnA	Ave	0.4871	0.5236		2.69	2.50	7.5	50.0
13C2 PFDoA	Ave	0.4977	0.5177		2.60	2.50	4.0	50.0
13C2-PFTeDA	Ave	0.6138	0.6519		2.66	2.50	6.2	50.0
13C2-PFHxDA	Ave	1.061	1.203		2.83	2.50	13.4	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/07/2018 13:09

Analysis Batch Number: 207472 End Date: 02/07/2018 15:30

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207472/1		02/07/2018 13:09	1	2018.02.07LLAA_036.d	GeminiC18 3x100 3(mm)
MB 320-207074/1-A		02/07/2018 13:17	1	2018.02.07LLAA_037.d	GeminiC18 3x100 3(mm)
LCS 320-207074/2-A		02/07/2018 13:25	1	2018.02.07LLAA_038.d	GeminiC18 3x100 3(mm)
LCSD 320-207074/3-A		02/07/2018 13:33	1	2018.02.07LLAA_039.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 13:41	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 13:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 13:57	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:20	1		GeminiC18 3x100 3(mm)
CCV 320-207472/11		02/07/2018 14:28	1	2018.02.07LLAA_046.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:36	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/07/2018 14:51	1		GeminiC18 3x100 3(mm)
320-35682-1		02/07/2018 14:59	1	2018.02.07LLAA_050.d	GeminiC18 3x100 3(mm)
320-35682-2		02/07/2018 15:07	1	2018.02.07LLAA_051.d	GeminiC18 3x100 3(mm)
320-35682-3		02/07/2018 15:15	1	2018.02.07LLAA_052.d	GeminiC18 3x100 3(mm)
320-35682-4		02/07/2018 15:23	1	2018.02.07LLAA_053.d	GeminiC18 3x100 3(mm)
CCV 320-207472/19		02/07/2018 15:30	1	2018.02.07LLAA_054.d	GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/1 Calibration Date: 02/07/2018 13:09

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9221		0.973	1.00	-2.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.156		0.972	1.00	-2.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	76.19		0.876	0.884	-0.9	25.0
4:2 FTS	AveID	16.11	15.90		0.922	0.934	-1.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9566		0.925	1.00	-7.5	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.015		0.976	1.00	-2.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.039		0.831	0.910	-8.7	25.0
6:2FTS	AveID	1.798	1.595		0.841	0.948	-11.3	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.049		0.921	1.00	-7.9	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.374		0.961	0.952	0.9	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.063		1.04	1.00	4.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.122		0.944	0.928	1.7	25.0
8:2FTS	AveID	1.228	1.266		0.988	0.958	3.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9646		0.974	1.00	-2.6	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9145		0.895	1.00	-10.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.084		1.01	1.00	1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7027		1.03	0.964	6.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9827		1.06	1.00	5.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9868		0.958	1.00	-4.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.064		1.01	1.00	1.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.076		0.964	1.00	-3.6	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2459		0.993	1.00	-0.7	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9287		0.953	1.00	-4.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9367		0.845	1.00	-15.5	25.0
13C4 PFBA	Ave	1.444	1.471		2.55	2.50	1.9	50.0
13C5 PFPeA	Ave	0.8768	0.8651		2.47	2.50	-1.3	50.0
13C3-PFBS	Ave	0.0196	0.0196		2.32	2.33	-0.2	50.0
13C2 PFHxA	Ave	0.9470	0.9944		2.63	2.50	5.0	50.0
13C4-PFHpA	Ave	0.9180	0.9175		2.50	2.50	-0.0	50.0
18O2 PFHxS	Ave	1.134	1.129		2.36	2.37	-0.4	50.0
M2-6:2FTS	Ave	0.1948	0.1940		2.37	2.38	-0.4	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/1 Calibration Date: 02/07/2018 13:09

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9196		2.56	2.50	2.4	50.0
13C4 PFOS	Ave	0.7450	0.7277		2.33	2.39	-2.3	50.0
13C5 PFNA	Ave	0.7311	0.7284		2.49	2.50	-0.4	50.0
13C8 FOSA	Ave	1.030	1.048		2.54	2.50	1.7	50.0
M2-8:2FTS	Ave	0.2169	0.2034		2.25	2.40	-6.3	50.0
13C2 PFDA	Ave	0.6297	0.6493		2.58	2.50	3.1	50.0
d3-NMeFOSAA	Ave	0.3401	0.3270		2.40	2.50	-3.8	50.0
d5-NEtFOSAA	Ave	0.3488	0.3456		2.48	2.50	-0.9	50.0
13C2 PFUnA	Ave	0.4871	0.4800		2.46	2.50	-1.5	50.0
13C2 PFDoA	Ave	0.4977	0.4775		2.40	2.50	-4.1	50.0
13C2-PFTeDA	Ave	0.6138	0.6013		2.45	2.50	-2.0	50.0
13C2-PFHxDA	Ave	1.061	1.089		2.57	2.50	2.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/11 Calibration Date: 02/07/2018 14:28

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_046.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9488		2.50	2.50	0.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.175		2.47	2.50	-1.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	81.80		2.35	2.21	6.4	25.0
4:2 FTS	AveID	16.11	14.78		2.14	2.34	-8.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.016		2.46	2.50	-1.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.088		2.62	2.50	4.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.083		2.17	2.28	-4.8	25.0
6:2FTS	AveID	1.798	1.593		2.10	2.37	-11.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.146		2.52	2.50	0.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.409		2.46	2.38	3.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.023		2.51	2.50	0.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.120		2.35	2.32	1.5	25.0
8:2FTS	AveID	1.228	1.297		2.53	2.40	5.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9872		2.49	2.50	-0.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9856		2.41	2.50	-3.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.083		2.53	2.50	1.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7030		2.57	2.41	6.5	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9350		2.52	2.50	0.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.011		2.45	2.50	-1.8	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.075		2.56	2.50	2.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.165		2.61	2.50	4.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2432		2.45	2.50	-1.8	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9609		2.49	2.50	-0.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	1.098		2.47	2.50	-1.0	25.0
13C4 PFBA	Ave	1.444	1.482		2.57	2.50	2.6	50.0
13C5 PFPeA	Ave	0.8768	0.8855		2.52	2.50	1.0	50.0
13C3-PFBS	Ave	0.0196	0.0198		2.35	2.33	1.0	50.0
13C2 PFHxA	Ave	0.9470	0.9607		2.54	2.50	1.4	50.0
13C4-PFHpA	Ave	0.9180	0.8862		2.41	2.50	-3.5	50.0
18O2 PFHxS	Ave	1.134	1.137		2.37	2.37	0.3	50.0
M2-6:2FTS	Ave	0.1948	0.1766		2.15	2.38	-9.3	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/11 Calibration Date: 02/07/2018 14:28

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_046.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8976		2.50	2.50	-0.0	50.0
13C4 PFOS	Ave	0.7450	0.7496		2.40	2.39	0.6	50.0
13C5 PFNA	Ave	0.7311	0.7433		2.54	2.50	1.7	50.0
13C8 FOSA	Ave	1.030	1.050		2.55	2.50	1.9	50.0
M2-8:2FTS	Ave	0.2169	0.1956		2.16	2.40	-9.9	50.0
13C2 PFDA	Ave	0.6297	0.6394		2.54	2.50	1.5	50.0
d3-NMeFOSAA	Ave	0.3401	0.3341		2.46	2.50	-1.7	50.0
d5-NEtFOSAA	Ave	0.3488	0.3397		2.43	2.50	-2.6	50.0
13C2 PFUnA	Ave	0.4871	0.4940		2.54	2.50	1.4	50.0
13C2 PFDoA	Ave	0.4977	0.4819		2.42	2.50	-3.2	50.0
13C2-PFTeDA	Ave	0.6138	0.5955		2.43	2.50	-3.0	50.0
13C2-PFHxDA	Ave	1.061	1.021		2.41	2.50	-3.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/19 Calibration Date: 02/07/2018 15:30

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9197		0.971	1.00	-2.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.177		0.990	1.00	-1.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.32		0.889	0.884	0.6	25.0
4:2 FTS	AveID	16.11	15.35		0.890	0.934	-4.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9421		0.911	1.00	-8.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.003		0.964	1.00	-3.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.055		0.845	0.910	-7.2	25.0
6:2FTS	AveID	1.798	1.673		0.882	0.948	-6.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.128		0.990	1.00	-1.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.375		0.961	0.952	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	0.9933		0.976	1.00	-2.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.095		0.920	0.928	-0.8	25.0
8:2FTS	AveID	1.228	1.264		0.986	0.958	2.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9638		0.973	1.00	-2.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	1.029		1.01	1.00	0.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.032		0.963	1.00	-3.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.6825		0.997	0.964	3.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9186		0.989	1.00	-1.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9762		0.948	1.00	-5.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.005		0.957	1.00	-4.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.045		0.937	1.00	-6.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2331		0.941	1.00	-5.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9513		0.976	1.00	-2.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9797		0.883	1.00	-11.7	25.0
13C4 PFBA	Ave	1.444	1.446		2.50	2.50	0.1	50.0
13C5 PFPeA	Ave	0.8768	0.8366		2.39	2.50	-4.6	50.0
13C3-PFBS	Ave	0.0196	0.0193		2.29	2.33	-1.6	50.0
13C2 PFHxA	Ave	0.9470	0.9888		2.61	2.50	4.4	50.0
13C4-PFHpA	Ave	0.9180	0.9353		2.55	2.50	1.9	50.0
18O2 PFHxS	Ave	1.134	1.105		2.30	2.37	-2.6	50.0
M2-6:2FTS	Ave	0.1948	0.1880		2.29	2.38	-3.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207472/19 Calibration Date: 02/07/2018 15:30

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.07LLAA_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8878		2.47	2.50	-1.2	50.0
13C4 PFOS	Ave	0.7450	0.7207		2.31	2.39	-3.3	50.0
13C5 PFNA	Ave	0.7311	0.7410		2.53	2.50	1.4	50.0
13C8 FOSA	Ave	1.030	1.011		2.45	2.50	-1.8	50.0
M2-8:2FTS	Ave	0.2169	0.2065		2.28	2.40	-4.8	50.0
13C2 PFDA	Ave	0.6297	0.6009		2.39	2.50	-4.6	50.0
d3-NMeFOSAA	Ave	0.3401	0.3361		2.47	2.50	-1.2	50.0
d5-NEtFOSAA	Ave	0.3488	0.3471		2.49	2.50	-0.5	50.0
13C2 PFUnA	Ave	0.4871	0.4768		2.45	2.50	-2.1	50.0
13C2 PFDoA	Ave	0.4977	0.4939		2.48	2.50	-0.8	50.0
13C2-PFTeDA	Ave	0.6138	0.6164		2.51	2.50	0.4	50.0
13C2-PFHxDA	Ave	1.061	1.051		2.48	2.50	-0.9	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 16:40

Analysis Batch Number: 207668 End Date: 02/08/2018 17:27

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207668/1		02/08/2018 16:40	1	2018.02.08LLAA_005.d	GeminiC18 3x100 3(mm)
CCV 320-207668/2		02/08/2018 16:48	1		GeminiC18 3x100 3(mm)
CCB 320-207668/3		02/08/2018 16:56	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 17:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 17:11	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 17:19	1		GeminiC18 3x100 3(mm)
CCV 320-207668/7		02/08/2018 17:27	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207668/1 Calibration Date: 02/08/2018 16:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.8775		0.0463	0.0500	-7.4	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.180		0.0496	0.0500	-0.8	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.47		0.0445	0.0442	0.8	50.0
4:2 FTS	AveID	16.11	14.77		0.428	0.467	-8.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.001		0.0484	0.0500	-3.2	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.051		0.0505	0.0500	1.0	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.116		0.0447	0.0455	-1.8	50.0
6:2FTS	AveID	1.798	1.435		0.378	0.474	-20.2	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.099		0.0483	0.0500	-3.5	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.280		0.0447	0.0476	-6.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.099		0.0540	0.0500	8.0	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.037		0.0436	0.0464	-6.0	50.0
8:2FTS	AveID	1.228	1.174		0.458	0.479	-4.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	1.028		0.0503	0.0500	0.6	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9041		0.0456	0.0500	-8.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	0.9877		0.461	0.500	-7.9	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.5922		0.0432	0.0482	-10.3	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.8394		0.452	0.500	-9.6	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.162		0.0564	0.0500	12.9	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.034		0.0492	0.0500	-1.6	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.113		0.0499	0.0500	-0.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2579		0.0520	0.0500	4.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.260		0.0515	0.0500	3.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9363		0.0422	0.0500	-15.6	50.0
13C4 PFBA	Ave	1.444	1.477		2.56	2.50	2.3	50.0
13C5 PFPeA	Ave	0.8768	0.8985		2.56	2.50	2.5	50.0
13C3-PFBS	Ave	0.0196	0.0187		2.22	2.33	-4.5	50.0
13C2 PFHxA	Ave	0.9470	0.9429		2.49	2.50	-0.4	50.0
13C4-PFHpA	Ave	0.9180	0.8927		2.43	2.50	-2.8	50.0
18O2 PFHxS	Ave	1.134	1.149		2.40	2.37	1.3	50.0
M2-6:2FTS	Ave	0.1948	0.2035		2.48	2.38	4.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-207668/1 Calibration Date: 02/08/2018 16:40

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8924		2.48	2.50	-0.6	50.0
13C4 PFOS	Ave	0.7450	0.7483		2.40	2.39	0.4	50.0
13C5 PFNA	Ave	0.7311	0.7260		2.48	2.50	-0.7	50.0
M2-8:2FTS	Ave	0.2169	0.2003		2.21	2.40	-7.7	50.0
13C2 PFDA	Ave	0.6297	0.6377		2.53	2.50	1.3	50.0
13C8 FOSA	Ave	1.030	1.075		2.61	2.50	4.4	50.0
d3-NMeFOSAA	Ave	0.3401	0.3213		2.36	2.50	-5.5	50.0
d5-NEtFOSAA	Ave	0.3488	0.3577		2.56	2.50	2.5	50.0
13C2 PFUnA	Ave	0.4871	0.5097		2.62	2.50	4.6	50.0
13C2 PFDoA	Ave	0.4977	0.4611		2.32	2.50	-7.4	50.0
13C2-PFTeDA	Ave	0.6138	0.6313		2.57	2.50	2.8	50.0
13C2-PFHxDA	Ave	1.061	0.9544		2.25	2.50	-10.1	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 23:04

Analysis Batch Number: 207696 End Date: 02/08/2018 23:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207696/1		02/08/2018 23:04	1	2018.02.08LLAAX 054.d	GeminiC18 3x100 3(mm)
320-35682-1 DL		02/08/2018 23:12	10	2018.02.08LLAAX 055.d	GeminiC18 3x100 3(mm)
CCV 320-207696/3		02/08/2018 23:19	1	2018.02.08LLAAX 056.d	GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/1 Calibration Date: 02/08/2018 23:04

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9229		0.974	1.00	-2.6	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.090		0.916	1.00	-8.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	78.45		0.902	0.884	2.1	25.0
4:2 FTS	AveID	16.11	15.63		0.907	0.934	-2.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.9471		0.916	1.00	-8.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.056		1.01	1.00	1.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.035		0.828	0.910	-9.0	25.0
6:2FTS	AveID	1.798	1.637		0.864	0.948	-8.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.114		0.978	1.00	-2.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.388		0.970	0.952	1.9	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.024		1.01	1.00	0.6	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.062		0.893	0.928	-3.8	25.0
8:2FTS	AveID	1.228	1.269		0.990	0.958	3.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	0.9595		0.969	1.00	-3.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	0.9835		0.963	1.00	-3.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.070		0.998	1.00	-0.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.6640		0.969	0.964	0.6	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.8848		0.953	1.00	-4.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	0.9692		0.941	1.00	-5.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.002		0.954	1.00	-4.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.140		1.02	1.00	2.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2468		0.996	1.00	-0.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8935		0.916	1.00	-8.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	0.9879		0.891	1.00	-10.9	25.0
13C4 PFBA	Ave	1.444	1.445		2.50	2.50	0.0	50.0
13C5 PFPeA	Ave	0.8768	0.8700		2.48	2.50	-0.8	50.0
13C3-PFBS	Ave	0.0196	0.0192		2.27	2.33	-2.2	50.0
13C2 PFHxA	Ave	0.9470	0.9529		2.52	2.50	0.6	50.0
13C4-PFHpA	Ave	0.9180	0.8844		2.41	2.50	-3.7	50.0
18O2 PFHxS	Ave	1.134	1.110		2.32	2.37	-2.1	50.0
M2-6:2FTS	Ave	0.1948	0.1945		2.37	2.38	-0.1	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/1 Calibration Date: 02/08/2018 23:04

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.8796		2.45	2.50	-2.1	50.0
13C4 PFOS	Ave	0.7450	0.7341		2.35	2.39	-1.5	50.0
13C5 PFNA	Ave	0.7311	0.7394		2.53	2.50	1.1	50.0
13C8 FOSA	Ave	1.030	1.040		2.52	2.50	0.9	50.0
M2-8:2FTS	Ave	0.2169	0.1935		2.14	2.40	-10.8	50.0
13C2 PFDA	Ave	0.6297	0.6277		2.49	2.50	-0.3	50.0
d3-NMeFOSAA	Ave	0.3401	0.3367		2.47	2.50	-1.0	50.0
d5-NEtFOSAA	Ave	0.3488	0.3671		2.63	2.50	5.2	50.0
13C2 PFUnA	Ave	0.4871	0.5132		2.63	2.50	5.3	50.0
13C2 PFDoA	Ave	0.4977	0.4675		2.35	2.50	-6.1	50.0
13C2-PFTeDA	Ave	0.6138	0.6127		2.50	2.50	-0.2	50.0
13C2-PFHxDA	Ave	1.061	0.9486		2.23	2.50	-10.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/3 Calibration Date: 02/08/2018 23:19

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_056.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9476	0.9576		2.53	2.50	1.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.189	1.212		2.55	2.50	2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	76.86	77.93		2.24	2.21	1.4	25.0
4:2 FTS	AveID	16.11	15.03		2.18	2.34	-6.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.996		2.41	2.50	-3.7	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.040	1.108		2.66	2.50	6.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.137	1.056		2.11	2.28	-7.1	25.0
6:2FTS	AveID	1.798	1.723		2.27	2.37	-4.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.139	1.083		2.38	2.50	-4.9	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.362	1.449		2.53	2.38	6.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.018	1.051		2.58	2.50	3.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.104	1.150		2.42	2.32	4.1	25.0
8:2FTS	AveID	1.228	1.233		2.40	2.40	0.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.021	1.000		2.45	2.50	-2.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9903	1.020		2.58	2.50	3.0	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.072	1.052		2.45	2.50	-1.9	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6602	0.7430		2.71	2.41	12.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.030	1.030		2.50	2.50	0.0	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9284	0.9453		2.55	2.50	1.8	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.051	1.109		2.64	2.50	5.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.116	1.099		2.46	2.50	-1.5	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2477	0.2566		2.59	2.50	3.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9557		2.47	2.50	-1.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.109	1.016		2.29	2.50	-8.4	25.0
13C4 PFBA	Ave	1.444	1.474		2.55	2.50	2.0	50.0
13C5 PFPeA	Ave	0.8768	0.8601		2.45	2.50	-1.9	50.0
13C3-PFBS	Ave	0.0196	0.0204		2.42	2.33	3.9	50.0
13C2 PFHxA	Ave	0.9470	0.9520		2.51	2.50	0.5	50.0
13C4-PFHpA	Ave	0.9180	0.8990		2.45	2.50	-2.1	50.0
18O2 PFHxS	Ave	1.134	1.105		2.31	2.37	-2.5	50.0
M2-6:2FTS	Ave	0.1948	0.1933		2.36	2.38	-0.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-207696/3 Calibration Date: 02/08/2018 23:19

Instrument ID: A8_N Calib Start Date: 02/01/2018 21:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/01/2018 22:01

Lab File ID: 2018.02.08LLAAX_056.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.8982	0.9255		2.58	2.50	3.0	50.0
13C4 PFOS	Ave	0.7450	0.7306		2.34	2.39	-1.9	50.0
13C5 PFNA	Ave	0.7311	0.7478		2.56	2.50	2.3	50.0
13C8 FOSA	Ave	1.030	1.030		2.50	2.50	-0.0	50.0
M2-8:2FTS	Ave	0.2169	0.2079		2.30	2.40	-4.2	50.0
13C2 PFDA	Ave	0.6297	0.6261		2.49	2.50	-0.6	50.0
d3-NMeFOSAA	Ave	0.3401	0.3417		2.51	2.50	0.5	50.0
13C2 PFUnA	Ave	0.4871	0.4986		2.56	2.50	2.4	50.0
d5-NEtFOSAA	Ave	0.3488	0.3527		2.53	2.50	1.1	50.0
13C2 PFDoA	Ave	0.4977	0.4694		2.36	2.50	-5.7	50.0
13C2-PFTeDA	Ave	0.6138	0.6084		2.48	2.50	-0.9	50.0
13C2-PFHxDA	Ave	1.061	0.9682		2.28	2.50	-8.8	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/15/2018 14:00

Analysis Batch Number: 208660 End Date: 02/15/2018 15:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-208660/2		02/15/2018 14:00	1	2018.02.15LLICAL 002.d	GeminiC18 3x100 3(mm)
IC 320-208660/3		02/15/2018 14:08	1	2018.02.15LLICAL 003.d	GeminiC18 3x100 3(mm)
IC 320-208660/4		02/15/2018 14:16	1	2018.02.15LLICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-208660/5 ICIS		02/15/2018 14:50	1	2018.02.15LLICALA 005.d	GeminiC18 3x100 3(mm)
IC 320-208660/6		02/15/2018 14:58	1	2018.02.15LLICALA 006.d	GeminiC18 3x100 3(mm)
IC 320-208660/7		02/15/2018 15:06	1	2018.02.15LLICALA 007.d	GeminiC18 3x100 3(mm)
IC 320-208660/8		02/15/2018 15:14	1	2018.02.15LLICALA 008.d	GeminiC18 3x100 3(mm)
ICB 320-208660/9		02/15/2018 15:22	1		GeminiC18 3x100 3(mm)
ICV 320-208660/10		02/15/2018 15:29	1	2018.02.15LLICALA 010.d	GeminiC18 3x100 3(mm)
CCVL 320-208660/12 CCVIS		02/15/2018 15:45	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208660/2	2018.02.15LLICAL_002.d
Level 2	IC 320-208660/3	2018.02.15LLICAL_003.d
Level 3	IC 320-208660/4	2018.02.15LLICAL_004.d
Level 4	IC 320-208660/5	2018.02.15LLICALA_005.d
Level 5	IC 320-208660/6	2018.02.15LLICALA_006.d
Level 6	IC 320-208660/7	2018.02.15LLICALA_007.d
Level 7	IC 320-208660/8	2018.02.15LLICALA_008.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	0.9332 0.9553	0.9193 0.9369	0.9260	0.9344	0.9500	AveID		0.9364				1.4		35.0			
Perfluoropentanoic acid (PFPeA)	1.2201 1.1592	1.3034 1.1581	1.1424	1.1788	1.1731	AveID		1.1907				4.7		35.0			
Perfluorobutanesulfonic acid (PFBS)	76.858 71.024	76.246 67.431	77.425	77.319	74.290	AveID		74.370				5.1		50.0			
4:2 FTS	15.533 11.939	14.219 12.510	14.765	14.621	13.048	AveID		13.805				9.6		35.0			
Perfluorohexanoic acid (PFHxA)	1.1939 0.9996	1.0434 0.9947	0.9927	0.9523	1.0365	AveID		1.0305				7.6		35.0			
Perfluoroheptanoic acid (PFHpA)	1.0985 1.0527	1.1441 1.0606	1.0422	1.0629	1.0368	AveID		1.0711				3.5		35.0			
Perfluorohexanesulfonic acid (PFHxS)	1.3516 1.0371	1.1639 1.0566	1.0030	1.0292	1.0779	AveID		1.1028				11.0		35.0			
6:2FTS	1.8959 1.6547	1.6876 1.7469	1.5605	1.6575	1.6572	AveID		1.6943				6.2		35.0			
Perfluorooctanoic acid (PFOA)	1.1325 1.1034	1.0090 1.1114	1.0862	1.1379	1.1384	AveID		1.1027				4.1		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.3770 1.3261	1.3293 1.2509	1.2755	1.3497	1.3373	AveID		1.3208				3.3		50.0			
Perfluorooctanesulfonic acid (PFOS)	1.1513 1.0826	1.0307 1.0785	1.0050	1.0813	1.0863	AveID		1.0737				4.3		35.0			
Perfluorononanoic acid (PFNA)	0.9926 1.0546	1.0534 1.0270	1.0282	1.0145	1.0341	AveID		1.0292				2.1		35.0			
8:2FTS	1.4344 1.2103	1.2512 1.2806	1.2163	1.2963	1.2139	AveID		1.2719				6.2		35.0			
Perfluorooctane Sulfonamide (FOSA)	0.9095 1.0003	0.9658 0.9225	1.0080	0.9795	1.0392	AveID		0.9750				4.8		35.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	1.0251 0.9730	0.9400 0.9628	0.9607	0.9953	0.9859	AveID		0.9775				2.8		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.4096 1.0764	1.1072 1.1286	1.0080	0.9931	1.0827	AveID		1.1151				12.5		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.6733 0.6721	0.6444 0.6512	0.6242	0.6481	0.6828	AveID		0.6566				3.1		50.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	1.0504 0.9793	0.9010 0.9662	1.0273	0.9306	0.9218	AveID		0.9681				5.7		35.0			
Perfluoroundecanoic acid (PFUnA)	1.3896 0.9718	1.2284 1.0335	1.0310	0.8841	0.9463	AveID		1.0693				16.6		35.0			
Perfluorododecanoic acid (PFDoA)	0.9379 1.0778	1.0369 1.0463	0.9589	0.9313	1.0723	AveID		1.0088				6.3		35.0			
Perfluorotridecanoic Acid (PFTriA)	0.9872 0.9303	0.9128 0.9480	0.9483	0.9147	0.9504	AveID		0.9417				2.7		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.2746 0.2735	0.2659 0.2640	0.2461	0.2469	0.2817	AveID		0.2647				5.2		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.6974 0.9518	1.4097 0.9494	1.0148	0.9618	0.9631	L2ID	0.0194	0.9532							0.9990		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	0.9959 0.9936	0.9427 0.9843	1.0120	1.0365	0.9646	AveID		0.9900				3.1		50.0			
13C4 PFBA	1.2587 1.3183	1.2180 1.4040	1.2620	1.3268	1.3152	Ave		1.3004				4.7		50.0			
13C5 PFPeA	0.9063 0.9224	0.8795 0.9829	0.9374	0.9349	0.9319	Ave		0.9279				3.4		50.0			
13C3-PFBS	0.0237 0.0269	0.0223 0.0276	0.0234	0.0243	0.0254	Ave		0.0248				7.8		50.0			
13C2 PFHxA	1.0018 0.9963	0.9412 1.0160	0.9921	1.0246	1.0140	Ave		0.9980				2.8		50.0			
13C4-PFHpA	0.9236 0.9517	0.9030 0.9629	0.9557	0.9372	0.9832	Ave		0.9453				2.8		50.0			
18O2 PFHxS	1.3342 1.3658	1.2817 1.3929	1.3394	1.2756	1.3348	Ave		1.3321				3.2		50.0			
M2-6:2FTS	0.2251 0.2455	0.2242 0.2401	0.2371	0.2459	0.2427	Ave		0.2372				3.8		50.0			
13C4 PFOA	0.9129 0.8990	0.8843 0.9025	0.9216	0.9096	0.9112	Ave		0.9059				1.3		50.0			
13C4 PFOS	0.8781 0.9543	0.8685 0.9923	0.9259	0.8690	0.9280	Ave		0.9166				5.2		50.0			
13C5 PFNA	0.6880 0.6975	0.6860 0.7078	0.6987	0.7078	0.7093	Ave		0.6993				1.4		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C8 FOSA	1.3416 1.3084	1.2721 1.3491	1.2893	1.3093	1.3530	Ave		1.3175				2.4		50.0			
M2-8:2FTS	0.2076 0.2238	0.2116 0.2168	0.2254	0.2110	0.2327	Ave		0.2184				4.2		50.0			
13C2 PFDA	0.5802 0.5737	0.5494 0.5813	0.5725	0.5793	0.5986	Ave		0.5764				2.5		50.0			
d3-NMeFOSAA	0.1536 0.1789	0.1611 0.1850	0.1626	0.1634	0.1762	Ave		0.1687				6.7		50.0			
d5-NEtFOSAA	0.1800 0.1753	0.1752 0.1871	0.1737	0.1723	0.1823	Ave		0.1780				3.0		50.0			
13C2 PFUnA	0.4474 0.4260	0.4352 0.4166	0.4641	0.4398	0.4558	Ave		0.4407				3.8		50.0			
13C2 PFDoA	0.4054 0.4162	0.3927 0.4483	0.4163	0.4222	0.4381	Ave		0.4199				4.5		50.0			
13C2-PFTeDA	0.3547 0.3704	0.3548 0.3941	0.3636	0.3683	0.3883	Ave		0.3706				4.2		50.0			
13C2-PFHxDA	0.4868 0.5157	0.4671 0.5633	0.4717	0.4828	0.5135	Ave		0.5001				6.7		50.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208660/2	2018.02.15LLICAL_002.d
Level 2	IC 320-208660/3	2018.02.15LLICAL_003.d
Level 3	IC 320-208660/4	2018.02.15LLICAL_004.d
Level 4	IC 320-208660/5	2018.02.15LLICALA_005.d
Level 5	IC 320-208660/6	2018.02.15LLICALA_006.d
Level 6	IC 320-208660/7	2018.02.15LLICALA_007.d
Level 7	IC 320-208660/8	2018.02.15LLICALA_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	56341 12057856	119741 22290648	588652	2414954	5686979	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	53044 10236942	122583 19290451	539464	2146647	4975289	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	77159 16142738	160858 27917989	806208	3238467	7594032	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	16476 2866992	31694 5472525	162437	647037	1409217	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	57372 9534761	105027 17125411	496136	1900651	4783696	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	48661 9591435	110489 17306560	501773	1940466	4639328	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	78715 12339995	145183 22693914	615839	2327250	5958917	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
6:2FTS		AveID	19406 3686899	38351 6739268	176678	752727	1735257	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	49591 9497642	95420 16997846	504254	2016237	4720913	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	55211 11534246	117546 20025386	566348	2175007	5376906	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanesulfonic acid (PFOS)		AveID	44998 9179603	88840 16829591	434989	1698515	4257556	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	32759 7042071	77282 12318792	361885	1398732	3338403	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2FTS		AveID	13684 2484459	27119 4507537	132305	510493	1231624	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorooctane Sulfonamide (FOSA)		AveID	58527 12529434	131388 21089893	654670	2498130	6399497	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanoic acid (PFDA)		AveID	28525 5344360	55222 9484568	277038	1123042	2686260	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	10387 1843893	19074 3539225	82575	316174	868194	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	27335 5919970	57699 10555415	280663	1057504	2779789	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	9068 1643793	16881 3063005	89887	312409	764993	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid (PFUnA)		AveID	29818 3963592	57174 7296815	241024	757359	1962886	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid (PFDoA)		AveID	18240 4294422	43543 7948969	201096	765815	2138246	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic Acid (PFTriA)		AveID	19198 3706809	38329 7201728	198888	752164	1895104	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	4672 969776	10088 1763312	45077	177127	497977	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	39637 4699221	70424 9061965	241108	904535	2250877	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	23256 4905987	47092 9395747	240450	974785	2254402	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PFOA	Ave	6037619 6310811	6512551 5947991	6357127	6461206	5986049	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PFOA	Ave	4347348 4415477	4702542 4164286	4722133	4552628	4241224	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3-PFBS	13PFOA	Ave	105616 119557	110976 108892	109546	110160	107540	2.33 2.33	2.33 2.33	2.33	2.33	2.33
13C2 PFHxA	13PFOA	Ave	4805429 4769108	5032796 4304355	4997686	4989617	4615171	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4-PFHpA	13PFOA	Ave	4429963 4555544	4828517 4079334	4814370	4564071	4474809	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PFOA	Ave	6054238 6184802	6483422 5582233	6382710	5876658	5746994	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2FTS	13PFOA	Ave	1025720 1116434	1138640 966489	1134578	1137721	1049312	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PFOA	Ave	4378987 4303628	4728440 3823432	4642472	4429606	4146971	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PFOA	Ave	4026378 4367328	4439791 4018963	4458927	4045688	4037623	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PFOA	Ave	3300225 3338701	3668248 2998617	3519598	3446732	3228387	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PFOA	Ave	6435180 6263072	6801836 5715623	6494526	6376224	6157928	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2FTS	13PFOA	Ave	953981 1026344	1083757 879981	1087739	984526	1014578	2.40 2.40	2.40 2.40	2.40	2.40	2.40

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1 Analy Batch No.: 208660

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 14:00 Calibration End Date: 02/15/2018 15:14 Calibration ID: 37883

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	2782762 2746289	2937447 2462652	2883687	2820909	2724566	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	736860 856530	861327 783958	819198	795943	801910	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	863325 839234	936813 792580	874980	839239	829886	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2145870 2039243	2327088 1764989	2337703	2141615	2074291	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	1944725 1992225	2099643 1899251	2097244	2055837	1994033	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFTeDA	13PF OA	Ave	1701450 1773146	1896977 1669584	1831428	1793548	1767461	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFHxDA	13PF OA	Ave	2335115 2468689	2497756 2386294	2375962	2351088	2337216	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-208660/10 Calibration Date: 02/15/2018 15:29

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.15LLICALA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9323		2.49	2.50	-0.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.121		2.35	2.50	-5.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	76.01		2.26	2.21	2.2	25.0
4:2 FTS	AveID	13.80	13.27		2.25	2.34	-3.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9699		2.35	2.50	-5.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	1.077		2.51	2.50	0.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.057		2.19	2.28	-4.1	25.0
6:2FTS	AveID	1.694	1.538		2.16	2.38	-9.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.363		2.45	2.38	3.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.149		2.61	2.50	4.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.058		2.28	2.31	-1.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.023		2.49	2.50	-0.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	1.017		2.61	2.50	4.3	25.0
8:2FTS	AveID	1.272	1.241		2.34	2.40	-2.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	0.9862		2.52	2.50	0.9	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	1.017		2.28	2.50	-8.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.6934		2.55	2.41	5.6	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.8827		2.28	2.50	-8.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	0.9493		2.22	2.50	-11.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	1.027		2.55	2.50	1.8	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.9162		2.43	2.50	-2.7	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2697		2.55	2.50	1.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9348		2.43	2.50	-2.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	0.9403		2.37	2.50	-5.0	25.0
13C4 PFBA	Ave	1.300	1.388		2.67	2.50	6.8	50.0
13C5 PFPeA	Ave	0.9279	1.000		2.70	2.50	7.8	50.0
13C3-PFBS	Ave	0.0248	0.0260		2.44	2.33	4.9	50.0
13C2 PFHxA	Ave	0.998	1.085		2.72	2.50	8.7	50.0
13C4-PFHpA	Ave	0.9453	0.995		2.63	2.50	5.3	50.0
18O2 PFHxS	Ave	1.332	1.387		2.46	2.37	4.1	50.0
M2-6:2FTS	Ave	0.2372	0.2746		2.75	2.38	15.8	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: ICV 320-208660/10 Calibration Date: 02/15/2018 15:29

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.15LLICALA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.9712		2.68	2.50	7.2	50.0
13C4 PFOS	Ave	0.9166	0.9873		2.57	2.39	7.7	50.0
13C5 PFNA	Ave	0.6993	0.7559		2.70	2.50	8.1	50.0
13C8 FOSA	Ave	1.318	1.422		2.70	2.50	7.9	50.0
M2-8:2FTS	Ave	0.2184	0.2385		2.62	2.40	9.2	50.0
13C2 PFDA	Ave	0.5764	0.6244		2.71	2.50	8.3	50.0
d3-NMeFOSAA	Ave	0.1687	0.1869		2.77	2.50	10.8	50.0
d5-NEtFOSAA	Ave	0.1780	0.1922		2.70	2.50	8.0	50.0
13C2 PFUnA	Ave	0.4407	0.4750		2.69	2.50	7.8	50.0
13C2 PFDoA	Ave	0.4199	0.4589		2.73	2.50	9.3	50.0
13C2-PFTeDA	Ave	0.3706	0.4182		2.82	2.50	12.8	50.0
13C2-PFHxDA	Ave	0.5001	0.5790		2.89	2.50	15.8	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/16/2018 15:25

Analysis Batch Number: 208863 End Date: 02/16/2018 15:56

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-208863/3		02/16/2018 15:25	1	2018.02.16LLA_003.d	GeminiC18 3x100 3(mm)
CCV 320-208863/4		02/16/2018 15:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 15:49	1		GeminiC18 3x100 3(mm)
CCV 320-208863/7		02/16/2018 15:56	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-208863/3 Calibration Date: 02/16/2018 15:25

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9039		0.0483	0.0500	-3.5	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.353		0.0568	0.0500	13.6	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	71.60		0.0426	0.0442	-3.7	50.0
4:2 FTS	AveID	13.80	13.98		0.473	0.467	1.2	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.039		0.0504	0.0500	0.8	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	0.9799		0.0457	0.0500	-8.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.163		0.0480	0.0455	5.4	50.0
6:2FTS	AveID	1.694	1.668		0.467	0.474	-1.6	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.043		0.0473	0.0500	-5.4	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.294		0.0466	0.0476	-2.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.029		0.0500	0.0500	-0.0	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.013		0.0438	0.0464	-5.6	50.0
8:2FTS	AveID	1.272	1.143		0.431	0.479	-10.1	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	0.9417		0.0483	0.0500	-3.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	0.8836		0.0452	0.0500	-9.6	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	0.9873		0.443	0.500	-11.5	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.5832		0.0428	0.0482	-11.2	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.8115		0.419	0.500	-16.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	1.096		0.0512	0.0500	2.5	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	0.9102		0.0451	0.0500	-9.8	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.9526		0.0506	0.0500	1.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2108		0.0398	0.0500	-20.4	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.373		0.0516	0.0500	3.3	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	0.9081		0.0459	0.0500	-8.3	50.0
13C4 PFBA	Ave	1.300	1.378		2.65	2.50	6.0	50.0
13C5 PFPeA	Ave	0.9279	0.9682		2.61	2.50	4.3	50.0
13C3-PFBS	Ave	0.0248	0.0259		2.43	2.33	4.4	50.0
13C2 PFHxA	Ave	0.998	1.041		2.61	2.50	4.3	50.0
13C4-PFHpA	Ave	0.9453	0.9788		2.59	2.50	3.5	50.0
18O2 PFHxS	Ave	1.332	1.371		2.43	2.37	2.9	50.0
M2-6:2FTS	Ave	0.2372	0.2316		2.32	2.38	-2.4	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCVL 320-208863/3 Calibration Date: 02/16/2018 15:25

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.9196		2.54	2.50	1.5	50.0
13C4 PFOS	Ave	0.9166	0.9325		2.43	2.39	1.7	50.0
13C5 PFNA	Ave	0.6993	0.7226		2.58	2.50	3.3	50.0
M2-8:2FTS	Ave	0.2184	0.2154		2.36	2.40	-1.4	50.0
13C2 PFDA	Ave	0.5764	0.5819		2.52	2.50	0.9	50.0
13C8 FOSA	Ave	1.318	1.397		2.65	2.50	6.0	50.0
d3-NMeFOSAA	Ave	0.1687	0.1332		1.97	2.50	-21.1	50.0
13C2 PFUnA	Ave	0.4407	0.4382		2.49	2.50	-0.6	50.0
d5-NEtFOSAA	Ave	0.1780	0.1512		2.12	2.50	-15.1	50.0
13C2 PFDoA	Ave	0.4199	0.3811		2.27	2.50	-9.2	50.0
13C2-PFTeDA	Ave	0.3706	0.3642		2.46	2.50	-1.7	50.0
13C2-PFHxDA	Ave	0.5001	0.4930		2.46	2.50	-1.4	50.0

FORM VII 537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Instrument ID: A8_N Start Date: 02/16/2018 16:04

Analysis Batch Number: 208866 End Date: 02/16/2018 16:51

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-208866/1		02/16/2018 16:04	1	2018.02.16LLA_008.d	GeminiC18 3x100 3(mm)
MB 320-208463/1-A		02/16/2018 16:12	1	2018.02.16LLA_009.d	GeminiC18 3x100 3(mm)
LCS 320-208463/2-A		02/16/2018 16:20	1	2018.02.16LLA_010.d	GeminiC18 3x100 3(mm)
LCSD 320-208463/3-A		02/16/2018 16:28	1	2018.02.16LLA_011.d	GeminiC18 3x100 3(mm)
320-35682-3 RE		02/16/2018 16:35	1	2018.02.16LLA_012.d	GeminiC18 3x100 3(mm)
320-35682-4 RE		02/16/2018 16:43	1	2018.02.16LLA_013.d	GeminiC18 3x100 3(mm)
CCV 320-208866/7		02/16/2018 16:51	1	2018.02.16LLA_014.d	GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/1 Calibration Date: 02/16/2018 16:04

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_008.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9558		2.55	2.50	2.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.186		2.49	2.50	-0.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	79.60		2.37	2.21	7.0	25.0
4:2 FTS	AveID	13.80	15.68		2.65	2.34	13.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.011		2.45	2.50	-1.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	1.049		2.45	2.50	-2.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.017		2.10	2.28	-7.8	25.0
6:2FTS	AveID	1.694	1.643		2.30	2.37	-3.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.133		2.57	2.50	2.8	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.439		2.59	2.38	8.9	25.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.044		2.54	2.50	1.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.108		2.39	2.32	3.2	25.0
8:2FTS	AveID	1.272	1.273		2.40	2.40	0.1	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	1.047		2.69	2.50	7.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	1.029		2.63	2.50	5.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	1.086		2.43	2.50	-2.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.6839		2.51	2.41	4.2	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.9697		2.50	2.50	0.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	0.9876		2.31	2.50	-7.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	1.044		2.59	2.50	3.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.9874		2.62	2.50	4.9	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2640		2.49	2.50	-0.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.028		2.67	2.50	7.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	0.999		2.52	2.50	0.9	25.0
13C4 PFBA	Ave	1.300	1.391		2.67	2.50	7.0	50.0
13C5 PFPeA	Ave	0.9279	0.9581		2.58	2.50	3.3	50.0
13C3-PFBS	Ave	0.0248	0.0249		2.34	2.33	0.5	50.0
13C2 PFHxA	Ave	0.998	1.029		2.58	2.50	3.1	50.0
13C4-PFHpA	Ave	0.9453	0.9849		2.60	2.50	4.2	50.0
18O2 PFHxS	Ave	1.332	1.458		2.59	2.37	9.4	50.0
M2-6:2FTS	Ave	0.2372	0.2266		2.27	2.38	-4.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/1 Calibration Date: 02/16/2018 16:04

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_008.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.9077		2.50	2.50	0.2	50.0
13C4 PFOS	Ave	0.9166	0.9248		2.41	2.39	0.9	50.0
13C5 PFNA	Ave	0.6993	0.7099		2.54	2.50	1.5	50.0
13C8 FOSA	Ave	1.318	1.400		2.66	2.50	6.3	50.0
M2-8:2FTS	Ave	0.2184	0.2142		2.35	2.40	-1.9	50.0
13C2 PFDA	Ave	0.5764	0.5585		2.42	2.50	-3.1	50.0
d3-NMeFOSAA	Ave	0.1687	0.1400		2.08	2.50	-17.0	50.0
d5-NEtFOSAA	Ave	0.1780	0.1501		2.11	2.50	-15.7	50.0
13C2 PFUnA	Ave	0.4407	0.4433		2.51	2.50	0.6	50.0
13C2 PFDoA	Ave	0.4199	0.3900		2.32	2.50	-7.1	50.0
13C2-PFTeDA	Ave	0.3706	0.3706		2.50	2.50	-0.0	50.0
13C2-PFHxDA	Ave	0.5001	0.4692		2.35	2.50	-6.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/7 Calibration Date: 02/16/2018 16:51

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9364	0.9352		0.999	1.00	-0.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.191	1.235		1.04	1.00	3.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.37	74.75		0.888	0.884	0.5	25.0
4:2 FTS	AveID	13.80	14.85		1.01	0.934	7.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9646		0.936	1.00	-6.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.071	1.037		0.969	1.00	-3.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.103	1.038		0.857	0.910	-5.9	25.0
6:2FTS	AveID	1.694	1.651		0.924	0.948	-2.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.103	1.114		1.01	1.00	1.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.321	1.325		0.955	0.952	0.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.029	1.020		0.991	1.00	-0.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.074	1.072		0.927	0.928	-0.1	25.0
8:2FTS	AveID	1.272	1.250		0.942	0.958	-1.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9750	1.006		1.03	1.00	3.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9775	0.9703		0.993	1.00	-0.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.115	1.069		0.959	1.00	-4.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6566	0.6585		0.967	0.964	0.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9681	0.9436		0.975	1.00	-2.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.069	0.9934		0.929	1.00	-7.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.009	1.070		1.06	1.00	6.1	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9417	0.999		1.06	1.00	6.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2647	0.2392		0.904	1.00	-9.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9365		0.962	1.00	-3.8	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9900	1.011		1.02	1.00	2.1	25.0
13C4 PFBA	Ave	1.300	1.357		2.61	2.50	4.3	50.0
13C5 PFPeA	Ave	0.9279	0.9496		2.56	2.50	2.3	50.0
13C3-PFBS	Ave	0.0248	0.0251		2.36	2.33	1.3	50.0
13C2 PFHxA	Ave	0.998	1.013		2.54	2.50	1.5	50.0
13C4-PFHpA	Ave	0.9453	0.9441		2.50	2.50	-0.1	50.0
18O2 PFHxS	Ave	1.332	1.349		2.39	2.37	1.2	50.0
M2-6:2FTS	Ave	0.2372	0.2236		2.24	2.38	-5.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Lab Sample ID: CCV 320-208866/7 Calibration Date: 02/16/2018 16:51

Instrument ID: A8_N Calib Start Date: 02/15/2018 14:00

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/15/2018 15:14

Lab File ID: 2018.02.16LLA_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9059	0.8929		2.46	2.50	-1.4	50.0
13C4 PFOS	Ave	0.9166	0.9163		2.39	2.39	-0.0	50.0
13C5 PFNA	Ave	0.6993	0.6992		2.50	2.50	-0.0	50.0
13C8 FOSA	Ave	1.318	1.352		2.57	2.50	2.6	50.0
M2-8:2FTS	Ave	0.2184	0.2172		2.38	2.40	-0.6	50.0
13C2 PFDA	Ave	0.5764	0.5663		2.46	2.50	-1.8	50.0
d3-NMeFOSAA	Ave	0.1687	0.1391		2.06	2.50	-17.5	50.0
d5-NEtFOSAA	Ave	0.1780	0.1425		2.00	2.50	-20.0	50.0
13C2 PFUnA	Ave	0.4407	0.4395		2.49	2.50	-0.3	50.0
13C2 PFDoA	Ave	0.4199	0.3760		2.24	2.50	-10.5	50.0
13C2-PFTeDA	Ave	0.3706	0.3513		2.37	2.50	-5.2	50.0
13C2-PFHxDA	Ave	0.5001	0.4756		2.38	2.50	-4.9	50.0

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 207074 Batch Start Date: 02/06/18 08:49 Batch Analyst: Santos, Jonathan

Batch Method: 3535 Batch End Date: 02/06/18 12:27

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00036	LCPFC-IS 00027
MB 320-207074/1		3535, 537 (modified)				250.0 mL	10.00 mL	500 uL	500 uL
LCS 320-207074/2		3535, 537 (modified)				250.0 mL	10.00 mL	500 uL	500 uL
LCSD 320-207074/3		3535, 537 (modified)				250.0 mL	10.00 mL	500 uL	500 uL
320-35682-C-1	TP-PFC-026-TPI	3535, 537 (modified)	T	286.69 g	26.84 g	259.9 mL	10.00 mL	500 uL	500 uL
320-35682-C-2	TP-PFC-026-MID-CARBON	3535, 537 (modified)	T	286.80 g	26.70 g	260.1 mL	10.00 mL	500 uL	500 uL
320-35682-B-3	TP-PFC-026-TPE	3535, 537 (modified)	T	287.99 g	27.30 g	260.7 mL	10.00 mL	500 uL	500 uL
320-35682-D-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T	279.01 g	26.78 g	252.2 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00118					
MB 320-207074/1		3535, 537 (modified)							
LCS 320-207074/2		3535, 537 (modified)		500 uL					
LCSD 320-207074/3		3535, 537 (modified)		500 uL					
320-35682-C-1	TP-PFC-026-TPI	3535, 537 (modified)	T						
320-35682-C-2	TP-PFC-026-MID-CARBON	3535, 537 (modified)	T						
320-35682-B-3	TP-PFC-026-TPE	3535, 537 (modified)	T						
320-35682-D-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 207074 Batch Start Date: 02/06/18 08:49 Batch Analyst: Santos, Jonathan

Batch Method: 3535 Batch End Date: 02/06/18 12:27

Batch Notes	
Analyst ID - Aliquot Step	JNS
Balance ID	QA-070
Batch Comment	Sample labels match client ID's JNS 2/6/18
Analyst ID - Final Volume Step	JNS
H2O ID	2/5/18
Hexane ID	1095480
Internal Standard ID#	1140901
Manifold ID	8, 14
Methanol ID	1147519
Sodium Hydroxide ID	1132905
Pipette ID	N32728F
Analyst ID - Reagent Drop	HJA
Analyst ID - IS Reagent Drop	TWL
Analyst ID - IS Reagent Drop Witness	JNS
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	JNS
Solvent Lot #	1147630
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 208463 Batch Start Date: 02/14/18 19:07 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 02/15/18 16:55

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00036	LCPFC-IS 00028
MB 320-208463/1		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
LCS 320-208463/2		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
LCSD 320-208463/3		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
320-35682-D-3	TP-PFC-026-TPE	3535, 537 (modified)	T	320.64 g	26.91 g	293.7 mL	10.00 mL	500 uL	500 uL
320-35682-B-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T	320.97 g	27.10 g	293.9 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00119					
MB 320-208463/1		3535, 537 (modified)							
LCS 320-208463/2		3535, 537 (modified)		500 uL					
LCSD 320-208463/3		3535, 537 (modified)		500 uL					
320-35682-D-3	TP-PFC-026-TPE	3535, 537 (modified)	T						
320-35682-B-4	TP-PFC-026-TPE-D	3535, 537 (modified)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35682-1

SDG No.:

Batch Number: 208463 Batch Start Date: 02/14/18 19:07 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 02/15/18 16:55

Batch Notes	
Analyst ID - Aliquot Step	JER
Balance ID	QA-070
Batch Comment	Sample labels match client IDs JER 2/14/18
Analyst ID - Final Volume Step	JER
H2O ID	2/09/18
Hexane ID	1134406
Internal Standard ID#	1140902
Manifold ID	17
Methanol ID	1152896
Sodium Hydroxide ID	1142835
Pipette ID	N32728F
Analyst ID - Reagent Drop	JER
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	GXL
Solvent Lot #	1153379
Solvent Name	0.3% NH4OH/MEOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

West Sacramento

HPLC/LCMS Data Review Checklist

Job Number(s): 35617, 35682 Work List ID(s): 53821, 53874

Extraction Batch: 207074 Analysis Batch(es): 207472, 207696

Delivery Rank 4 Due Date: 2-13-18

A. Calibration/Instrument Run QC	1st Level	2nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# 206706	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• $RF_{average}$ criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).			✓
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?			✓
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?	✓	✓	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted. Ncm	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?			✓
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation 115878 115877			
1. Are all non-conformances documented/attached? NCM# 115876	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?		✓	
5. Was QC Checker run for this job?	✓	✓	

**Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.*

1st Level (Analyst): JRB Date: 2-9-18

2nd Level Reviewer: [signature] Date: 2/12/18

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 07FEB2018NCE_PFC Worklist Number: 53821
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 207472
# 1 CCV L4	# 1 CCV L4
# 2 MB 320-207074/1-A	# 2 MB 320-207074/1-A
# 3 LCS 320-207074/2-A	# 3 LCS 320-207074/2-A
# 4 LCSD 320-207074/3-A	# 4 LCSD 320-207074/3-A
# 5 320-35617-A-1-A	# 5 320-35617-A-1-A
# 6 320-35617-A-2-A	# 6 320-35617-A-2-A
# 7 320-35617-A-3-A	# 7 320-35617-A-3-A
# 8 320-35617-A-4-A	# 8 320-35617-A-4-A
# 9 320-35617-A-4-B MS	# 9 320-35617-A-4-B MS
#10 320-35617-B-4-A MSD	#10 320-35617-B-4-A MSD
#11 CCV L5	#11 CCV L5
#12 320-35617-A-5-A	#12 320-35617-A-5-A
#13 320-35617-A-6-A	#13 320-35617-A-6-A
#14 320-35617-A-7-A	#14 320-35617-A-7-A
#15 320-35682-C-1-A	#15 320-35682-C-1-A
#16 320-35682-C-2-A	#16 320-35682-C-2-A
#17 320-35682-B-3-A	#17 320-35682-B-3-A
#18 320-35682-D-4-A	#18 320-35682-D-4-A
#19 CCV L4	#19 CCV L4

CCVL in AB 207314

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08FEB2018NCD_PFC Worklist Number: 53874
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 207696
# 1 CCV L4	# 1 CCV L4
# 2 320-35682-C-1-A	# 2 320-35682-C-1-A
# 3 CCV L5	# 3 CCV L5

CCVL in AB 207668

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 07FEB2018NCA_PFC Worklist Num: 53786
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180207-53786.b
Anaylysis Type: SemiVOA Creator: Hannigan, Alyssa B
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0053786-001	CCVL	07-Feb-2018 05:40:59	2018.02.07LLA_055.d	21	1.0		sv
CCV L4	320-0053786-002	CCV	07-Feb-2018 05:48:47	2018.02.07LLA_056.d	28	1.0		sv
CCB	320-0053786-003	CCB	07-Feb-2018 05:56:34	2018.02.07LLA_057.d	20	1.0		sv
MB 320-206753/1-A	320-0053786-004	MB	07-Feb-2018 06:04:22	2018.02.07LLA_002.d	1	1.0		sv
LCS 320-206753/2-A	320-0053786-005	LCS	07-Feb-2018 06:12:12	2018.02.07LLA_003.d	2	1.0		sv
320-35382-A-1-A	320-0053786-006	Client	07-Feb-2018 06:20:01	2018.02.07LLA_004.d	3	1.0	SB031 (0-2")	sv
320-35382-A-2-A	320-0053786-007	Client	07-Feb-2018 06:27:49	2018.02.07LLA_005.d	4	1.0	SB031 (2"-2')	sv
320-35382-A-2-B MS	320-0053786-008	MS	07-Feb-2018 06:35:41	2018.02.07LLA_006.d	5	1.0	SB031 (2"-2')	sv
320-35382-A-2-C MSD	320-0053786-009	MSD	07-Feb-2018 06:43:34	2018.02.07LLA_007.d	6	1.0	SB031 (2"-2')	sv
320-35382-A-3-A	320-0053786-010	Client	07-Feb-2018 06:51:25	2018.02.07LLA_008.d	7	1.0	SB032 (0-2")	sv
320-35382-A-4-A	320-0053786-011	Client	07-Feb-2018 06:59:16	2018.02.07LLA_009.d	8	1.0	SB032 (2"-2')	sv
320-35382-A-5-A	320-0053786-012	Client	07-Feb-2018 07:07:06	2018.02.07LLA_010.d	9	1.0	SB033 (0-2")	sv
320-35382-A-6-A	320-0053786-013	Client	07-Feb-2018 07:14:56	2018.02.07LLA_011.d	10	1.0	SB033 (2"-2')	sv
CCV L5	320-0053786-014	CCV	07-Feb-2018 07:22:44	2018.02.07LLA_012.d	29	1.0		sv
320-35382-A-7-A	320-0053786-015	Client	07-Feb-2018 07:30:34	2018.02.07LLA_013.d	11	1.0	SB034 (0-2")	sv
320-35382-A-8-A	320-0053786-016	Client	07-Feb-2018 07:38:24	2018.02.07LLA_014.d	12	1.0	SB034 (2"-2')	sv
320-35382-A-9-A	320-0053786-017	Client	07-Feb-2018 07:46:13	2018.02.07LLA_015.d	13	1.0	SB035 (0-2")	sv
320-35382-A-10-A	320-0053786-018	Client	07-Feb-2018 07:54:04	2018.02.07LLA_016.d	14	1.0	SB035 (2"-2')	sv
320-35382-A-11-A	320-0053786-019	Client	07-Feb-2018 08:01:53	2018.02.07LLA_017.d	15	1.0	SB036 (0-2")	sv
CCV L4	320-0053786-020	CCV	07-Feb-2018 08:09:42	2018.02.07LLA_018.d	28	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 07FEB2018NCE_PFC Worklist Num: 53821
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53821.b
Anaylysis Type: SemiVOA Creator: Hannigan, Alyssa B
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L4	320-0053821-001	CCV	07-Feb-2018 13:09:56	2018.02.07LLAA_036.d	28	1.0		sv
MB 320-207074/1-A	320-0053821-002	MB	07-Feb-2018 13:17:48	2018.02.07LLAA_037.d	30	1.0		sv
LCS 320-207074/2-A	320-0053821-003	LCS	07-Feb-2018 13:25:40	2018.02.07LLAA_038.d	31	1.0		sv
LCSD 320-207074/3-A	320-0053821-004	LCSD	07-Feb-2018 13:33:30	2018.02.07LLAA_039.d	32	1.0		sv
320-35617-A-1-A	320-0053821-005	Client	07-Feb-2018 13:41:22	2018.02.07LLAA_040.d	33	1.0	INF-013118	sv
320-35617-A-2-A	320-0053821-006	Client	07-Feb-2018 13:49:13	2018.02.07LLAA_041.d	34	1.0	INF-013118-D	sv
320-35617-A-3-A	320-0053821-007	Client	07-Feb-2018 13:57:02	2018.02.07LLAA_042.d	35	1.0	EFF-013118	sv
320-35617-A-4-A	320-0053821-008	Client	07-Feb-2018 14:04:51	2018.02.07LLAA_043.d	36	1.0	Train1-013118	sv
320-35617-A-4-B MS	320-0053821-009	MS	07-Feb-2018 14:12:39	2018.02.07LLAA_044.d	37	1.0	Train1-013118	sv
320-35617-B-4-A MSD	320-0053821-010	MSD	07-Feb-2018 14:20:28	2018.02.07LLAA_045.d	38	1.0	Train1-013118	sv
CCV L5	320-0053821-011	CCV	07-Feb-2018 14:28:17	2018.02.07LLAA_046.d	29	1.0		sv
320-35617-A-5-A	320-0053821-012	Client	07-Feb-2018 14:36:05	2018.02.07LLAA_047.d	39	1.0	Train2-013118	sv
320-35617-A-6-A	320-0053821-013	Client	07-Feb-2018 14:43:56	2018.02.07LLAA_048.d	40	1.0	Train3-013118	sv
320-35617-A-7-A	320-0053821-014	Client	07-Feb-2018 14:51:48	2018.02.07LLAA_049.d	41	1.0	Blank-013118	sv
320-35682-C-1-A	320-0053821-015	Client	07-Feb-2018 14:59:39	2018.02.07LLAA_050.d	42	1.0	TP-PFC-026-TPI	sv
320-35682-C-2-A	320-0053821-016	Client	07-Feb-2018 15:07:28	2018.02.07LLAA_051.d	43	1.0	TP-PFC-026-MID-CARBON	sv
320-35682-B-3-A	320-0053821-017	Client	07-Feb-2018 15:15:16	2018.02.07LLAA_052.d	44	1.0	TP-PFC-026-TPE	sv
320-35682-D-4-A	320-0053821-018	Client	07-Feb-2018 15:23:05	2018.02.07LLAA_053.d	45	1.0	TP-PFC-026-TPE-D	sv
CCV L4	320-0053821-019	CCV	07-Feb-2018 15:30:53	2018.02.07LLAA_054.d	28	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018NCA_PFC Worklist Num: 53869
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53869.b
Anaylysis Type: SemiVOA Creator: Royce, Amani A
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Fract
CCVL	320-0053869-001	CCVL	08-Feb-2018 16:40:40	2018.02.08LLAA_005.d	21	1.0	sv
CCV L4	320-0053869-002	CCV	08-Feb-2018 16:48:28	2018.02.08LLAA_006.d	13	1.0	sv
CCB	320-0053869-003	CCB	08-Feb-2018 16:56:16	2018.02.08LLAA_007.d	20	1.0	sv
CARTRIDGE QC 017537327A MB	320-0053869-004	Client	08-Feb-2018 17:04:08	2018.02.08LLAA_037.d	25	1.0	sv
CARTRIDGE QC 017537327A LCS	320-0053869-005	Client	08-Feb-2018 17:11:59	2018.02.08LLAA_038.d	26	1.0	sv
MANIFOLD QC 18-4	320-0053869-006	Client	08-Feb-2018 17:19:50	2018.02.08LLAA_039.d	27	1.0	sv
CCV L4	320-0053869-007	CCV	08-Feb-2018 17:27:41	2018.02.08LLAA_040.d	13	1.0	sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018NCD_PFC Worklist Num: 53874
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180209-53874.b
Anaylysis Type: SemiVOA Creator: Royce, Amani A
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L4	320-0053874-001	CCV	08-Feb-2018 23:04:17	2018.02.08LLAAX_054.d	13	1.0		sv
320-35682-C-1-A	320-0053874-002	Client	08-Feb-2018 23:12:05	2018.02.08LLAAX_055.d	49	10.0	TP-PFC-026-TPI	sv
CCV L5	320-0053874-003	CCV	08-Feb-2018 23:19:53	2018.02.08LLAAX_056.d	14	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

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AR 2/6/18

Batch Number: 320-207074

Method Code: 320-3535_PFC-320

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Batch End: 2/6/2018 12:27:00PM

Solid-Phase Extraction (SPE)

2/15

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1	MB~320-207074/1 N/A	N/A		250.0 mL	NA			N/A	N/A	N/A		MB 320-207074/1-A
				10.00 mL								
2	LCS~320-207074/2 N/A	N/A		250.0 mL	NA			N/A	N/A	N/A		LCS 320-207074/2-A
				10.00 mL								
3	LCSD~320-207074/3 N/A	N/A		250.0 mL	NA			N/A	N/A	N/A		LCSD 320-207074/3-A
				10.00 mL								
4	320-35617-A-1 (PFC_IDA_DOD5)	GAC (320-35617-1)	290.38 g	262.8 mL	NA			2/13/18	8_Days	4		320-35617-A-1-A
			27.59 g	10.00 mL								
5	320-35617-A-2 (PFC_IDA_DOD5)	GAC (320-35617-1)	287.09 g	259.2 mL	NA			2/13/18	8_Days	4		320-35617-A-2-A
			27.89 g	10.00 mL								
6	320-35617-A-3 (PFC_IDA_DOD5)	GAC (320-35617-1)	283.42 g	255.9 mL	NA			2/13/18	8_Days	4		320-35617-A-3-A
			27.53 g	10.00 mL								
7	320-35617-A-4 (PFC_IDA_DOD5)	GAC (320-35617-1)	286.25 g	258.5 mL	NA			2/13/18	8_Days	4		320-35617-A-4-A
			27.76 g	10.00 mL								
8	320-35617-A-4~MS (PFC_IDA_DOD5)	GAC (320-35617-1)	285.19 g	257.4 mL	NA			2/13/18	8_Days	4		320-35617-A-4-B MS
			27.78 g	10.00 mL								
9	320-35617-B-4~MSD (PFC_IDA_DOD5)	GAC (320-35617-1)	284.73 g	256.6 mL	NA			2/13/18	8_Days	4		320-35617-B-4-A MSD
			28.14 g	10.00 mL								
10	320-35617-A-5 (PFC_IDA_DOD5)	GAC (320-35617-1)	280.51 g	252.8 mL	NA			2/13/18	8_Days	4		320-35617-A-5-A
			27.68 g	10.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End: 2/6/2018 12:27:00PM

11	320-35617-A-6 (PFC_IDA_DOD5)	GAC (320-35617-1)	287.58 g / 27.77 g	259.8 mL / 10.00 mL	NA			2/13/18	8_Days	4		320-35617-A-6-A
12	320-35617-A-7 (PFC_IDA_DOD5)	GAC (320-35617-1)	281.68 g / 27.68 g	254 mL / 10.00 mL	NA			2/13/18	8_Days	4		320-35617-A-7-A
13	320-35682-C-1 (PFC_IDA_DOD5)	N/A (320-35682-1)	286.69 g / 26.84 g	259.9 mL / 10.00 mL	NA			2/18/18	16_Days	4	10X	320-35682-C-1-A
14	320-35682-C-2 (PFC_IDA_DOD5)	N/A (320-35682-1)	286.80 g / 26.70 g	260.1 mL / 10.00 mL	NA			2/18/18	16_Days	4		320-35682-C-2-A
15	320-35682-B-3 (PFC_IDA_DOD5)	N/A (320-35682-1)	287.99 g / 27.30 g	260.7 mL / 10.00 mL	NA			2/18/18	16_Days	4	RA from archive	320-35682-B-3-A
16	320-35682-D-4 (PFC_IDA_DOD5)	N/A (320-35682-1)	279.01 g / 26.78 g	252.2 mL / 10.00 mL	NA			2/18/18	16_Days	4	RA from archive	320-35682-D-4-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

Batch Notes

Manifold ID	8, 14
Methanol ID	1147519
Hexane ID	1095480
Sodium Hydroxide ID	1132905
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A
Balance ID	QA-070
H2O ID	2/5/18
Pipette ID	N32728F
Solvent Name	0.3% NH4OH/MeOH
Solvent Lot #	1147630
Analyst ID - Reagent Drop	HJA
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	JNS
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
Analyst ID - IS Reagent Drop	TWC

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

Analyst ID - IS Reagent Drop Witness	JNS
Internal Standard ID#	1140901
Analyst ID - Concentration	NA
Analyst ID - Aliquot Step	JNS
Analyst ID - Final Volume Step	JNS
SOP Number	WS-LC-0025
Batch Comment	Sample labels match client ID's JNS 2/6/18

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-207074/1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	HSA 2-6-18	JNC 2/6/18
LCS 320-207074/2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
LCS 320-207074/2	LCPFCSP_00118	500 uL	10.00 mL		
LCSD 320-207074/3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
LCSD 320-207074/3	LCPFCSP_00118	500 uL	10.00 mL		
320-35617-A-1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-4	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-4 MS	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-4 MS	LCPFCSP_00118	500 uL	10.00 mL		
320-35617-B-4 MSD	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-B-4 MSD	LCPFCSP_00118	500 uL	10.00 mL		
320-35617-A-5	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-6	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35617-A-7	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35682-C-1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35682-C-2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207074

Analyst: Santos, Jonathan

Batch Open: 2/6/2018 8:49:00AM

Method Code: 320-3535_PFC-320

Batch End:

320-35682-B-3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	HJD 2-8-18	JM 2/6/18
320-35682-D-4	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	↓	↓

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 270744 Test PFC

Earliest Holding Time ~~2/14/18~~ 2/14/18
VPM 2/16/18

Batch Information	1st Level Reviewer	2nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary batch information complete and entered into TALS correctly	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	**1st Level Reviewer**	**2nd Level Reviewer**
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	n/a	NA
MS/MSD or MS/DU NCM filed	n/a	NA
NCM for any anomalies filed	n/a	NA
All NCMs include method code, matrix, and prep batch	n/a	NA
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and Cl Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: JN Date: 2.16.18

2nd Level Reviewer: VPM Date: 2/16/18

Comments:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Test America – Sacramento

Sample Dilution Record

Method ID PFC-IDA **Lot #** See below

Analyst (Print Name) Amani Royce **Analyst Initials** aar

Date 2/8/18

Job #	Sample #	Original F.V. (uL)	Aliquot (uL)	Dilution F.V. (uL)	Dilution Factor	
~~320-35210~~	~~4~~	~~10,000~~	30	1500	50	aar 2/8/18
480-130806	1	↓	15	↓	100	
↓	4		↓	↓	↓	
	1		30	300	10	
↓	4	↓	↓		↓	
						aar 2/8/18
320-35682	1	10,000	30	300	10X	

aar 2/8/18

Comments:

aar 2/8/18

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

West Sacramento

HPLC/LCMS Data Review Checklist

Job Number(s): 35682 Work List ID(s): 54186

Extraction Batch: 208463 Analysis Batch(es): 208866

Delivery Rank 4 Due Date: 2-18-18

A. Calibration/Instrument Run QC	1st Level	2nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# 208660	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• $RF_{average}$ criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).			✓
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?		2/21/2018 MW ✓	✓
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?			✓
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?			✓
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM# 116514	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?		✓	
5. Was QC Checker run for this job?	✓	✓	

**Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.*

1st Level (Analyst): JRB Date: 2-17-18

2nd Level Reviewer: MWay Date: 2/21/2018

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 16FEB2018LLB_PFC Worklist Number: 54186
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 208866
# 1 CCV L5	# 1 CCV L5
# 2 MB 320-208463/1-A	# 2 MB 320-208463/1-A
# 3 LCS 320-208463/2-A	# 3 LCS 320-208463/2-A
# 4 LCSD 320-208463/3-A	# 4 LCSD 320-208463/3-A
# 5 320-35682-D-3-A	# 5 320-35682-D-3-A
# 6 320-35682-B-4-A	# 6 320-35682-B-4-A
# 7 CCV L4	# 7 CCV L4

CCVL in AB 208863

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 16FEB2018LLB_PFC Worklist Num: 54186
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54186.b
Anaylysis Type: SemiVOA Creator: Phomsopha, Thep
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0054186-001	CCV	16-Feb-2018 16:04:41	2018.02.16LLA_008.d	14	1.0		sv
MB 320-208463/1-A	320-0054186-002	MB	16-Feb-2018 16:12:29	2018.02.16LLA_009.d	30	1.0		sv
LCS 320-208463/2-A	320-0054186-003	LCS	16-Feb-2018 16:20:16	2018.02.16LLA_010.d	31	1.0		sv
LCSD 320-208463/3-A	320-0054186-004	LCSD	16-Feb-2018 16:28:05	2018.02.16LLA_011.d	32	1.0		sv
320-35682-D-3-A	320-0054186-005	Client	16-Feb-2018 16:35:54	2018.02.16LLA_012.d	33	1.0	TP-PFC-026-TPE	sv
320-35682-B-4-A	320-0054186-006	Client	16-Feb-2018 16:43:43	2018.02.16LLA_013.d	34	1.0	TP-PFC-026-TPE-D	sv
CCV L4	320-0054186-007	CCV	16-Feb-2018 16:51:32	2018.02.16LLA_014.d	13	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 16FEB2018LLA_PFC Worklist Num: 54185
Instrument: A8_N Method: A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54185.b
Anaylysis Type: SemiVOA Creator: Phomsopha, Thep
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Fract
RB	320-0054185-001	RB	16-Feb-2018 15:09:50	2018.02.16LLA_001.d	54	1.0	sv
RB	320-0054185-002	RB	16-Feb-2018 15:17:39	2018.02.16LLA_002.d	54	1.0	sv
CCVL	320-0054185-003	CCVIS	16-Feb-2018 15:25:29	2018.02.16LLA_003.d	21	1.0	sv
CCV L4	320-0054185-004	CCV	16-Feb-2018 15:33:21	2018.02.16LLA_004.d	13	1.0	sv
RB	320-0054185-005	RB	16-Feb-2018 15:41:15	2018.02.16LLA_005.d	20	1.0	sv
LCS 320-208004/2-A	320-0054185-006	LCS	16-Feb-2018 15:49:03	2018.02.16LLA_006.d	2	1.0	sv
CCV L5	320-0054185-007	CCV	16-Feb-2018 15:56:52	2018.02.16LLA_007.d	14	1.0	sv

83 RX

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

AB 2/16/18
AB 2/17/18

Batch Number: 320-208463 ✓

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End: 2/15/2018 4:55:00PM

Solid-Phase Extraction (SPE)

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-208463/1 N/A	N/A		250.00 mL				N/A	N/A	N/A		
				10.00 mL								
2	LCS~320-208463/2 N/A	N/A		250.00 mL				N/A	N/A	N/A	R1	
				10.00 mL								
3	LCSD~320-208463/3 N/A	N/A		250.00 mL				N/A	N/A	N/A		
				10.00 mL								
4	320-35682-D-3 (PFC_IDA_DOD5)	N/A (320-35682-1)	320.64 g	293.7 mL				2/18/18	16_Days	4		
			26.91 g	10.00 mL								
5	320-35682-B-4 (PFC_IDA_DOD5)	N/A (320-35682-1)	320.97 g	293.9 mL				2/18/18	16_Days	4		
			27.10 g	10.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End: 2/15/2018 4:55:00PM

Batch Notes

Manifold ID	17
Methanol ID	1152896
Hexane ID	1134406
Sodium Hydroxide ID	1142835
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A
Balance ID	QA-070
H2O ID	2/09/18
Pipette ID	N32728F
Solvent Name	0.3% NH4OH/MEOH
Solvent Lot #	1153379
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
Analyst ID - IS Reagent Drop	JER

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Method Code: 320-3535_PFC-320

Batch End: 2/15/2018 4:55:00PM

Analyst ID - IS Reagent Drop Witness	KMK
Internal Standard ID#	1140902
Analyst ID - Concentration	NA
Analyst ID - Aliquot Step	JER
Analyst ID - Final Volume Step	JER
SOP Number	WS-LC-0025
Batch Comment	Sample labels match client IDs JER 2/14/18

Comments

320-35682-D-3

Rework Comments: PFOA results don't match b/w Sample and DUP

320-35682-B-4

Rework Comments: PFOA results don't match b/w Sample and DUP

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End:

Batch Notes

Manifold ID	17
Methanol ID	1152896
Hexane ID	1134406
Sodium Hydroxide ID	1142835
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	003237137A
Balance ID	QA-070
H2O ID	2/09/18
Pipette ID	N32728F
Solvent Name	0.3% NH4OH/MEOH
Solvent Lot #	1153379
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
Analyst ID - IS Reagent Drop	JER

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Method Code: 320-3535_PFC-320

Batch End:

Analyst ID - IS Reagent Drop Witness	KMK
Internal Standard ID#	1140902
Analyst ID - Concentration	NA
Analyst ID - Aliquot Step	JER
Analyst ID - Final Volume Step	JER
SOP Number	WS-LC-0025
Batch Comment	Sample labels match client IDs JER 2/14/18

Comments

320-35682-D-3

Rework Comments: PFOA results don't match b/w Sample and DUP

320-35682-B-4

Rework Comments: PFOA results don't match b/w Sample and DUP

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463
Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM
Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-208463/1	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	2/14/18	* GXL 2/14/18
LCS 320-208463/2	LCMPFC_ALL_SU_00036	500 uL	10.00 mL	↓	↓
LCS 320-208463/2	LCPFCSP_00119	500 uL	10.00 mL		
LCSD 320-208463/3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
LCSD 320-208463/3	LCPFCSP_00119	500 uL	10.00 mL		
320-35682-D-3	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		
320-35682-B-4	LCMPFC_ALL_SU_00036	500 uL	10.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-208463

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 2/14/2018 7:07:00PM

Batch End: 2/15/2018 4:55:00PM

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 208463 Test PFC

Earliest Holding Time 2/14/18

Batch Information	1st Level Reviewer	2nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary batch information complete and entered into TALS correctly	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	**1st Level Reviewer**	**2nd Level Reviewer**
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	NA	NA
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: [signature] Date: 2/15/18

2nd Level Reviewer: VPM Date: 3/16/18

Comments: _____

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	BRUNSWICK_NAS	320-35682-1	SITE 00011	SITE 00011	TP-PFC-INFLUENT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-026-TPI	Ground water	Normal (Regular)	1-Feb-18	537	Perfluoroalkyl Compounds
MID_ATLANTIC	BRUNSWICK_NAS	320-35682-1	SITE 00011	SITE 00011	TP-PFC-EFFLUENT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-026-TPE	Ground water	Normal (Regular)	1-Feb-18	537	Perfluoroalkyl Compounds
MID_ATLANTIC	BRUNSWICK_NAS	320-35682-1	SITE 00011	SITE 00011	TP-PFC-MIDPOINT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-026-MID-CARBON	Ground water	Normal (Regular)	1-Feb-18	537	Perfluoroalkyl Compounds
MID_ATLANTIC	BRUNSWICK_NAS	320-35682-1	SITE 00011	SITE 00011	TP-PFC-EFFLUENT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-026-TPE-D	Ground water	Field duplicate	1-Feb-18	537	Perfluoroalkyl Compounds