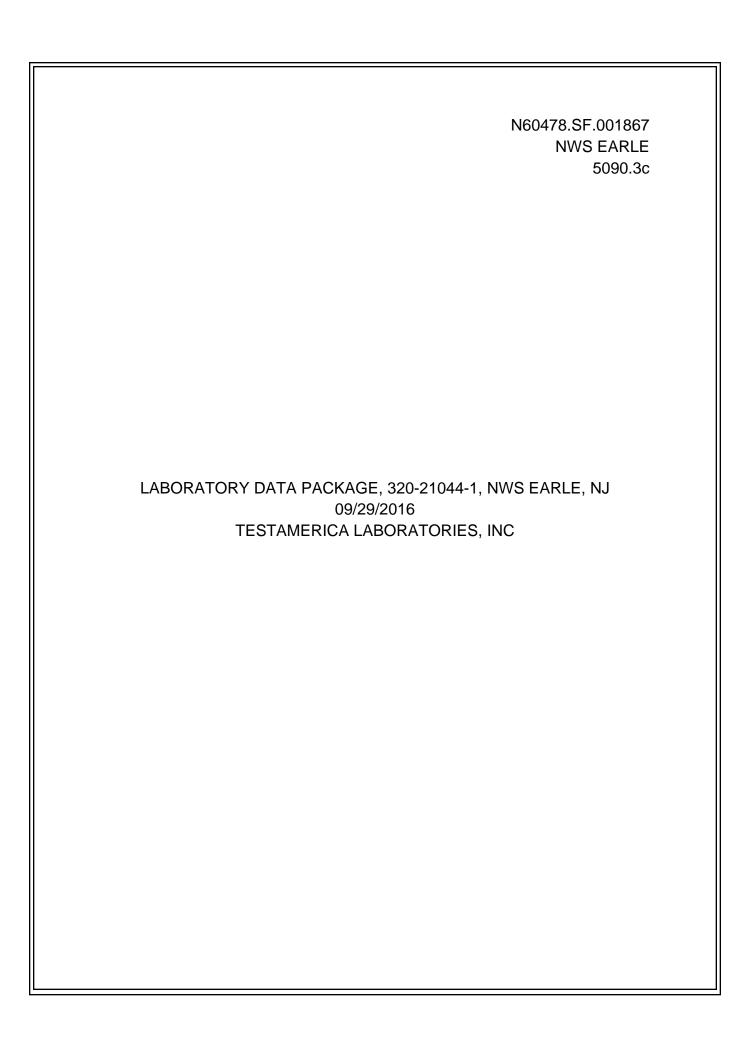


Groundwater Sample Results,
Combined Level 2 and Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG 320-21044-1

Naval Weapons Station Earle Colts Neck, New Jersey

July 2019





ANALYTICAL REPORT

Job Number: 320-21044-1

Job Description: Ensafe-NWS - Earle, NJ PFCs

For: Earth Toxics, Inc PO BOX 3382 Logan, UT 84321

Attention: Mike Dryden

Approved for release Michelle A Johnston Project Manager II 9/29/2016 9:46 AM

Michelle A Johnston, Project Manager II 4955 Yarrow Street, Arvada, CO, 80002 (303)736-0110 michelle.johnston@testamericainc.com 09/29/2016

Michelle A. Johns

cc: Leslie Baechler Tina Cantwell Ms. Nicole Loos Ms. Jennifer O'Keefe

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

TestAmerica Laboratories, Inc.

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Table of Contents

Co	ver Title Page	1
Da	ıta Summaries	4
	Definitions	4
	Case Narrative	5
	Detection Summary	6
	Client Sample Results	9
	Default Detection Limits	17
	Isotope Dilution Summary	18
	QC Sample Results	19
	QC Association	21
	Chronicle	22
	Certification Summary	24
	Method Summary	25
	Sample Summary	26
	Manual Integration Summary	27
	Reagent Traceability	32
	COAs	63
Or	ganic Sample Data	239
	LCMS	239
	Method PFC DOD	239
	Method PFC DOD QC Summary	240
	Method PFC DOD Sample Data	244
	Standards Data	321
	Method PFC DOD ICAL Data	321
	Method PFC DOD CCAL Data	488
	Raw QC Data	537

Table of Contents

Method PFC DOD Blank Data	537
Method PFC DOD LCS/LCSD Data	548
Method PFC DOD Run Logs	562
Method PFC DOD Prep Data	586
Shipping and Receiving Documents	655
Client Chain of Custody	656
Sample Receipt Checklist	657

Definitions/Glossary

Client: Earth Toxics, Inc

TestAmerica Job ID: 320-21044-1 Project/Site: Ensafe-NWS - Earle, NJ PFCs

Qualifiers

LCMS

Qualifier	Qualifier Description
М	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE

Client: Earth Toxics, Inc Project: Ensafe-NWS - Earle, NJ PFCs

Report Number: 320-21044-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receipt

The samples were received on 8/18/2016 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

The requested 537 modified PFAS analyses were logged on a 25 business day turn around time due to current laboratory capacity.

No other anomalies were encountered during sample receipt.

Perfluorinated Hydrocarbons (PFCs)

Samples FB081716 (320-21044-1), EB081716 (320-21044-2), MCFSMW-3_0816 (320-21044-3), 46MW05_0816 (320-21044-4), 46MW03_0816 (320-21044-5), MCFSMW-14_0816 (320-21044-6), MCFSMW-4_0816 (320-21044-7) and MCFSMW-5_0816 (320-21044-8) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with WS-LC-0025. The samples were prepared on 08/22/2016 and analyzed on 09/04/2016 and 09/19/2016.

Reporting limits have been adjusted accordingly for the initial volumes extracted.

The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: MCFSMW-3_0816 (320-21044-3) and 46MW05_0816 (320-21044-4). Samples were reanalyzed at dilutions in order to obtain these analytes within the calibration range. Both sets of data have been reported. Associated data have been flagged "J" in accordance with the DOD QSM.

The level 1 standard from the ICAL (ICV 320-125915/12)(ICV 320-125915/22) is used to evaluate the tune criteria. The instrument mass windows are set at +/-0.5 amu. Detection of the analyte serves as verification that the assigned mass is within +/-0.5 amu of the true value, which meets the DOD tune criterion.

The level 1 standard from the ICAL (ICV 320-128009/12) is used to evaluate the tune criteria. The instrument mass windows are set at +/ -0.5 amu. Detection of the analyte serves as verification that the assigned mass is within +/-0.5 amu of the true value, which meets the DOD tune criterion.

MS/MSD analyses for prep batch 320-123451 were not requested.

The injection times displayed in Chrome/TALS do not match the injection times listed on A8 instrument printouts. The instrument printout listing the injection times can be found at the end of the run log section.

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

Detection Summary

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	2.4		2.3	1.8	0.73	ng/L	1	537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.4		2.3	1.8	0.79	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9	J M	3.6	2.7	1.2	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.7	M	2.3	1.8	0.68	ng/L	1	537 (Modified)	Total/NA

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.3	JM	3.7	2.8	1.2	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MCFSMW-3_0816 Lab Sample ID: 320-21044-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac [Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	31		2.3	1.9	0.86	ng/L		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	26		2.3	1.9	0.75	ng/L	1	537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	710	J	2.3	1.9	0.82	ng/L	1	537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	8.7	M	2.3	1.9	0.61	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	650		3.7	2.8	1.2	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	100	M	2.3	1.9	0.70	ng/L	1	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	28	D	4.7	3.7	1.7	ng/L	2	537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	26	D	4.7	3.7	1.5	ng/L	2	537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	790	D	4.7	3.7	1.6	ng/L	2	537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA) - DL	9.3	DM	4.7	3.7	1.2	ng/L	2	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	710	D	7.5	5.6	2.4	ng/L	2	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	100	D	4.7	3.7	1.4	ng/L	2	537 (Modified)	Total/NA

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	47		2.4	1.9	0.87	ng/L	1	_	537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	18		2.4	1.9	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	520		2.4	1.9	0.83	ng/L	1		537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.0	J	2.4	1.9	0.62	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1100	J	3.8	2.9	1.2	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: 4	6MW05_	_U816 (Co	ntinued)				Lab Sa	mple ID: 32	U-21044
Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	82	M	2.4	1.9	0.71	ng/L		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	40	D	12	9.5	4.4	ng/L	5	537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	19	D	12	9.5	3.8	ng/L	5	537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	660	D	12	9.5	4.1	ng/L	5	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1300	D	19	14	6.1	ng/L	5	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	84	D	12	9.5	3.6	ng/L	5	537 (Modified)	Total/NA
Client Sample ID: 4	6MW03_	_0816					Lab Sa	mple ID: 32	0-21044
Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.4	M	2.4	1.9	0.82	ng/L		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.1	M	3.8	2.8	1.2	ng/L	1	537 (Modified)	Total/NA
Client Sample ID: N	ICFSMV	V-14_0816	3				Lab Sa	mple ID: 32	0-21044
- Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	5.0		2.4	1.9	0.82	ng/L		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5	J M	3.8	2.8	1.2	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	JM	2.4	1.9	0.71	ng/L	1	537 (Modified)	Total/NA
Client Sample ID: N	ICFSMV	V-4_0816					Lab Sa	mple ID: 32	0-21044
Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	26		2.4	1.9	0.87	ng/L		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	77		2.4	1.9	0.76	ng/L	1	537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	200		2.4	1.9	0.82	ng/L	1	537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	21		2.4	1.9	0.62	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	69	М	3.8	2.8	1.2	ng/L	1	537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	160	M	2.4	1.9	0.71	ng/L	1	537 (Modified)	Total/NA
lient Sample ID: N	ICFSMV	V-5_0816					Lab Sa	mple ID: 32	0-21044
Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	12		2.3	1.9		ng/L		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	13		2.3	1.9	0.75	ng/L	1	537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Client Sample ID: MCFSMW-5_0816 (Continued)	
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Lab Sample ID: 320-21044	-8
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Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	45		2.3	1.9	0.81	ng/L	1	_	537 (Modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.92	J	2.3	1.9	0.61	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	22	M	3.7	2.8	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	27	М	2.3	1.9	0.70	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Client Sample ID: FB081716 Lab Sample ID: 320-21044-1

Date Collected: 08/17/16 10:20 Matrix: Water Date Received: 08/18/16 09:30

Analyte	Res	ult	Qualifier	L	.OQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)		1.8	U	_	2.3	1.8	0.83	ng/L	09/04/16 13:31	1
Perfluoroheptanoic acid (PFHpA)	:	2.4			2.3	1.8	0.73	ng/L	09/04/16 13:31	1
Perfluorohexanesulfonic acid (PFHxS)	:	2.4			2.3	1.8	0.79	ng/L	09/04/16 13:31	1
Perfluorononanoic acid (PFNA)		1.8	U		2.3	1.8	0.59	ng/L	09/04/16 13:31	1
Perfluorooctanesulfonic acid (PFOS)) :	2.9	J M		3.6	2.7	1.2	ng/L	09/04/16 13:31	1
Perfluorooctanoic acid (PFOA)	:	2.7	M		2.3	1.8	0.68	ng/L	09/04/16 13:31	1
Isotope Dilution	%Recovery	Qı	ıalifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	140	-		25 - 150	=			08/22/16 13:34	09/04/16 13:31	1
13C4 PFOA	149			25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C4 PFOS	141			25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C4-PFHpA	148			25 - 150				08/22/16 13:34	09/04/16 13:31	1
13C5 PFNA	137	Μ		25 - 150				08/22/16 13:34	09/04/16 13:31	1
1802 PFHxS	142			25 - 150				08/22/16 13:34	09/04/16 13:31	1

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Date Collected: 08/17/16 10:23 Matrix: Water Date Received: 08/18/16 09:30

Analyte	Res	ult	Qualifier	L	.OQ	LOD) DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)		1.9	U		2.3	1.9	0.85	ng/L	_	09/04/16 13:38	1
Perfluoroheptanoic acid (PFHpA)	•	1.9	U		2.3	1.9	0.75	ng/L		09/04/16 13:38	1
Perfluorohexanesulfonic acid (PFHxS)	•	1.9	U		2.3	1.9	0.81	ng/L		09/04/16 13:38	1
Perfluorononanoic acid (PFNA)		1.9	UM		2.3	1.9	0.61	ng/L		09/04/16 13:38	1
Perfluorooctanesulfonic acid (PFOS)	1	1.3	J M		3.7	2.8	1.2	ng/L		09/04/16 13:38	1
Perfluorooctanoic acid (PFOA)	•	1.9	UM		2.3	1.9	0.70	ng/L		09/04/16 13:38	1
Isotope Dilution	%Recovery	Qı	ualifier	Limits				Prepared		Analyzed	Dil Fac
13C2 PFHxA	134			25 - 150	_			08/22/16 13:	34	09/04/16 13:38	1
13C4 PFOA	139			25 - 150				08/22/16 13:	34	09/04/16 13:38	1
13C4 PFOS	131			25 - 150				08/22/16 13:	34	09/04/16 13:38	1
13C4-PFHpA	144			25 - 150				08/22/16 13:	34	09/04/16 13:38	1
13C5 PFNA	134			25 - 150				08/22/16 13:	34	09/04/16 13:38	1
1802 PFHxS	136			25 - 150				08/22/16 13:	34	09/04/16 13:38	1

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Client Sample ID: MCFSMW-3_0816 Lab Sample ID: 320-21044-3

Date Collected: 08/17/16 11:06 Matrix: Water Date Received: 08/18/16 09:30

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS	31		2.3	1.9	0.86	ng/L	09/04/16 13:46	1
Perfluoroheptanoic acid (PFHpA)	26	i	2.3	1.9	0.75	ng/L	09/04/16 13:46	1
Perfluorohexanesulfonic acid (PFHxS)	710	J	2.3	1.9	0.82	ng/L	09/04/16 13:46	1
Perfluorononanoic acid (PFNA)	8.7	M	2.3	1.9	0.61	ng/L	09/04/16 13:46	1
Perfluorooctanesulfonic acid (PFOS	650		3.7	2.8	1.2	ng/L	09/04/16 13:46	1
Perfluorooctanoic acid (PFOA)	100	M	2.3	1.9	0.70	ng/L	09/04/16 13:46	1
Isotope Dilution	%Recovery Q	ualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		25 - 150			08/22/16 13:34	09/04/16 13:46	1
13C4 PFOA	89		25 - 150			08/22/16 13:34	09/04/16 13:46	1
13C4 PFOS	102		25 - 150			08/22/16 13:34	09/04/16 13:46	1
13C4-PFHpA	80		25 - 150			08/22/16 13:34	09/04/16 13:46	1
13C5 PFNA	62		25 - 150			08/22/16 13:34	09/04/16 13:46	1
I 3 CO PFINA	- U		20-700					
1802 PFHxS	91		25 - 150				09/04/16 13:46	1
13C5 PFNA 1802 PFHxS : Method: 537 (Modified) - Perflu Analyte	91 Iorinated Hyd Result	Qualifier	25 - 150	LOD	DL		09/04/16 13:46	·
1802 PFHxS Method: 537 (Modified) - Perflu	91 Iorinated Hyd Result		25 - 150 ns - DL	LOD	DL 1.7	08/22/16 13:34 Unit D	09/04/16 13:46	Dil Fac
1802 PFHxS Method: 537 (Modified) - Perflu Analyte	91 Iorinated Hyd Result	Qualifier	25 - 150 ns - DL LOQ		1.7	08/22/16 13:34 Unit D	09/04/16 13:46 Analyzed	Dil Fac
1802 PFHxS Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS	91 Iorinated Hyder Result 30 28	Qualifier D	25 - 150 ns - DL LOQ 4.7	3.7	1.7 1.5	08/22/16 13:34 Unit	09/04/16 13:46 Analyzed 09/19/16 20:40	Dil Fac
1802 PFHxS Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid	91 porinated Hydrox Result (5) 28 26	Qualifier D D D	25 - 150 1S - DL LOQ 4.7 4.7	3.7	1.7 1.5 1.6	08/22/16 13:34 Unit	Analyzed 09/19/16 20:40 09/19/16 20:40	2 2 2
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS)	91 porinated Hydrox Result	Qualifier D D D	25 - 150 1S - DL LOQ 4.7 4.7 4.7	3.7 3.7 3.7	1.7 1.5 1.6	08/22/16 13:34 Unit	Analyzed 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA)	91 porinated Hydrox Result	Qualifier D D D D	25 - 150 ns - DL LOQ 4.7 4.7 4.7 4.7	3.7 3.7 3.7 3.7	1.7 1.5 1.6 1.2 2.4	08/22/16 13:34 Unit	Analyzed 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40	Dil Fac 2 2 2 2 2
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFNA)	91 porinated Hydrox Result	Qualifier D D D D D D D D	25 - 150 AS - DL LOQ 4.7 4.7 4.7 4.7 7.5	3.7 3.7 3.7 3.7 5.6	1.7 1.5 1.6 1.2 2.4	08/22/16 13:34 Unit	Analyzed 09/04/16 13:46 Analyzed 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA)	91 porinated Hydrox Result	Qualifier D D D D D D D D	25 - 150 IS - DL LOQ 4.7 4.7 4.7 7.5 4.7	3.7 3.7 3.7 3.7 5.6	1.7 1.5 1.6 1.2 2.4	Unit ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	Analyzed 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40	2 2 2 2 2 Dil Fac
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) Isotope Dilution	91 Iorinated Hydrau Result 28 26 790 9.3 6) 710 100 %Recovery G	Qualifier D D D D D D D D	25 - 150 IS - DL LOQ 4.7 4.7 4.7 7.5 4.7 Limits	3.7 3.7 3.7 3.7 5.6	1.7 1.5 1.6 1.2 2.4	08/22/16 13:34 Unit	Analyzed O9/04/16 13:46 Analyzed O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 Analyzed	2 2 2 2 2 2 Dil Fac
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluorohexanesulfonic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS Perfluorooctanoic acid (PFOA) Isotope Dilution 13C2 PFHxA	91 Result 3) 28 26 790 9.3 6) 710 100 %Recovery 4110	Qualifier D D D D D D D D	25 - 150 AS - DL LOQ 4.7 4.7 4.7 7.5 4.7 Limits 25 - 150	3.7 3.7 3.7 3.7 5.6	1.7 1.5 1.6 1.2 2.4	08/22/16 13:34 Unit D ng/L ng/L ng/L ng/L ng/L ng/L 08/22/16 13:34 08/22/16 13:34	Analyzed O9/04/16 13:46 Analyzed O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 Analyzed O9/19/16 20:40	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluorohexanesulfonic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS Perfluorooctanoic acid (PFOA) Isotope Dilution 13C2 PFHxA 13C4 PFOA 13C4 PFOS	91 Result 3) 28 26 790 9.3 6) 710 100 **Recovery 110 99	Qualifier D D D D D D D D	25 - 150 AS - DL LOQ 4.7 4.7 4.7 7.5 4.7 Limits 25 - 150 25 - 150	3.7 3.7 3.7 3.7 5.6	1.7 1.5 1.6 1.2 2.4	08/22/16 13:34 Unit D ng/L ng/L ng/L ng/L ng/L ng/L 08/22/16 13:34 08/22/16 13:34 08/22/16 13:34	Analyzed O9/04/16 13:46 Analyzed O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40 Analyzed O9/19/16 20:40 O9/19/16 20:40 O9/19/16 20:40	2 2 2 2 2 Dil Fac
Method: 537 (Modified) - Perflu Analyte Perfluorobutanesulfonic acid (PFBS Perfluorohexanesulfonic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS Perfluorooctanoic acid (PFOA) Isotope Dilution 13C2 PFHxA 13C4 PFOA	91 porinated Hydrogram Result 30 28 26 790 9.3 710 100 %Recovery 110 99 113	Qualifier D D D D D D D D	25 - 150 IS - DL LOQ 4.7 4.7 4.7 7.5 4.7 Limits 25 - 150 25 - 150	3.7 3.7 3.7 3.7 5.6	1.7 1.5 1.6 1.2 2.4	08/22/16 13:34 Unit	Analyzed 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 Analyzed 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40 09/19/16 20:40	Dil Fac 2 2 2 2 2 2 Dil Fac 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Date Collected: 08/17/16 12:16 Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	47		2.4	1.9	0.87	ng/L	09/04/16 13:54	1
Perfluoroheptanoic acid (PFHpA)	18		2.4	1.9	0.76	ng/L	09/04/16 13:54	1
Perfluorohexanesulfonic acid (PFHxS)	520		2.4	1.9	0.83	ng/L	09/04/16 13:54	1
Perfluorononanoic acid (PFNA)	1.0	J	2.4	1.9	0.62	ng/L	09/04/16 13:54	1
Perfluorooctanesulfonic acid (PFOS)	1100	J	3.8	2.9	1.2	ng/L	09/04/16 13:54	1
Perfluorooctanoic acid (PFOA)	82	M	2.4	1.9	0.71	ng/L	09/04/16 13:54	1
Isotope Dilution	%Recovery Q	ualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		25 - 150			08/22/16 13:34	09/04/16 13:54	1
13C4 PFOA	91		25 - 150			08/22/16 13:34	09/04/16 13:54	1
13C4 PFOS	105		25 - 150			08/22/16 13:34	09/04/16 13:54	1
13C4-PFHpA	89		25 - 150			08/22/16 13:34	09/04/16 13:54	1
13C5 PFNA	58		25 - 150			08/22/16 13:34	09/04/16 13:54	1
1802 PFHxS	109		25 - 150			08/22/16 13:34	09/04/16 13:54	1
Method: 537 (Modified) - Perfluc	orinated Hyd	lrocarbor	ns - DL					
Method: 537 (Modified) - Perfluc Analyte				LOD	DI	Unit D	Analyzed	Dil Fac
Analyte	Result	Qualifier	ns - DL LOQ 12	LOD	DL 4.4	Unit D	Analyzed 09/19/16 20:48	
Analyte Perfluorobutanesulfonic acid (PFBS)	Result	Qualifier D	LOQ		4.4		•	5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA)	Result 40	Qualifier D D		9.5	4.4 3.8	ng/L	09/19/16 20:48	5
Analyte Perfluorobutanesulfonic acid (PFBS)	Result 40 19	Qualifier D D	LOQ 12 12	9.5 9.5	4.4 3.8	ng/L	09/19/16 20:48 09/19/16 20:48	5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid	Result 40 19	Qualifier D D D	LOQ 12 12	9.5 9.5	4.4 3.8 4.1	ng/L	09/19/16 20:48 09/19/16 20:48	Dil Fac 5 5 5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS)	Result 40 19 660 9.5	Qualifier D D D	LOQ 12 12 12 12	9.5 9.5 9.5	4.4 3.8 4.1	ng/L ng/L ng/L	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48	5 5 5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA)	Result 40 19 660 9.5	Qualifier D D U D	LOQ 12 12 12 12	9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48	5 5 5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA)	Result 40 19 660 9.5 1300	Qualifier D D D D	LOQ 12 12 12 12 12 19	9.5 9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L ng/L	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48	5 5 5 5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA)	9.5 1300 84	Qualifier D D D D	LOQ 12 12 12 12 19 12	9.5 9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48	5 5 5 5 5 5 Dil Fac
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) Isotope Dilution	Result 40 19 660 9.5 1300 84 %Recovery Q	Qualifier D D D D	12 12 12 12 12 19 12 <i>Limits</i>	9.5 9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 Analyzed	5 5 5 5 5 Dil Fac
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) Isotope Dilution 13C2 PFHxA	9.5 1300 84 %Recovery Q	Qualifier D D D D	12 12 12 12 12 19 12 Limits 25 - 150	9.5 9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L ng/L ng/L ng/L Prepared 08/22/16 13:34 08/22/16 13:34	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 Analyzed 09/19/16 20:48	5 5 5 5 5 Dil Fac
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) Isotope Dilution 13C2 PFHxA 13C4 PFOA	9.5 1300 84 %Recovery Q	Qualifier D D D D	12 12 12 12 12 19 12 Limits 25 - 150 25 - 150	9.5 9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L ng/L ng/L ng/L Prepared 08/22/16 13:34 08/22/16 13:34	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 Analyzed 09/19/16 20:48 09/19/16 20:48	5 5 5 5 5 Dil Fac 5
Analyte Perfluorobutanesulfonic acid (PFBS) Perfluoroheptanoic acid (PFHpA) Perfluorohexanesulfonic acid (PFHxS) Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) Isotope Dilution 13C2 PFHxA 13C4 PFOA 13C4 PFOS	9.5 1300 84 %Recovery Q 123 117 133	Qualifier D D D D	12 12 12 12 12 19 12 Limits 25 - 150 25 - 150 25 - 150	9.5 9.5 9.5 9.5	4.4 3.8 4.1 3.1 6.1	ng/L ng/L ng/L ng/L ng/L ng/L Prepared 08/22/16 13:34 08/22/16 13:34 08/22/16 13:34	09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48 Analyzed 09/19/16 20:48 09/19/16 20:48 09/19/16 20:48	5 5 5 5 5 5

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Date Collected: 08/17/16 13:31 Matrix: Water

Analyte	Resi	ult Qualifi	er L	.OQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1	.9 U		2.4	1.9	0.87	ng/L	09/04/16 14:01	1
Perfluoroheptanoic acid (PFHpA)	1	.9 U		2.4	1.9	0.76	ng/L	09/04/16 14:01	1
Perfluorohexanesulfonic acid (PFHxS)	3	.4 M		2.4	1.9	0.82	ng/L	09/04/16 14:01	1
Perfluorononanoic acid (PFNA)	1	.9 U		2.4	1.9	0.62	ng/L	09/04/16 14:01	1
Perfluorooctanesulfonic acid (PFOS)	6	.1 M		3.8	2.8	1.2	ng/L	09/04/16 14:01	1
Perfluorooctanoic acid (PFOA)	1	.9 U M		2.4	1.9	0.71	ng/L	09/04/16 14:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		25 - 150	-			08/22/16 13:34	09/04/16 14:01	1
13C4 PFOA	104		25 - 150				08/22/16 13:34	09/04/16 14:01	1
13C4 PFOS	132		25 - 150				08/22/16 13:34	09/04/16 14:01	1
13C4-PFHpA	109		25 - 150				08/22/16 13:34	09/04/16 14:01	1
13C5 PFNA	83		25 - 150				08/22/16 13:34	09/04/16 14:01	1
18O2 PFHxS	126		25 - 150				08/22/16 13:34	09/04/16 14:01	1

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Client Sample ID: MCFSMW-14_0816 Lab Sample ID: 320-21044-6

Date Collected: 08/17/16 09:51 Matrix: Water

Analyte	Res	ult	Qualifier	L	.OQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)		1.9	U		2.4	1.9	0.87	ng/L	09/04/16 14:08	1
Perfluoroheptanoic acid (PFHpA)	•	1.9	U		2.4	1.9	0.76	ng/L	09/04/16 14:08	1
Perfluorohexanesulfonic acid (PFHxS)	ţ	5.0			2.4	1.9	0.82	ng/L	09/04/16 14:08	1
Perfluorononanoic acid (PFNA)		1.9	U		2.4	1.9	0.62	ng/L	09/04/16 14:08	1
Perfluorooctanesulfonic acid (PFOS)		2.5	J M		3.8	2.8	1.2	ng/L	09/04/16 14:08	1
Perfluorooctanoic acid (PFOA)	1	1.1	J M		2.4	1.9	0.71	ng/L	09/04/16 14:08	1
Isotope Dilution	%Recovery	Qu	alifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	101	-		25 - 150	-			08/22/16 13:34	09/04/16 14:08	1
13C4 PFOA	102			25 - 150				08/22/16 13:34	09/04/16 14:08	1
13C4 PFOS	128			25 - 150				08/22/16 13:34	09/04/16 14:08	1
13C4-PFHpA	109			25 - 150				08/22/16 13:34	09/04/16 14:08	1
13C5 PFNA	92			25 - 150				08/22/16 13:34	09/04/16 14:08	1
1802 PFHxS	126			25 - 150				08/22/16 13:34	09/04/16 14:08	1

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Client Sample ID: MCFSMW-4_0816 Lab Sample ID: 320-21044-7

Date Collected: 08/17/16 11:31 Matrix: Water

Analyte	Resul	t Qualifier	L	.OQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	26	<u> </u>		2.4	1.9	0.87	ng/L	09/04/16 14:16	1
Perfluoroheptanoic acid (PFHpA)	77	7		2.4	1.9	0.76	ng/L	09/04/16 14:16	1
Perfluorohexanesulfonic acid (PFHxS)	200)		2.4	1.9	0.82	ng/L	09/04/16 14:16	1
Perfluorononanoic acid (PFNA)	21			2.4	1.9	0.62	ng/L	09/04/16 14:16	1
Perfluorooctanesulfonic acid (PFOS)	69) M		3.8	2.8	1.2	ng/L	09/04/16 14:16	1
Perfluorooctanoic acid (PFOA)	160	M		2.4	1.9	0.71	ng/L	09/04/16 14:16	1
Isotope Dilution	%Recovery 0	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	78		25 - 150	-			08/22/16 13:34	09/04/16 14:16	1
13C4 PFOA	89		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C4 PFOS	117		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C4-PFHpA	88		25 - 150				08/22/16 13:34	09/04/16 14:16	1
13C5 PFNA	86		25 - 150				08/22/16 13:34	09/04/16 14:16	1
1802 PFHxS	104		25 - 150				08/22/16 13:34	09/04/16 14:16	1

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Client Sample ID: MCFSMW-5_0816 Lab Sample ID: 320-21044-8

Date Collected: 08/17/16 13:16 Matrix: Water

Analyte	Res	ult	Qualifier	L	.OQ	LOD	DL	Unit D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS))	12			2.3	1.9	0.86	ng/L	09/04/16 14:54	1
Perfluoroheptanoic acid (PFHpA)		13			2.3	1.9	0.75	ng/L	09/04/16 14:54	1
Perfluorohexanesulfonic acid (PFHxS)		45			2.3	1.9	0.81	ng/L	09/04/16 14:54	1
Perfluorononanoic acid (PFNA)	0.	92	J		2.3	1.9	0.61	ng/L	09/04/16 14:54	1
Perfluorooctanesulfonic acid (PFOS))	22	M		3.7	2.8	1.2	ng/L	09/04/16 14:54	1
Perfluorooctanoic acid (PFOA)		27	M		2.3	1.9	0.70	ng/L	09/04/16 14:54	1
Isotope Dilution	%Recovery	Qu	alifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90			25 - 150	-			08/22/16 13:34	09/04/16 14:54	1
13C4 PFOA	95			25 - 150				08/22/16 13:34	09/04/16 14:54	1
13C4 PFOS	117			25 - 150				08/22/16 13:34	09/04/16 14:54	1
13C4-PFHpA	100			25 - 150				08/22/16 13:34	09/04/16 14:54	1
13C5 PFNA	75			25 - 150				08/22/16 13:34	09/04/16 14:54	1
1802 PFHxS	119			25 - 150				08/22/16 13:34	09/04/16 14:54	1

Default Detection Limits

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: 3535

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	2.5	0.92	ng/L	537 (Modified)
Perfluoroheptanoic acid (PFHpA)	2.5	0.80	ng/L	537 (Modified)
Perfluorohexanesulfonic acid (PFHxS)	2.5	0.87	ng/L	537 (Modified)
Perfluorononanoic acid (PFNA)	2.5	0.65	ng/L	537 (Modified)
Perfluorooctanesulfonic acid (PFOS)	4.0	1.3	ng/L	537 (Modified)
Perfluorooctanoic acid (PFOA)	2.5	0.75	ng/L	537 (Modified)

Isotope Dilution Summary

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water Prep Type: Total/NA

_			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L
		3C2 PFHx	3C4 PFO	3C4 PFOS	3C4-PFHp	3C5 PFN/	3O2 PFHx
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
20-21044-1	FB081716	140	149	141	148	137 M	142
0-21044-2	EB081716	134	139	131	144	134	136
0-21044-3	MCFSMW-3_0816	84	89	102	80	62	91
)-21044-3 - DL	MCFSMW-3_0816	110	99	113	91	77	110
-21044-4	46MW05_0816	96	91	105	89	58	109
-21044-4 - DL	46MW05_0816	123	117	133	114	91	138
21044-5	46MW03_0816	100	104	132	109	83	126
21044-6	MCFSMW-14_0816	101	102	128	109	92	126
-21044-7	MCFSMW-4_0816	78	89	117	88	86	104
-21044-8	MCFSMW-5_0816	90	95	117	100	75	119
320-123451/2-A	Lab Control Sample	123	131	125	131	120	128
D 320-123451/3-A	Lab Control Sample Dup	128	135	128	137	122	132
320-123451/1-A	Method Blank	130	139	130	147	129	133

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C4 PFOA = 13C4 PFOA

13C4 PFOS = 13C4 PFOS

13C4-PFHpA = 13C4-PFHpA

13C5 PFNA = 13C5 PFNA

1802 PFHxS = 1802 PFHxS

QC Sample Results

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-123451/1-A

Matrix: Water

Analysis Batch: 126120

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

TestAmerica Job ID: 320-21044-1

Prep Batch: 123451

	MB	MB							
Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	2.0	0.92	ng/L		09/04/16 13:08	1
Perfluoroheptanoic acid (PFHpA)	2.0	UM	2.5	2.0	0.80	ng/L		09/04/16 13:08	1
Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.5	2.0	0.87	ng/L		09/04/16 13:08	1
Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65	ng/L		09/04/16 13:08	1
Perfluorooctanesulfonic acid (PFOS)	3.0	UM	4.0	3.0	1.3	ng/L		09/04/16 13:08	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.75	ng/L		09/04/16 13:08	1

MB MB

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	130		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C4 PFOA	139		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C4 PFOS	130		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C4-PFHpA	147		25 - 150	08/22/16 13:34	09/04/16 13:08	1
13C5 PFNA	129		25 - 150	08/22/16 13:34	09/04/16 13:08	1
18O2 PFHxS	133		25 - 150	08/22/16 13:34	09/04/16 13:08	1

Lab Sample ID: LCS 320-123451/2-A

Lab Sample ID: LCSD 320-123451/3-A

Matrix: Water

Matrix: Water

Analysis Batch: 126120

Analysis Batch: 126120

Client Sample ID: Lab Control Sample

Prep Type: Total/NA **Prep Batch: 123451**

7 , 0.10 1.20	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	34.2		ng/L		97	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	36.6		ng/L		91	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.2		ng/L		86	60 - 140
Perfluorononanoic acid (PFNA)	40.0	36.5		ng/L		91	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	29.5		ng/L		79	60 - 140
Perfluorooctanoic acid (PFOA)	40.0	37.9		ng/L		95	60 - 140
100	1.00						

LCS LCS

Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	123		25 - 150
13C4 PFOA	131		25 - 150
13C4 PFOS	125		25 - 150
13C4-PFHpA	131		25 - 150
13C5 PFNA	120		25 - 150
1802 PFHxS	128		25 - 150

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA **Prep Batch: 123451**

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	34.6		ng/L		98	50 - 150	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	35.4		ng/L		89	60 - 140	3	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.8		ng/L		87	60 - 140	2	30
Perfluorononanoic acid (PFNA)	40.0	36.6		ng/L		91	60 - 140	0	30

QC Sample Results

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Method: 537 (Modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320 Matrix: Water	D-123451/3-A	L			C	Client Sa	ample	ID: Lat	Control Prep Ty		
Analysis Batch: 126120									Prep Ba	atch: 1	23451
			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanesulfonic acid (PFOS)			37.1	30.0		ng/L		81	60 - 140	2	30
Perfluorooctanoic acid (PFOA)			40.0	36.6		ng/L		91	60 - 140	4	30
	LCSD	LCSD									
Isotope Dilution	%Recovery	Qualifier	Limits								
13C2 PFHxA	128		25 - 150								
13C4 PFOA	135		25 - 150								
13C4 PFOS	128		25 - 150								
13C4-PFHpA	137		25 - 150								
13C5 PFNA	122		25 - 150								
1802 PFHxS	132		25 - 150								

QC Association Summary

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

LCMS

Prep Batch: 123451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21044-1	FB081716	Total/NA	Water	3535	
320-21044-2	EB081716	Total/NA	Water	3535	
320-21044-3	MCFSMW-3_0816	Total/NA	Water	3535	
320-21044-3 - DL	MCFSMW-3_0816	Total/NA	Water	3535	
320-21044-4	46MW05_0816	Total/NA	Water	3535	
320-21044-4 - DL	46MW05_0816	Total/NA	Water	3535	
320-21044-5	46MW03_0816	Total/NA	Water	3535	
320-21044-6	MCFSMW-14_0816	Total/NA	Water	3535	
320-21044-7	MCFSMW-4_0816	Total/NA	Water	3535	
320-21044-8	MCFSMW-5_0816	Total/NA	Water	3535	
MB 320-123451/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-123451/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-123451/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 126120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21044-1	FB081716	Total/NA	Water	537 (Modified)	123451
320-21044-2	EB081716	Total/NA	Water	537 (Modified)	123451
320-21044-3	MCFSMW-3_0816	Total/NA	Water	537 (Modified)	123451
320-21044-4	46MW05_0816	Total/NA	Water	537 (Modified)	123451
320-21044-5	46MW03_0816	Total/NA	Water	537 (Modified)	123451
320-21044-6	MCFSMW-14_0816	Total/NA	Water	537 (Modified)	123451
320-21044-7	MCFSMW-4_0816	Total/NA	Water	537 (Modified)	123451
320-21044-8	MCFSMW-5_0816	Total/NA	Water	537 (Modified)	123451
MB 320-123451/1-A	Method Blank	Total/NA	Water	537 (Modified)	123451
LCS 320-123451/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	123451
LCSD 320-123451/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	123451

Analysis Batch: 128009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21044-3 - DL	MCFSMW-3_0816	Total/NA	Water	537 (Modified)	123451
320-21044-4 - DL	46MW05_0816	Total/NA	Water	537 (Modified)	123451

Lab Chronicle

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Lab Sample ID: 320-21044-1 Client Sample ID: FB081716

Date Collected: 08/17/16 10:20

Matrix: Water

TestAmerica Job ID: 320-21044-1

Date Received: 08/18/16 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			551.1 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:31	JRB	TAL SAC
	Instrumen	it ID: A8								

Client Sample ID: EB081716

Date Collected: 08/17/16 10:23

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-2 **Matrix: Water**

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			536.9 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:38	JRB	TAL SAC
	Instrument	ID: A8								

Client Sample ID: MCFSMW-3_0816 Lab Sample ID: 320-21044-3 **Matrix: Water**

Date Collected: 08/17/16 11:06

Date Received: 08/18/16 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535	_		533.4 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:46	JRB	TAL SAC
	Instrumen	nt ID: A8								
Total/NA	Prep	3535	DL		533.4 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	2			128009	09/19/16 20:40	SBC	TAL SAC
	Instrumen	nt ID: A8								

Lab Sample ID: 320-21044-4 Client Sample ID: 46MW05_0816

Date Collected: 08/17/16 12:16

Date Received: 08/18/16 09:30

_	-	 		_		
		Mat	rix	: V	Vat	ter

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			525.6 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 13:54	JRB	TAL SAC
	Instrumer	t ID: A8								
Total/NA	Prep	3535	DL		525.6 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	5			128009	09/19/16 20:48	SBC	TAL SAC
	Instrumer	t ID: A8								

Client Sample ID: 46MW03_0816 Lab Sample ID: 320-21044-5 Date Collected: 08/17/16 13:31

Date Received: 08/18/16 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			527.5 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC

Matrix: Water

Lab Chronicle

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Client Sample ID: 46MW03_0816 Lab Sample ID: 320-21044-5

Date Collected: 08/17/16 13:31

Matrix: Water Date Received: 08/18/16 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:01	JRB	TAL SAC
	Instrument	ID: A8								

Client Sample ID: MCFSMW-14_0816

Date Collected: 08/17/16 09:51

Matrix: Water

TestAmerica Job ID: 320-21044-1

Lab Sample ID: 320-21044-6

Lab Sample ID: 320-21044-7

Date	Received:	08/18/16	09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			530.3 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:08	JRB	TAL SAC
	Instrumen	it ID: A8								

Client Sample ID: MCFSMW-4_0816

Date Collected: 08/17/16 11:31

Matrix: Water

Date Received: 08/18/16 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			528.1 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:16	JRB	TAL SAC
	Instrumen	nt ID: A8								

Client Sample ID: MCFSMW-5_0816

Date Collected: 08/17/16 13:16

Date Received: 08/18/16 09:30

Lab Sample ID: 320-21044-8	3
Matrix: Wate	r

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3535			533.8 mL	1.00 mL	123451	08/22/16 13:34	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			126120	09/04/16 14:54	JRB	TAL SAC
	Instrumer	nt ID: A8								

Laboratory References:

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

Certification Summary

Client: Earth Toxics, Inc TestAmerica Job ID: 320-21044-1

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
New Jersey	NELAP	2	CA005	06-30-17

Laboratory: TestAmerica Denver The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP	 -	2907.01	10-31-17
New Jersey	NELAP	2	CO004	06-30-17

Method Summary

Client: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

TestAmerica Job ID: 320-21044-1

Method	Method Description	Protoc	ol Laboratory
537 (Modified)	Perfluorinated Hydrocarbons	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: Earth Toxics, Inc

Project/Site: Ensafe-NWS - Earle, NJ PFCs

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-21044-1	FB081716	Water	08/17/16 10:20 0	8/18/16 09:30
320-21044-2	EB081716	Water	08/17/16 10:23 0	8/18/16 09:30
320-21044-3	MCFSMW-3_0816	Water	08/17/16 11:06 0	8/18/16 09:30
320-21044-4	46MW05_0816	Water	08/17/16 12:16 0	8/18/16 09:30
320-21044-5	46MW03_0816	Water	08/17/16 13:31 0	8/18/16 09:30
320-21044-6	MCFSMW-14_0816	Water	08/17/16 09:51 0	8/18/16 09:30
320-21044-7	MCFSMW-4_0816	Water	08/17/16 11:31 0	8/18/16 09:30
320-21044-8	MCFSMW-5 0816	Water	08/17/16 13:16 0	8/18/16 09:30

TestAmerica Job ID: 320-21044-1

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Instrument ID: A8

Analysis Batch Number: 125915

Lab Sample ID: IC 320-125915/14

Client Sample ID:

Date Analyzed: 09/03/16 16:53

Lab File ID: 03SEP2016A_014_p1_e1.d GC Column: Acquity ID: 2.1(mm)

NOITV	MANUAL INTEGRATION			
ME	REASON	ANALYST	DATE	
3.87	Baseline	phomsopha t	09/07/16 14:50	
4.05	Baseline	phomsopha +	09/07/16 14:50	
I	ME 3.87	ME REASON	ME REASON ANALYST 3.87 Baseline phomsopha t	

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Instrument ID: A8 Analysis Batch Number: 126120

Lab Sample ID: MB 320-123451/1-A Client Sample ID:

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	2.55	Incomplete Integration	barnettj	09/17/16 11:28
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 11:28

Lab Sample ID: 320-21044-1 Client Sample ID: FB081716

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 11:33
Perfluorooctanesulfonic acid	3.19	Isomers	barnettj	09/17/16 11:33
(PFOS)				
13C5 PFNA	3.32	Incomplete Integration	barnettj	09/17/16 11:33

Lab Sample ID: 320-21044-2 Client Sample ID: EB081716

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.93	Isomers	barnettj	09/17/16 11:35
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	barnettj	09/17/16 11:35
Perfluorononanoic acid (PFNA)	3.31	Missed Peak	barnettj	09/17/16 11:35

Lab Sample ID: 320-21044-3 Client Sample ID: MCFSMW-3_0816

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 11:38
Perfluorononanoic acid (PFNA)	3.31	Incomplete Integration	barnettj	09/17/16 11:38

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Instrument ID: A8 Analysis Batch Number: 126120

Lab Sample ID: 320-21044-4 Client Sample ID: 46MW05 0816

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 11:41

Lab Sample ID: 320-21044-5 Client Sample ID: 46MW03 0816

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.57	Baseline	barnettj	09/17/16 11:43
Perfluorooctanoic acid (PFOA)	2.93	Isomers	barnettj	09/17/16 11:43
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	barnettj	09/17/16 11:43

Lab Sample ID: 320-21044-6 Client Sample ID: MCFSMW-14_0816

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.92	Isomers	barnettj	09/17/16 11:45
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 11:45

Lab Sample ID: 320-21044-7 Client Sample ID: MCFSMW-4_0816

COMPOUND NAME	RETENTION	MANUAL INTEGRATION		
	TIME	REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.93	Isomers	barnettj	09/17/16 12:04
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 12:04

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Instrument ID: A8 Analysis Batch Number: 126120

Lab Sample ID: 320-21044-8

Client Sample ID: MCFSMW-5_0816

COMPOUND NAME	RETENTION	MANUAL INTEGRATION			
	TIME	REASON	ANALYST	DATE	
Perfluorooctanoic acid (PFOA)	2.94	Isomers	barnettj	09/17/16 12:04	
Perfluorooctanesulfonic acid (PFOS)	3.31	Isomers	barnettj	09/17/16 12:04	

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 SDG No.: Analysis Batch Number: 128009 Instrument ID: A8 Lab Sample ID: IC 320-128009/4 Client Sample ID: Lab File ID: 19SEP2016A 004 pl el.d GC Column: Acquity Date Analyzed: 09/19/16 15:48 ID: 2.1 (mm) COMPOUND NAME RETENTION MANUAL INTEGRATION TIME REASON ANALYST DATE Perfluorooctanesulfonic acid 3.19 | Isomers westendor 09/20/16 08:42 (PFOS) Lab Sample ID: 320-21044-3 DL Client Sample ID: MCFSMW-3 0816 DL Date Analyzed: 09/19/16 20:40 Lab File ID: 19SEP2016B 019 p1 e1.d GC Column: Acquity ID: 2.1 (mm) COMPOUND NAME MANUAL INTEGRATION RETENTION DATE TIME REASON ANALYST Perfluorononanoic acid (PFNA) 3.12 Baseline chandrase 09/21/16 17:20 nas Lab Sample ID: CCV 320-128009/50 Client Sample ID: Date Analyzed: 09/19/16 21:33 Lab File ID: 19SEP2016B 026 pl el.d GC Column: Acquity ID: 2.1(mm) COMPOUND NAME RETENTION MANUAL INTEGRATION REASON ANALYST DATE TIME 3.11 Baseline westendor 09/21/16 14:40 13C5 PFNA

REAGENT TRACEABILITY SUMMARY

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1
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SDG No.:

				Reagent	Parent Reage	ent		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LCMPFCSU_00043	12/02/16	06/02/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006		13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006		13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007		13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010		13C8 FOSA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL
					LCMPFDA 00010		13C2 PFDA	1 ug/mL
					LCMPFDoA_00007		13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011		13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007		13C5 PFNA	1 ug/mL
					LCMPFOA_00011		13C4 PFOA	1 ug/mL
					LCMPFOS_00015		13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00008		13C2 PFUnA	1 ug/mL
.LCM2PFHxDA_00006			on Laboratories, Lot		(Purchased Rea		13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00006	12/07/20		on Laboratories, Lot		(Purchased Rea		13C2-PFTeDA	50 ug/mL
.LCM4PFHPA_00006	05/22/20		ton Laboratories, Lot		(Purchased Rea		13C4-PFHpA	50 ug/mL
.LCM5PFPEA_00007	05/22/20		on Laboratories, Lot		(Purchased Rea		13C5-PFPeA	50 ug/mL
.LCM8FOSA_00010	12/22/17		ton Laboratories, Lot		(Purchased Rea		13C8 FOSA	50 ug/mL
.LCMPFBA_00007	05/24/21		gton Laboratories, Lo		(Purchased Rea		13C4 PFBA	50 ug/mL
.LCMPFDA_00010	08/19/20		gton Laboratories, Lo		(Purchased Rea		13C2 PFDA	50 ug/mL
.LCMPFDoA_00007	04/08/21		ton Laboratories, Lot		(Purchased Rea		13C2 PFDoA	50 ug/mL
.LCMPFHxA 00011	04/08/21		ton Laboratories, Lot		(Purchased Rea		13C2 PFHxA	50 ug/mL
.LCMPFHxS_00007	10/23/20		ton Laboratories, Lot		(Purchased Rea		1802 PFHxS	47.3 ug/mL
.LCMPFNA 00007	04/13/19		gton Laboratories, Lo		(Purchased Rea		13C5 PFNA	50 ug/mL
.LCMPFOA 00011	01/22/21		gton Laboratories, Lo		(Purchased Rea		13C4 PFOA	50 ug/mL
.LCMPFOS 00015	01/22/21		gton Laboratories, Lo		(Purchased Rea		13C4 PFOS	47.8 ug/mL
.LCMPFUdA_00008	10/31/19	_	ton Laboratories, Lot		(Purchased Rea	<u> </u>	13C2 PFUnA	50 ug/mL
LCPFC-L1_00021	12/28/16	08/03/16	MeOH/H2O, Lot 90285	5 mL	LCMPFCSU_00044	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFCSP_00057	25 uL	Perfluorobutyric acid	0.5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ng/mL
							Perfluorodecanoic acid	0.5 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1
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SDG No.:

				Reagent	Parent Reage	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
							Perfluorododecanoic acid	0.5 ng/mL
							Perfluorodecane Sulfonic acid	0.482 ng/mL
							Perfluoroheptanoic acid	0.5 ng/mL
							(PFHpA)	
							Perfluoroheptanesulfonic Acid	0.476 ng/mL
							Perfluorohexanoic acid	0.5 ng/mL
							Perfluorohexadecanoic acid	0.5 ng/mL
							Perfluorohexanesulfonic acid	0.455 ng/mL
							(PFHxS)	
							Perfluorononanoic acid (PFNA)	0.5 ng/mL
							Perfluorooctanoic acid (PFOA)	0.5 ng/mL
							Perfluorooctadecanoic acid	0.5 ng/mL
							Perfluorooctanesulfonic acid	0.464 ng/mL
							(PFOS)	
							Perfluorooctane Sulfonamide	0.5 ng/mL
							Perfluoropentanoic acid	0.5 ng/mL
							Perfluorotetradecanoic acid	0.5 ng/mL
							Perfluorotridecanoic acid	0.5 ng/mL
							Perfluoroundecanoic acid	0.5 ng/mL
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
			115935		T CMO DEEL D. 00000	1000 +	1200 DDE-DA	1 . /
					LCM2PFTeDA_00006		13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006		13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007 LCM8FOSA 00010		13C5-PFPeA 13C8 FOSA	1 ug/mL
					LCM8FOSA_00010		13C8 FOSA 13C4 PFBA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL 1 ug/mL
					LCMPFDA_00010		13C2 PFDA	1 ug/mL
					LCMPFHXA 00011		13C2 PFDOA	1 ug/mL
					LCMPFHxS 00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA 00007		13C5 PFNA	1 ug/mL
					LCMPFOA 00011		13C4 PFOA	1 ug/mL
					LCMPFOS 00015		13C4 PFOA	0.956 ug/mL
					LCMPFUdA 00008		13C2 PFUnA	1 ug/mL
LCM2PFHxDA 00006	01/07/21	Wellingt	l on Laboratories, Lot M2F	Eneby 1111	(Purchased Rea		13C2-PFHxDA	50 ug/mL
LCM2PFTeDA 00006	12/07/20		on Laboratories, Lot M2F		(Purchased Rea		13C2-PFTeDA	50 ug/mL
LCM4PFHPA 00006	05/22/20		ton Laboratories, Lot M41		(Purchased Rea	J ,	13C4-PFHpA	50 ug/mL
LCM5PFPEA 00007	05/22/20		con Laboratories, Lot M51		(Purchased Rea		13C5-PFPeA	50 ug/mL
LCM8FOSA 00010	12/22/17		ton Laboratories, Lot M81		(Purchased Rea		13C8 FOSA	50 ug/mL
LCMPFBA 00007	05/24/21		ton Laboratories, Lot M		(Purchased Rea		13C4 PFBA	50 ug/mL
LCMPFDA 00010	08/19/20		ton Laboratories, Lot M		(Purchased Rea		13C2 PFDA	50 ug/mL
LCMPFDoA 00007	04/08/21		ton Laboratories, Lot MP		(Purchased Rea		13C2 PFDoA	50 ug/mL
LCMPFHxA 00011	04/08/21		ton Laboratories, Lot MF		(Purchased Rea		13C2 PFHxA	50 ug/mL
LCMPFHxS 00007	10/23/20		ton Laboratories, Lot MP		(Purchased Rea		1802 PFHxS	47.3 ug/mL
LCMPFNA 00007	04/13/19		gton Laboratories, Lot Mi		(Purchased Rea		13C5 PFNA	50 ug/mL
LCMPFOA 00011	01/22/21		ton Laboratories, Lot M		(Purchased Rea		13C4 PFOA	50 ug/mL
LCMPFOS 00015	01/22/21	_	ton Laboratories, Lot M		(Purchased Rea		13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008	10/31/19		ton Laboratories, Lot MF		(Purchased Rea		13C2 PFUnA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

SDG No.:

Reagent ID		Dilutant Used	Reagent Final Volume	Parent Reagent			
	Exp Prep Date Date			Reagent ID	Volume Added	Analyte	Concentration
.LCPFCSP 00057	02/01/17 08/03/10	Methanol, Lot 090285	10000 uL	LCPFCSP 00056	1000 uL	Perfluorobutyric acid	0.1 ug/mL
_				_		Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
						Perfluorodecanoic acid	0.1 ug/mL
						Perfluorododecanoic acid	0.1 ug/mL
						Perfluorodecane Sulfonic acid	0.0964 ug/mL
						Perfluoroheptanoic acid	0.1 ug/mL
						(PFHpA)	
						Perfluoroheptanesulfonic Acid	0.0952 ug/mL
						Perfluorohexanoic acid	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	0.1 ug/mL
						Perfluoropentanoic acid	0.1 ug/mL
						Perfluorotetradecanoic acid	0.1 ug/mL
						Perfluorotridecanoic acid	0.1 ug/mL
						Perfluoroundecanoic acid	0.1 ug/mL
LCPFCSP_00056	02/01/17 08/01/10	Methanol, Lot 090285	10000 uL	LCPFBA_00004		Perfluorobutyric acid	1 ug/mL
				LCPFBS_00004		Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
				LCPFDA_00005		Perfluorodecanoic acid	1 ug/mL
				LCPFDoA_00005		Perfluorododecanoic acid	1 ug/mL
				LCPFDS_00005		Perfluorodecane Sulfonic acid	0.964 ug/mL
				LCPFHpA_00005		Perfluoroheptanoic acid (PFHpA)	1 ug/mL
				LCPFHpS_00008		Perfluoroheptanesulfonic Acid	0.952 ug/mL
				LCPFHxA_00004		Perfluorohexanoic acid	1 ug/mL
				LCPFHxDA_00004		Perfluorohexadecanoic acid	1 ug/mL
				LCPFHxS-br_00001		Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
				LCPFNA_00005		Perfluorononanoic acid (PFNA)	1 ug/mL
				LCPFOA_00006		Perfluorooctanoic acid (PFOA)	1 ug/mL
				LCPFODA_00005		Perfluorooctadecanoic acid	1 ug/mL
				LCPFOS-br_00001		Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
				LCPFOSA_00006		Perfluorooctane Sulfonamide	1 ug/mL
				LCPFPeA_00005		Perfluoropentanoic acid	1 ug/mL
				LCPFTeDA_00004		Perfluorotetradecanoic acid	1 ug/mL
				LCPFTrDA_00004		Perfluorotridecanoic acid	1 ug/mL
				LCPFUdA_00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA_00004		ngton Laboratories, Lot		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19 Wellin	gton Laboratories, Lot I	(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL	

Lab	Name:	TestAmerica	Sacramento	Job No.	: 320-21044-	1
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				Reagent	Parent Reagen	ıt		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LCPFDA_00005	07/02/20	Wellin	gton Laboratories, Lot E	PFDA0615	(Purchased Reage	ent)	Perfluorodecanoic acid	50 ug/mL
LCPFDoA_00005	01/30/20		ton Laboratories, Lot P	FDoA0115	(Purchased Reage	ent)	Perfluorododecanoic acid	50 ug/mL
LCPFDS_00005	07/02/20		ton Laboratories, Lot L		(Purchased Reage		Perfluorodecane Sulfonic acid	48.2 ug/mL
LCPFHpA_00005	01/22/21	Welling	ton Laboratories, Lot P	FHpA0116	(Purchased Reag	ent)	Perfluoroheptanoic acid (PFHpA)	50 ug/mL
LCPFHpS 00008	11/06/20	Welling	ton Laboratories, Lot LE	PFHpS1115	(Purchased Reage	ent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA 00004	12/22/20	Welling	ton Laboratories, Lot P	FHxA1215	(Purchased Reage	ent)	Perfluorohexanoic acid	50 ug/mL
LCPFHxDA 00004	11/28/17	Welling	ton Laboratories, Lot PE	FHxDA0707	(Purchased Reage	ent)	Perfluorohexadecanoic acid	50 ug/mL
LCPFHxS-br_00001	07/03/20	Wellingt	on Laboratories, Lot br	PFHxSK0615	(Purchased Reag	ent)	Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
LCPFNA 00005	10/23/20	Wellin	gton Laboratories, Lot E	PFNA1015	(Purchased Reage	ent)	Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA 00006	11/06/20	Wellin	gton Laboratories, Lot E	PFOA1115	(Purchased Reage	ent)	Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA 00005	01/30/20	Welling	ton Laboratories, Lot P	FODA0115	(Purchased Reage	ent)	Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20	Wellingt	on Laboratories, Lot br	PFOSK1015	(Purchased Reage	ent)	Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFOSA 00006	09/02/17	Welling	ton Laboratories, Lot F	OSA0815I	(Purchased Reage	ent)	Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA 00005	01/30/20	Welling	ton Laboratories, Lot P	FPeA0115	(Purchased Reage	ent)	Perfluoropentanoic acid	50 ug/mL
LCPFTeDA 00004	12/09/20	Welling	ton Laboratories, Lot PF	TeDA1215	(Purchased Reage	ent)	Perfluorotetradecanoic acid	50 ug/mL
LCPFTrDA 00004	12/10/18	Welling	ton Laboratories, Lot PF	TrDA1213	(Purchased Reage	ent)	Perfluorotridecanoic acid	50 ug/mL
LCPFUdA_00004	08/19/20	Welling	ton Laboratories, Lot P	FUdA0815	(Purchased Reage	ent)	Perfluoroundecanoic acid	50 ug/mL
LCPFC-L2 00022	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mT ₁	LCMPFCSU 00044	250 uT	13C2-PFHxDA	50 ng/mL
			,,				13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFCSP 00057	50 uL	Perfluorobutyric acid	1 ng/mL
					_		Perfluorobutanesulfonic acid	0.884 ng/mL
							(PFBS)	
							Perfluorodecanoic acid	1 ng/mL
							Perfluorododecanoic acid	1 ng/mL
							Perfluorodecane Sulfonic acid	0.964 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1 ng/mL
							Perfluoroheptanesulfonic Acid	0.952 ng/mL
							Perfluorohexanoic acid	1 ng/mL
							Perfluorohexadecanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.91 ng/mL
							Perfluorononanoic acid (PFNA)	1 ng/mL

Lab	Name:	TestAmerica	Sacrament	o J	No.:) 4 4	4 – 1	_

			Dilutant Fin	Reagent	Parent Reage	ent		
Reagent ID	Exp Date	Prep Date		Final Volume	Reagent ID	Volume Added	Analyte	Concentration
							Perfluorooctanoic acid (PFOA)	1 ng/mL
							Perfluorooctadecanoic acid	1 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.928 ng/mL
							Perfluorooctane Sulfonamide	1 ng/mL
							Perfluoropentanoic acid	1 ng/mL
							Perfluorotetradecanoic acid	1 ng/mL
							Perfluorotridecanoic acid	1 ng/mL
							Perfluoroundecanoic acid	1 ng/mL
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006		13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006		13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006		13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007		13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010		13C8 FOSA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL
					LCMPFDA 00010		13C2 PFDA	1 ug/mL
					LCMPFDoA_00007		13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007		13C5 PFNA	1 ug/mL
					LCMPFOA 00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA 00008	1000 uL	13C2 PFUnA	1 ug/mL
LCM2PFHxDA 00006	01/07/21	Wellingt	on Laboratories, Lot M2P	FHxDA1112	(Purchased Rea	gent)	13C2-PFHxDA	50 ug/mL
LCM2PFTeDA_00006	12/07/20	Wellingt	on Laboratories, Lot M2P	FTeDA1115	(Purchased Rea	gent)	13C2-PFTeDA	50 ug/mL
LCM4PFHPA_00006	05/22/20	Wellingt	ton Laboratories, Lot M41	PFHpA0515	(Purchased Rea	gent)	13C4-PFHpA	50 ug/mL
LCM5PFPEA_00007	05/22/20	Wellingt	ton Laboratories, Lot M51	PFPeA0515	(Purchased Rea	gent)	13C5-PFPeA	50 ug/mL
LCM8FOSA_00010	12/22/17	Wellingt	ton Laboratories, Lot M81	FOSA1215I	(Purchased Rea	gent)	13C8 FOSA	50 ug/mL
LCMPFBA_00007	05/24/21	Welling	gton Laboratories, Lot Mi	PFBA0516	(Purchased Rea	gent)	13C4 PFBA	50 ug/mL
LCMPFDA_00010	08/19/20		gton Laboratories, Lot Mi		(Purchased Rea	gent)	13C2 PFDA	50 ug/mL
LCMPFDoA 00007	04/08/21	Welling	ton Laboratories, Lot MP	FDoA0416	(Purchased Rea	gent)	13C2 PFDoA	50 ug/mL
LCMPFHxA 00011	04/08/21	Welling	ton Laboratories, Lot MP	FHxA0416	(Purchased Rea	gent)	13C2 PFHxA	50 ug/mL
LCMPFHxS 00007	10/23/20	Welling	ton Laboratories, Lot MP	FHxS1015	(Purchased Rea	gent)	1802 PFHxS	47.3 ug/mL
LCMPFNA 00007	04/13/19	Welling	gton Laboratories, Lot Mi	PFNA0414	(Purchased Rea	gent)	13C5 PFNA	50 ug/mL
LCMPFOA 00011	01/22/21		gton Laboratories, Lot Mi		(Purchased Rea	gent)	13C4 PFOA	50 ug/mL
LCMPFOS 00015	01/22/21	Welling	gton Laboratories, Lot Mi	PFOS0116	(Purchased Rea	gent)	13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008	10/31/19	Welling	ton Laboratories, Lot MP	FUdA1014	(Purchased Rea		13C2 PFUnA	50 ug/mL
.LCPFCSP 00057	02/01/17	08/03/16	Methanol, Lot 090285	10000 uL	LCPFCSP 00056	1000 uL	Perfluorobutyric acid	0.1 ug/mL
_					_		Perfluorobutanesulfonic acid	0.0884 ug/mL
							(PFBS)	
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
	1	1	I .	1	T .	1	Perfluorohexanoic acid	0.1 ug/mL

Lab	Name: 1	lestAmerica	Sacramento	Job No.:	: 320-21044-1
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				Reagent	Parent Reage	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluoronexadecanoic acid	0.1 ug/mL 0.091 ug/mL
							(PFHxS)	0.091 ug/mb
							Perfluorononanoic acid (PFNA)	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid	0.0928 ug/mL
							(PFOS)	0.0320 dg/11111
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
LCPFCSP 00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA 00004	200 uL	Perfluorobutyric acid	1 ug/mL
_			,		LCPFBS_00004		Perfluorobutanesulfonic acid	0.884 ug/mL
							(PFBS)	
					LCPFDA_00005		Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005		Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid	1 ug/mL
							(PFHpA)	
					LCPFHpS_00008		Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004		Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004		Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					T. C.D. D. O. O. O. D.	000 -	(PFHxS)	1 / 7
					LCPFNA_00005		Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006		Perfluorooctanoic acid (PFOA) Perfluorooctadecanoic acid	1 ug/mL
					LCPFODA 00005			1 ug/mL
					LCPFOS-br_00001		Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006		Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005		Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004		Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00004		Perfluorotridecanoic acid	1 ug/mL
	01/00/00				LCPFUdA_00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA_00004	01/30/20		gton Laboratories, Lot		(Purchased Rea		Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19	-	gton Laboratories, Lot I		(Purchased Rea		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
LCPFDA_00005	07/02/20	Wellin	gton Laboratories, Lot	PFDA0615	(Purchased Rea		Perfluorodecanoic acid	50 ug/mL
LCPFDoA_00005	01/30/20		gton Laboratories, Lot F		(Purchased Rea		Perfluorododecanoic acid	50 ug/mL
LCPFDS_00005	07/02/20		gton Laboratories, Lot L		(Purchased Rea		Perfluorodecane Sulfonic acid	48.2 ug/mL
LCPFHpA_00005	01/22/21	Welling	gton Laboratories, Lot F	FHpA0116	(Purchased Rea	gent)	Perfluoroheptanoic acid	50 ug/mL
T GDBH - G 00000	11/06/00	ra - 1 1 '		DEII - 01115	(D. 11) 1 D		(PFHpA)	47.6.7.
LCPFHpS_00008	11/06/20		ton Laboratories, Lot L		(Purchased Rea		Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA_00004	12/22/20		gton Laboratories, Lot F		(Purchased Rea	<i>y</i>	Perfluorohexanoic acid	50 ug/mL
LCPFHxDA_00004 LCPFHxS-br 00001	11/28/17		ton Laboratories, Lot Property on Laboratories, Lot br		(Purchased Rea		Perfluorohexadecanoic acid	50 ug/mL 45.5 ug/mL
LCFFHX5-DT_UUUUI	07/03/20	wellingt	он Laboratories, Lot br.	rrnx5KU615	(Purchased Rea	.gent)	Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL

Lab Na	ame:	TestAmerica	Sacramento	Job No.:	320-21044-1
SDG No					

				Reagent	Parent Reage:	nt		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LCPFNA 00005	10/23/20	Wellin	gton Laboratories,	Lot PFNA1015	(Purchased Read	ent)	Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA 00006	11/06/20	Wellin	gton Laboratories,	Lot PFOA1115	(Purchased Read	ent)	Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA 00005	01/30/20	Welling	gton Laboratories, I	Lot PFODA0115	(Purchased Read	ent)	Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20	Wellingt	on Laboratories, Lo	ot brPFOSK1015	(Purchased Read	ent)	Perfluorooctanesulfonic acid	46.4 ug/mL
							(PFOS)	
LCPFOSA_00006	09/02/17	Welling	gton Laboratories, I	Lot FOSA0815I	(Purchased Read		Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA_00005	01/30/20		gton Laboratories, I		(Purchased Reag		Perfluoropentanoic acid	50 ug/mL
LCPFTeDA 00004	12/09/20		ton Laboratories, L		(Purchased Reag		Perfluorotetradecanoic acid	50 ug/mL
LCPFTrDA_00004	12/10/18		ton Laboratories, L		(Purchased Read		Perfluorotridecanoic acid	50 ug/mL
LCPFUdA_00004	08/19/20	-	gton Laboratories, I		(Purchased Read		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L3_00019	12/28/16	08/03/16	MeOH/H2O, Lot 0902	85 5 mL	LCMPFCSU_00044	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA 13C4 PFOA	50 ng/mL
							13C4 PFOA 13C4 PFOS	50 ng/mL 47.8 ng/mL
							13C4 PFUS	50 ng/mL
					LCPFCSP 00057	250 117	Perfluorobutyric acid	5 ng/mL
					Letrest_00037	250 ul	Perfluorobutanesulfonic acid	4.42 ng/mL
							(PFBS)	4.42 119/11111
							Perfluorodecanoic acid	5 ng/mL
							Perfluorododecanoic acid	5 ng/mL
							Perfluorodecane Sulfonic acid	4.82 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5 ng/mL
							Perfluoroheptanesulfonic Acid	4.76 ng/mL
							Perfluorohexanoic acid	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	5 ng/mL
							Perfluoropentanoic acid	5 ng/mL
							Perfluorotetradecanoic acid	5 ng/mL
							Perfluorotridecanoic acid	5 ng/mL
						1	Perfluoroundecanoic acid	5 ng/mL

Lab Name: TestAmerica	Sacramento	Job No.: 320-21044-1
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				Reagent	Parent Reage	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA 00007		13C5-PFPeA	1 ug/mL
					LCM8FOSA 00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00007	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00007	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00007	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00007		13C5 PFNA	1 ug/mL
					LCMPFOA 00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00015		13C4 PFOS	0.956 ug/mL
					LCMPFUdA 00008	1000 uL	13C2 PFUnA	1 ug/mL
LCM2PFHxDA 00006	01/07/21	Wellingt	on Laboratories, Lot M2P	FHxDA1112	(Purchased Rea	gent)	13C2-PFHxDA	50 ug/mL
LCM2PFTeDA 00006	12/07/20	Wellingt	on Laboratories, Lot M2P	FTeDA1115	(Purchased Rea	gent)	13C2-PFTeDA	50 ug/mL
LCM4PFHPA 00006	05/22/20	Wellingt	on Laboratories, Lot M41	PFHpA0515	(Purchased Rea	gent)	13C4-PFHpA	50 ug/mL
LCM5PFPEA 00007	05/22/20	Wellingt	on Laboratories, Lot M51	PFPeA0515	(Purchased Rea	gent)	13C5-PFPeA	50 ug/mL
LCM8FOSA 00010	12/22/17	Wellingt	on Laboratories, Lot M81	FOSA1215I	(Purchased Rea	gent)	13C8 FOSA	50 ug/mL
LCMPFBA 00007	05/24/21	Welling	ton Laboratories, Lot M	PFBA0516	(Purchased Rea	gent)	13C4 PFBA	50 ug/mL
LCMPFDA 00010	08/19/20	Welling	gton Laboratories, Lot M	PFDA0815	(Purchased Rea	gent)	13C2 PFDA	50 ug/mL
LCMPFDoA 00007	04/08/21		ton Laboratories, Lot MP		(Purchased Rea	gent)	13C2 PFDoA	50 ug/mL
LCMPFHxA 00011	04/08/21	Welling	ton Laboratories, Lot MP	FHxA0416	(Purchased Rea	gent)	13C2 PFHxA	50 ug/mL
LCMPFHxS 00007	10/23/20	Welling	ton Laboratories, Lot MP	FHxS1015	(Purchased Rea	gent)	1802 PFHxS	47.3 ug/mL
LCMPFNA 00007	04/13/19		ton Laboratories, Lot M		(Purchased Rea	gent)	13C5 PFNA	50 ug/mL
LCMPFOA 00011	01/22/21	Welling	gton Laboratories, Lot M	PFOA0116	(Purchased Rea	gent)	13C4 PFOA	50 ug/mL
LCMPFOS 00015	01/22/21	Welling	gton Laboratories, Lot M	PFOS0116	(Purchased Rea	gent)	13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008	10/31/19	Welling	ton Laboratories, Lot MP	FUdA1014	(Purchased Rea	gent)	13C2 PFUnA	50 ug/mL
.LCPFCSP 00057	02/01/17	08/03/16	Methanol, Lot 090285	10000 uL	LCPFCSP 00056	1000 uL	Perfluorobutyric acid	0.1 ug/mL
_					_		Perfluorobutanesulfonic acid	0.0884 ug/mL
							(PFBS)	
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							(PFHpA)	
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.091 ug/mL
		1					Perfluorononanoic acid (PFNA)	0.1 ug/mL
		1					Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid	0.0928 ug/mL
								0 1/
							(PFOS) Perfluorooctane Sulfonamide	0.0928 1

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1
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				Reagent	Parent Reage	nt		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004	200 uL	Perfluorobutyric acid	1 ug/mL
_					LCPFBS_00004	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00005		Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00005		Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005		Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS 00008	200 uTi	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00004		Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA 00004		Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br 00001		Perfluorohexanesulfonic acid	0.91 ug/mL
							(PFHxS)	1111 119,111
					LCPFNA 00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA 00006		Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA 00005		Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br 00001		Perfluorooctanesulfonic acid	0.928 ug/mL
					_		(PFOS)	
					LCPFOSA_00006		Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005		Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004		Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00004		Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA_00004	01/30/20		gton Laboratories, Lot P		(Purchased Read	, ,	Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19	Welling	gton Laboratories, Lot Ll	PFBS1014	(Purchased Read	gent)	Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
LCPFDA_00005	07/02/20	Wellin	gton Laboratories, Lot P	FDA0615	(Purchased Read	gent)	Perfluorodecanoic acid	50 ug/mL
LCPFDoA_00005	01/30/20	Welling	gton Laboratories, Lot Pl	FDoA0115	(Purchased Read	gent)	Perfluorododecanoic acid	50 ug/mL
LCPFDS_00005	07/02/20		gton Laboratories, Lot Ll		(Purchased Read		Perfluorodecane Sulfonic acid	48.2 ug/mL
LCPFHpA_00005	01/22/21	Welling	gton Laboratories, Lot PI	FHpA0116	(Purchased Read	gent)	Perfluoroheptanoic acid (PFHpA)	50 ug/mL
LCPFHpS_00008	11/06/20		ton Laboratories, Lot LP		(Purchased Read	gent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA_00004	12/22/20		gton Laboratories, Lot Pl		(Purchased Read		Perfluorohexanoic acid	50 ug/mL
LCPFHxDA_00004	11/28/17	Welling	ton Laboratories, Lot PF	HxDA0707	(Purchased Read	gent)	Perfluorohexadecanoic acid	50 ug/mL
LCPFHxS-br_00001	07/03/20	Wellingt	on Laboratories, Lot brP	FHxSK0615	(Purchased Read	gent)	Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
LCPFNA 00005	10/23/20		gton Laboratories, Lot P		(Purchased Read	gent)	Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA 00006	11/06/20		gton Laboratories, Lot P		(Purchased Read	gent)	Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA 00005	01/30/20		gton Laboratories, Lot Pl		(Purchased Read	gent)	Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20	Wellingt	ton Laboratories, Lot br	PFOSK1015	(Purchased Reac	gent)	Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFOSA 00006	09/02/17	Welling	gton Laboratories, Lot F0	OSA0815I	(Purchased Read	gent)	Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA 00005	01/30/20	Welling	gton Laboratories, Lot PI	FPeA0115	(Purchased Read	gent)	Perfluoropentanoic acid	50 ug/mL
LCPFTeDA 00004	12/09/20	Welling	ton Laboratories, Lot PF	TeDA1215	(Purchased Read	gent)	Perfluorotetradecanoic acid	50 ug/mL
LCPFTrDA 00004	12/10/18	Welling	ton Laboratories, Lot PF	TrDA1213	(Purchased Read	gent)	Perfluorotridecanoic acid	50 ug/mL

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1
ab Name. restamerica sacramento	JOD NO. 320-21044-1

				Reagent	Parent Reag	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
LCPFUdA_00004	08/19/20	Welling	gton Laboratories, Lot Pl	FUdA0815	(Purchased Rea	agent)	Perfluoroundecanoic acid	50 ug/mI
LCPFC-L4 00022	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU 00044	250 uL	13C2-PFHxDA	50 ng/mI
-					_		13C2-PFTeDA	50 ng/mI
							13C4-PFHpA	50 ng/mI
							13C5-PFPeA	50 ng/mI
							13C8 FOSA	50 ng/mI
							13C4 PFBA	50 ng/mI
							13C2 PFDA	50 ng/mI
							13C2 PFDoA	50 ng/mI
							13C2 PFHxA	50 ng/mI
							1802 PFHxS	47.3 ng/mI
							13C5 PFNA	50 ng/mI
							13C4 PFOA	50 ng/mI
							13C4 PFOS	47.8 ng/mI
							13C2 PFUnA	50 ng/mI
					LCPFCSP 00056	100 uL	Perfluorobutyric acid	20 ng/mI
							Perfluorobutanesulfonic acid	17.68 ng/mI
							(PFBS)	
							Perfluorodecanoic acid	20 ng/mI
							Perfluorododecanoic acid	20 ng/mI
							Perfluorodecane Sulfonic acid	19.28 ng/mI
							Perfluoroheptanoic acid (PFHpA)	20 ng/mI
							Perfluoroheptanesulfonic Acid	19.04 ng/mI
							Perfluorohexanoic acid	20 ng/mI
							Perfluorohexadecanoic acid	20 ng/mI
							Perfluorohexanesulfonic acid (PFHxS)	18.2 ng/mI
							Perfluorononanoic acid (PFNA)	20 ng/mI
							Perfluorooctanoic acid (PFOA)	20 ng/mI
							Perfluorooctadecanoic acid	20 ng/mI
							Perfluorooctanesulfonic acid (PFOS)	18.56 ng/mI
							Perfluorooctane Sulfonamide	20 ng/mI
							Perfluoropentanoic acid	20 ng/mI
							Perfluorotetradecanoic acid	20 ng/mI
							Perfluorotridecanoic acid	20 ng/mI
							Perfluoroundecanoic acid	20 ng/mI
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mI
					LCM2PFTeDA 00006	1000 uL	13C2-PFTeDA	1 ug/mI
					LCM4PFHPA 00006		13C4-PFHpA	1 ug/mI
					LCM5PFPEA 00007		13C5-PFPeA	1 ug/mI
					LCM8FOSA 00010		13C8 FOSA	1 ug/mI
					LCMPFBA 00007		13C4 PFBA	1 ug/mI
					LCMPFDA 00010		13C2 PFDA	1 ug/mI
					LCMPFDoA 00007		13C2 PFDoA	1 ug/mI
					LCMPFHxA 00011		13C2 PFHxA	1 ug/mI

Lab Name: TestAmerica	Sacramento	Job No.: 320-21044-1
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				Reagent	Parent Reage	ent		
	Erm	Dwan	Dilutant	Final		Volume		
December ID	Exp	Prep	Used	Volume	December ID		7	
Reagent ID	Date	Date	Usea	volume	Reagent ID	Added	Analyte	Concentration
					LCMPFHxS_00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007		13C5 PFNA	1 ug/mL
					LCMPFOA_00011		13C4 PFOA	1 ug/mL
					LCMPFOS_00015		13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00008		13C2 PFUnA	1 ug/mL
LCM2PFHxDA_00006			on Laboratories, Lot M2F		(Purchased Rea		13C2-PFHxDA	50 ug/mL
LCM2PFTeDA_00006	12/07/20		on Laboratories, Lot M2F		(Purchased Rea		13C2-PFTeDA	50 ug/mL
LCM4PFHPA_00006	05/22/20	Wellingt	on Laboratories, Lot M4	PFHpA0515	(Purchased Rea		13C4-PFHpA	50 ug/mL
LCM5PFPEA_00007	05/22/20		on Laboratories, Lot M5		(Purchased Rea		13C5-PFPeA	50 ug/mL
LCM8FOSA_00010	12/22/17		on Laboratories, Lot M8		(Purchased Rea		13C8 FOSA	50 ug/mL
LCMPFBA_00007	05/24/21		rton Laboratories, Lot M		(Purchased Rea		13C4 PFBA	50 ug/mL
LCMPFDA_00010	08/19/20	-	ton Laboratories, Lot M		(Purchased Rea		13C2 PFDA	50 ug/mL
LCMPFDoA_00007	04/08/21		ton Laboratories, Lot ME		(Purchased Rea		13C2 PFDoA	50 ug/mL
LCMPFHxA_00011	04/08/21		ton Laboratories, Lot ME		(Purchased Rea		13C2 PFHxA	50 ug/mL
LCMPFHxS_00007	10/23/20		ton Laboratories, Lot ME		(Purchased Rea		1802 PFHxS	47.3 ug/mL
LCMPFNA_00007	04/13/19		ton Laboratories, Lot M		(Purchased Rea		13C5 PFNA	50 ug/mL
LCMPFOA_00011	01/22/21		ton Laboratories, Lot M		(Purchased Rea	agent)	13C4 PFOA	50 ug/mL
LCMPFOS_00015	01/22/21		ton Laboratories, Lot M		(Purchased Rea		13C4 PFOS	47.8 ug/mL
LCMPFUdA_00008	10/31/19	Welling	ton Laboratories, Lot ME	PFUdA1014	(Purchased Rea		13C2 PFUnA	50 ug/mL
.LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090285	10000 uL	LCPFBA_00004		Perfluorobutyric acid	1 ug/mL
_					LCPFBS 00004	200 uL	Perfluorobutanesulfonic acid	0.884 ug/mL
							(PFBS)	
					LCPFDA_00005		Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005		Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005	200 uL	Perfluoroheptanoic acid	1 ug/mL
							(PFHpA)	
					LCPFHpS_00008		Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00004		Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004		Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
							(PFHxS)	
					LCPFNA_00005		Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006		Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005		Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid	0.928 ug/mL
							(PFOS)	
					LCPFOSA_00006		Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005		Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004		Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00004		Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA_00004	01/30/20		gton Laboratories, Lot E		(Purchased Rea		Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19	Welling	ton Laboratories, Lot L	PFBS1014	(Purchased Rea	igent)	Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
LCPFDA 00005	07/02/20	Wellin	gton Laboratories, Lot E	PFDA0615	(Purchased Rea	agent)	Perfluorodecanoic acid	50 ug/mL
LCPFDoA 00005	01/30/20		ton Laboratories, Lot P		(Purchased Rea		Perfluorododecanoic acid	50 ug/mL
LCPFDS 00005	07/02/20		ton Laboratories, Lot L		(Purchased Rea		Perfluorodecane Sulfonic acid	48.2 ug/mL

Lab	Name:	TestAmerica	Sacramento	Job No.:	320-21044-1

				Reagent	Parent Reager	nt		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	- Analyte	Concentration
LCPFHpA_00005	01/22/21	Welling	ton Laboratories, Lot	PFHpA0116	(Purchased Reag	ent)	Perfluoroheptanoic acid (PFHpA)	50 ug/mL
LCPFHpS 00008	11/06/20	Welling	ton Laboratories, Lot	LPFHpS1115	(Purchased Reag	ent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA 00004	12/22/20	Welling	gton Laboratories, Lot	PFHxA1215	(Purchased Reag	ent)	Perfluorohexanoic acid	50 ug/mL
LCPFHxDA_00004	11/28/17		ton Laboratories, Lot		(Purchased Reag		Perfluorohexadecanoic acid	50 ug/mL
LCPFHxS-br_00001	07/03/20	1	on Laboratories, Lot b		(Purchased Reag		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
LCPFNA_00005	10/23/20		gton Laboratories, Lot		(Purchased Reag		Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA_00006	11/06/20		gton Laboratories, Lot		(Purchased Reag		Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA_00005	01/30/20		gton Laboratories, Lot		(Purchased Reag		Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20	1	con Laboratories, Lot b		(Purchased Reag		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFOSA_00006	09/02/17		gton Laboratories, Lot		(Purchased Reag		Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA_00005	01/30/20		gton Laboratories, Lot		(Purchased Reag		Perfluoropentanoic acid	50 ug/mL
LCPFTeDA_00004	12/09/20		ton Laboratories, Lot		(Purchased Reag		Perfluorotetradecanoic acid	50 ug/mL
LCPFTrDA_00004	12/10/18	,	ton Laboratories, Lot		(Purchased Reag		Perfluorotridecanoic acid	50 ug/mL
LCPFUdA_00004	08/19/20		gton Laboratories, Lot		(Purchased Reag	· ·	Perfluoroundecanoic acid	50 ug/mL
LCPFC-L5_00020	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	250 uI	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS 13C5 PFNA	47.3 ng/mL 50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFCSP 00056	250 117	Perfluorobutyric acid	50 ng/mL
					Terresi_00030	250 41	Perfluorobutanesulfonic acid	44.2 ng/mL
							(PFBS)	11.2 119/1112
							Perfluorodecanoic acid	50 ng/mL
							Perfluorododecanoic acid	50 ng/mL
							Perfluorodecane Sulfonic acid	48.2 ng/mL
							Perfluoroheptanoic acid (PFHpA)	50 ng/mL
							Perfluoroheptanesulfonic Acid	47.6 ng/mL
							Perfluorohexanoic acid	50 ng/mL
							Perfluorohexadecanoic acid	50 ng/mL
							Perfluorohexanesulfonic acid	45.5 ng/mL
							(PFHxS)	
							Perfluorononanoic acid (PFNA)	50 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
							Perfluorooctadecanoic acid	50 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

				Reagent	Parent Reag	ent		
Decemb ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Decemb ID	Volume Added	71	Concentration
Reagent ID	Date	рате	used	volume	Reagent ID	Added	Analyte	
							Perfluorooctanesulfonic acid (PFOS)	46.4 ng/mL
							Perfluorooctane Sulfonamide	50 ng/mL
							Perfluoropentanoic acid	50 ng/mL
							Perfluorotetradecanoic acid	50 ng/mL
							Perfluorotridecanoic acid	50 ng/mL
							Perfluoroundecanoic acid	50 ng/mL
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00006		13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00007		13C5-PFPeA	1 ug/mL
					LCM8FOSA 00010		13C8 FOSA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL
					LCMPFDA_00010		13C2 PFDA	1 ug/mL
					LCMPFDoA_00007		13C2 PFDoA	1 ug/mL
					LCMPFHxA 00011		13C2 PFHxA	1 ug/mL
					LCMPFHxS 00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA 00007		13C5 PFNA	1 ug/mL
					LCMPFOA 00011		13C4 PFOA	1 ug/mL
					LCMPFOS_00015		13C4 PFOS	0.956 ug/mL
T 01/07 77 77 0000 6	01/07/01		7.1		LCMPFUdA 00008		13C2 PFUnA	1 ug/mL
LCM2PFHxDA_00006	12/07/21	Wellingto	on Laboratories, Lot M2P on Laboratories, Lot M2P	HXDALIIZ	(Purchased Rea		13C2-PFHxDA	50 ug/mL
LCM2PFTeDA_00006			on Laboratories, Lot M2P on Laboratories, Lot M4P		(Purchased Rea		13C2-PFTeDA	50 ug/mL 50 ug/mL
LCM5PFPEA 00007	05/22/20 05/22/20		on Laboratories, Lot M4F		(Purchased Rea (Purchased Rea		13C4-PFHpA 13C5-PFPeA	50 ug/mL 50 ug/mL
LCMSFFPEA_00007	12/22/17		on Laboratories, Lot MSE		(Purchased Rea		13C8 FOSA	50 ug/mL
LCMPFBA 00007	05/24/21		ton Laboratories, Lot Mor		(Purchased Rea		13C4 PFBA	50 ug/mL
LCMPFDA 00010	08/19/20		ton Laboratories, Lot ME		(Purchased Rea		13C2 PFDA	50 ug/mL
LCMPFDOA 00007	04/08/21		ton Laboratories, Lot MP		(Purchased Rea		13C2 PFDoA	50 ug/mL
LCMPFHxA 00011	04/08/21		ton Laboratories, Lot MP		(Purchased Rea		13C2 PFHxA	50 ug/mL
LCMPFHxS 00007	10/23/20		ton Laboratories, Lot MP		(Purchased Rea		1802 PFHxS	47.3 ug/mL
LCMPFNA 00007	04/13/19		ton Laboratories, Lot MF		(Purchased Rea		13C5 PFNA	50 ug/mL
LCMPFOA 00011	01/22/21		ton Laboratories, Lot ME		(Purchased Rea		13C4 PFOA	50 ug/mL
LCMPFOS 00015	01/22/21		ton Laboratories, Lot ME		(Purchased Rea		13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008	10/31/19		ton Laboratories, Lot MP		(Purchased Rea		13C2 PFUnA	50 ug/mL
.LCPFCSP 00056			Methanol, Lot 090285	10000 uL			Perfluorobutyric acid	1 ug/mL
_			·		LCPFBS_00004		Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 עד.	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00005		Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00005		Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005		Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS 00008	200 117	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00004		Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA 00004		Perfluorohexadecanoic acid	1 ug/mL

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reage	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
					LCPFHxS-br_00001	200 uL	Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005		Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005		Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001		Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00006		Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005		Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00004		Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00004		Perfluorotridecanoic acid	1 ug/mL
	01/00/00				LCPFUdA 00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA_00004	01/30/20		gton Laboratories, Lot I		(Purchased Rea		Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19		gton Laboratories, Lot L		(Purchased Rea		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
LCPFDA_00005	07/02/20		gton Laboratories, Lot I		(Purchased Rea		Perfluorodecanoic acid	50 ug/mL
LCPFDoA_00005	01/30/20		gton Laboratories, Lot P		(Purchased Rea	-	Perfluorododecanoic acid	50 ug/mL
LCPFDS_00005	07/02/20		gton Laboratories, Lot L		(Purchased Rea		Perfluorodecane Sulfonic acid	48.2 ug/mL
LCPFHpA_00005	01/22/21		gton Laboratories, Lot P		(Purchased Rea		Perfluoroheptanoic acid (PFHpA)	50 ug/mL
LCPFHpS_00008	11/06/20		ton Laboratories, Lot LI		(Purchased Rea		Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA 00004	12/22/20		gton Laboratories, Lot P		(Purchased Rea		Perfluorohexanoic acid	50 ug/mL
LCPFHxDA 00004	11/28/17		ton Laboratories, Lot PI		(Purchased Rea		Perfluorohexadecanoic acid	50 ug/mL
LCPFHxS-br_00001	07/03/20	_	on Laboratories, Lot bri		(Purchased Rea		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
LCPFNA_00005	10/23/20		gton Laboratories, Lot I		(Purchased Rea		Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA_00006	11/06/20		gton Laboratories, Lot I		(Purchased Rea		Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA 00005	01/30/20		gton Laboratories, Lot P		(Purchased Rea		Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20	Wellingt	ton Laboratories, Lot br	PFOSK1015	(Purchased Rea	.gent)	Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFOSA_00006	09/02/17		gton Laboratories, Lot F		(Purchased Rea		Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA_00005	01/30/20		gton Laboratories, Lot P		(Purchased Rea		Perfluoropentanoic acid	50 ug/mL
LCPFTeDA_00004	12/09/20		ton Laboratories, Lot PI		(Purchased Rea	-	Perfluorotetradecanoic acid	50 ug/mL
LCPFTrDA_00004	12/10/18		ton Laboratories, Lot PI		(Purchased Rea		Perfluorotridecanoic acid	50 ug/mL
LCPFUdA_00004	08/19/20		gton Laboratories, Lot P		(Purchased Rea	· · · · · · · · · · · · · · · · · · ·	Perfluoroundecanoic acid	50 ug/mL
LCPFC-L6_00019	12/28/16	08/03/16	MeOH/H2O, Lot 090285	5 mL	LCMPFCSU_00044	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA 13C4 PFOA	50 ng/mL
							13C4 PFOA 13C4 PFOS	50 ng/mL 47.8 ng/mL

Lab	Name:	TestAmerica	Sacrament	о Ј	No.:) 4 4	4 – 1	_

				Reagent	Parent Reage	ent		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
							13C2 PFUnA	50 ng/mL
					LCPFCSP 00056	1000 uL	Perfluorobutyric acid	200 ng/mL
					_		Perfluorobutanesulfonic acid (PFBS)	176.8 ng/mL
							Perfluorodecanoic acid	200 ng/mL
							Perfluorododecanoic acid	200 ng/mL
							Perfluorodecane Sulfonic acid	192.8 ng/mL
							Perfluoroheptanoic acid	200 ng/mL
							(PFHpA)	200 119/11111
							Perfluoroheptanesulfonic Acid	190.4 ng/mL
							Perfluorohexanoic acid	200 ng/mL
							Perfluorohexadecanoic acid	200 ng/mL
							Perfluorohexanesulfonic acid	182 ng/mL
							(PFHxS)	
							Perfluorononanoic acid (PFNA)	200 ng/mL
							Perfluorooctanoic acid (PFOA)	200 ng/mL
							Perfluorooctadecanoic acid	200 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	185.6 ng/mL
							Perfluorooctane Sulfonamide	200 ng/mL
							Perfluoropentanoic acid	200 ng/mL
							Perfluorotetradecanoic acid	200 ng/mL
							Perfluorotridecanoic acid	200 ng/mL
							Perfluoroundecanoic acid	200 ng/mL
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00006	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA 00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00010	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL
					LCMPFDA 00010		13C2 PFDA	1 ug/mL
					LCMPFDoA_00007		13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011		13C2 PFHxA	1 ug/mL
					LCMPFHxS 00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007		13C5 PFNA	1 ug/mL
					LCMPFOA_00011		13C4 PFOA	1 ug/mL
					LCMPFOS_00015		13C4 PFOS	0.956 ug/mL
	100				LCMPFUdA_00008		13C2 PFUnA	1 ug/mL
LCM2PFHxDA_00006			on Laboratories, Lot M2P		(Purchased Read		13C2-PFHxDA	50 ug/mL
LCM2PFTeDA_00006			on Laboratories, Lot M2P		(Purchased Read		13C2-PFTeDA	50 ug/mL
LCM4PFHPA_00006	05/22/20		ton Laboratories, Lot M4F		(Purchased Read		13C4-PFHpA	50 ug/mL
LCM5PFPEA_00007	05/22/20		ton Laboratories, Lot M5F		(Purchased Read		13C5-PFPeA	50 ug/mL
LCM8FOSA_00010	12/22/17		ton Laboratories, Lot M8F		(Purchased Read		13C8 FOSA	50 ug/mL
LCMPFBA_00007	05/24/21		gton Laboratories, Lot MF		(Purchased Read		13C4 PFBA	50 ug/mL
LCMPFDA_00010	08/19/20		gton Laboratories, Lot MF		(Purchased Read		13C2 PFDA	50 ug/mL
LCMPFDoA_00007	04/08/21		ton Laboratories, Lot MP		(Purchased Read		13C2 PFDoA	50 ug/mL
LCMPFHxA_00011	04/08/21	welling	ton Laboratories, Lot MP	rnxAU416	(Purchased Read	gent)	13C2 PFHxA	50 ug/mL

Lab	Name: TestAmerica	Sacramento	Job No.: 320-21044-1	

				Reagent	Parent Reag	ent		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LCMPFHxS 00007	10/23/20	Welling	ton Laboratories,	Lot MPFHxS1015	(Purchased Rea		1802 PFHxS	47.3 ug/mL
LCMPFNA 00007	04/13/19	Welling	gton Laboratories,	Lot MPFNA0414	(Purchased Rea	agent)	13C5 PFNA	50 ug/mL
LCMPFOA 00011	01/22/21	Welling	gton Laboratories,	Lot MPFOA0116	(Purchased Rea	agent)	13C4 PFOA	50 ug/mL
LCMPFOS 00015	01/22/21	Welling	gton Laboratories,	Lot MPFOS0116	(Purchased Rea	agent)	13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008	10/31/19	Welling	ton Laboratories,	Lot MPFUdA1014	(Purchased Rea		13C2 PFUnA	50 ug/mL
.LCPFCSP_00056	02/01/17	08/01/16	Methanol, Lot 090	10000 uI	LCPFBA_00004		Perfluorobutyric acid	1 ug/mL
					LCPFBS_00004	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005		Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS 00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00004	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00004		Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001		Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA_00005		Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA 00006		Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00005		Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA 00006		Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA 00004	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00004		Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA 00004	01/30/20		gton Laboratories,		(Purchased Rea	<i></i>	Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19		gton Laboratories,	Lot LPFBS1014	(Purchased Rea	agent)	Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
LCPFDA_00005	07/02/20	Wellin	gton Laboratories,		(Purchased Rea		Perfluorodecanoic acid	50 ug/mL
LCPFDoA_00005	01/30/20		gton Laboratories,		(Purchased Rea		Perfluorododecanoic acid	50 ug/mL
LCPFDS_00005	07/02/20		gton Laboratories,		(Purchased Rea		Perfluorodecane Sulfonic acid	48.2 ug/mL
LCPFHpA_00005	01/22/21		gton Laboratories,	-	(Purchased Rea	agent)	Perfluoroheptanoic acid (PFHpA)	50 ug/mL
LCPFHpS_00008	11/06/20		ton Laboratories,		(Purchased Rea		Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA_00004	12/22/20		gton Laboratories,		(Purchased Rea		Perfluorohexanoic acid	50 ug/mL
LCPFHxDA_00004	11/28/17		ton Laboratories,		(Purchased Rea		Perfluorohexadecanoic acid	50 ug/mL
LCPFHxS-br_00001	07/03/20	Wellingt	on Laboratories, I	Lot brPFHxSK0615	(Purchased Rea	agent)	Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
LCPFNA_00005	10/23/20		gton Laboratories,		(Purchased Rea		Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA 00006	11/06/20	Wellin	gton Laboratories,		(Purchased Rea		Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA_00005	01/30/20		gton Laboratories,		(Purchased Rea		Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20		ton Laboratories,		(Purchased Rea		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFOSA_00006	09/02/17		gton Laboratories,		(Purchased Rea	agent)	Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA 00005	01/30/20	Welling	gton Laboratories,	Lot PFPeA0115	(Purchased Rea		Perfluoropentanoic acid	50 ug/mL
LCPFTeDA_00004	12/09/20	Welling	ton Laboratories,	Lot PFTeDA1215	(Purchased Rea	agent)	Perfluorotetradecanoic acid	50 ug/mL

Lab Name:	TestAmerica	Sacramento	Job No.:	320-21044-1
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				Reagent	Parent Reage	nt		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LCPFTrDA 00004	12/10/18	Welling	l ton Laboratories, Lot P	FTrDA1213	(Purchased Read	gent.)	Perfluorotridecanoic acid	50 ug/mL
LCPFUdA 00004	08/19/20		gton Laboratories, Lot B		(Purchased Read		Perfluoroundecanoic acid	50 ug/mL
LCPFC-L7 00019			MeOH/H2O, Lot 090285		LCMPFCSU 00044		13C2-PFHxDA	50 ng/mL
TCPFC-L7_00019	12/20/10	00/03/10	MeOH/H2O, LOC 090205	J IIIL	LCMFFC30_00044	230 uL	13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFCSP_00056	2000 uL	Perfluorobutyric acid	400 ng/mL
					=		Perfluorobutanesulfonic acid	353.6 ng/mL
							(PFBS)	
							Perfluorodecanoic acid	400 ng/mL
							Perfluorododecanoic acid	400 ng/mL
							Perfluorodecane Sulfonic acid	385.6 ng/mL
							Perfluoroheptanoic acid (PFHpA)	400 ng/mL
							Perfluoroheptanesulfonic Acid	380.8 ng/mL
							Perfluorohexanoic acid	400 ng/mL
							Perfluorohexadecanoic acid	400 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	364 ng/mL
							Perfluorononanoic acid (PFNA)	400 ng/mL
							Perfluorooctanoic acid (PFOA)	400 ng/mL
							Perfluorooctadecanoic acid	400 ng/mL
							Perfluorooctanesulfonic acid	371.2 ng/mL
							(PFOS)	100 / -
							Perfluorooctane Sulfonamide	400 ng/mL
							Perfluoropentanoic acid	400 ng/mL
							Perfluorotetradecanoic acid	400 ng/mL
							Perflueroundeganoic acid	400 ng/mL
.LCMPFCSU_00044	12/28/16	06/28/16	Methanol, Lot Baker	50000 uL	LCM2PFHxDA_00006	1000 uL	Perfluoroundecanoic acid 13C2-PFHxDA	400 ng/mL 1 ug/mL
			115935		T 01/0 D D D 00000	1000 -	1200 PPE-P3	1 . / -
					LCM2PFTeDA_00006		13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00006		13C4-PFHpA	1 ug/mL
					LCM5PFPEA 00007		13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010		13C8 FOSA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL
					LCMPFDA_00010		13C2 PFDA	1 ug/mL
					LCMPFDoA_00007	1000 uL	13C2 PFDoA	1 ug/mL

Lab	Name: TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reag	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
					LCMPFHxA 00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA 00007	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00015	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA 00008	1000 uL	13C2 PFUnA	1 ug/mL
LCM2PFHxDA 00006			on Laboratories, Lot M2		(Purchased Rea	agent)	13C2-PFHxDA	50 ug/mL
LCM2PFTeDA 00006	12/07/20 W	Tellingto	on Laboratories, Lot M2	PFTeDA1115	(Purchased Rea	agent)	13C2-PFTeDA	50 ug/mL
LCM4PFHPA 00006	05/22/20 V	Wellingt	on Laboratories, Lot M4	PFHpA0515	(Purchased Rea	agent)	13C4-PFHpA	50 ug/mL
LCM5PFPEA 00007			on Laboratories, Lot M5		(Purchased Rea	agent)	13C5-PFPeA	50 ug/mL
LCM8FOSA 00010			on Laboratories, Lot M8		(Purchased Rea	agent)	13C8 FOSA	50 ug/mL
LCMPFBA 00007	05/24/21	Welling	ton Laboratories, Lot M	MPFBA0516	(Purchased Rea	agent)	13C4 PFBA	50 ug/mL
LCMPFDA 00010	08/19/20		ton Laboratories, Lot M		(Purchased Rea	agent)	13C2 PFDA	50 ug/mL
LCMPFDoA 00007	04/08/21	Welling	ton Laboratories, Lot M	PFDoA0416	(Purchased Rea	agent)	13C2 PFDoA	50 ug/mL
LCMPFHxA 00011	04/08/21	Welling	ton Laboratories, Lot M	PFHxA0416	(Purchased Rea	agent)	13C2 PFHxA	50 ug/mL
LCMPFHxS 00007			ton Laboratories, Lot M		(Purchased Rea		1802 PFHxS	47.3 ug/mL
LCMPFNA 00007	04/13/19	Welling	ton Laboratories, Lot M	MPFNA0414	(Purchased Rea	agent)	13C5 PFNA	50 ug/mL
LCMPFOA 00011	01/22/21	Welling	ton Laboratories, Lot M	MPFOA0116	(Purchased Rea	agent)	13C4 PFOA	50 ug/mL
LCMPFOS 00015			ton Laboratories, Lot M		(Purchased Rea		13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008			ton Laboratories, Lot M		(Purchased Rea		13C2 PFUnA	50 ug/mL
.LCPFCSP 00056			Methanol, Lot 090285		LCPFBA 00004		Perfluorobutyric acid	1 ug/mL
_			·		LCPFBS_00004	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00005		Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00005		Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00005		Perfluoroheptanoic acid (PFHpA)	1 ug/mL
					LCPFHpS 00008	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00004		Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA 00004	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00001		Perfluorohexanesulfonic acid (PFHxS)	0.91 ug/mL
					LCPFNA 00005	200 uL	Perfluorononanoic acid (PFNA)	1 ug/mL
					LCPFOA 00006		Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA 00005		Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00001		Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA 00006	200 117.	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00005		Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA 00004	200 117.	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00004		Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA 00004		Perfluoroundecanoic acid	1 ug/mL
LCPFBA 00004	01/30/20	Wellin	gton Laboratories, Lot	PFBA0115	(Purchased Rea		Perfluorobutyric acid	50 ug/mL
LCPFBS_00004	10/09/19		ton Laboratories, Lot I		(Purchased Rea		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
LCPFDA 00005	07/02/20	Wellin	gton Laboratories, Lot	PFDA0615	(Purchased Rea	agent)	Perfluorodecanoic acid	50 ug/mL
LCPFDoA 00005	01/30/20		ton Laboratories, Lot F		(Purchased Rea		Perfluorododecanoic acid	50 ug/mL

Lab	Name: TestAmerica	Sacramento	Job No.: 320-21044-1

					Reagent	Parent Reager	nt		
Reagent ID	Exp Date	Prep Date	Dilutant Used		Final Volume	Reagent ID	Volume Added		Concentration
LCPFDS 00005	07/02/20	Welling	ton Laboratories,	Lot L	PFDS0615	(Purchased Reag		Perfluorodecane Sulfonic acid	48.2 ug/mL
LCPFHpA_00005	01/22/21	Welling	ton Laboratories,	Lot P	FHpA0116	(Purchased Reag	ent)	Perfluoroheptanoic acid (PFHpA)	50 ug/mL
LCPFHpS 00008	11/06/20	Welling	ton Laboratories,	Lot LE	PFHpS1115	(Purchased Reag	ent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
LCPFHxA 00004	12/22/20		gton Laboratories,			(Purchased Reag		Perfluorohexanoic acid	50 ug/mL
LCPFHxDA 00004	11/28/17	Welling	ton Laboratories,	Lot PE	FHxDA0707	(Purchased Reag		Perfluorohexadecanoic acid	50 ug/mL
LCPFHxS-br_00001	07/03/20	_	on Laboratories, I			(Purchased Reag		Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
LCPFNA_00005	10/23/20		gton Laboratories,			(Purchased Reag		Perfluorononanoic acid (PFNA)	50 ug/mL
LCPFOA_00006	11/06/20		gton Laboratories,			(Purchased Reag		Perfluorooctanoic acid (PFOA)	50 ug/mL
LCPFODA_00005	01/30/20		ton Laboratories,			(Purchased Reag		Perfluorooctadecanoic acid	50 ug/mL
LCPFOS-br_00001	10/14/20		on Laboratories,			(Purchased Reag		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFOSA_00006	09/02/17		ton Laboratories,			(Purchased Reag		Perfluorooctane Sulfonamide	50 ug/mL
LCPFPeA_00005	01/30/20	Welling	gton Laboratories,			(Purchased Reag		Perfluoropentanoic acid	50 ug/mL
LCPFTeDA_00004	12/09/20	Welling	ton Laboratories,	Lot PE	TeDA1215	(Purchased Reag		Perfluorotetradecanoic acid	50 ug/mL
LCPFTrDA_00004	12/10/18		ton Laboratories,			(Purchased Reag		Perfluorotridecanoic acid	50 ug/mL
LCPFUdA_00004	08/19/20	Welling	gton Laboratories,	. Lot P	FUdA0815	(Purchased Reag	ent)	Perfluoroundecanoic acid	50 ug/mL
LCPFC2-IC 00003	01/21/17	08/17/16	MeOH/H2O, Lot 104	4453	5 mL	LCMPFC2SU 00006	250 uL	d-N-EtFOSA-M	50 ng/mL
_						_		d-N-MeFOSA-M	50 ng/mL
								d3-NMeFOSAA	50 ng/mL
								d5-NEtFOSAA	50 ng/mL
								M2-6:2FTS	47.5 ng/mL
								M2-8:2FTS	47.9 ng/mL
.LCMPFC2SU_00006	01/21/17	07/21/16	Methanol, Lot 104	4453	10000 uL	LCd-NEtFOSA-M_00001		d-N-EtFOSA-M	1 ug/mL
						LCd-NMeFOSA-M_00001		d-N-MeFOSA-M	1 ug/mL
						LCd3-NMeFOSAA_00001		d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00001		d5-NEtFOSAA	1 ug/mL	
						LCM2-6:FTS_00001		M2-6:2FTS	0.95 ug/mL
7.01.3771.7003.37.00001	00/10/10			. =007.01	21.424	LCM2-8:2FTS_00001		M2-8:2FTS	0.958 ug/mL
LCd-NEtFOSA-M_00001	03/10/19		LLINGTON, Lot dNE			(Purchased Reag		d-N-EtFOSA-M	50 ug/mL
LCd-NMeFOSA-M_00001 LCd3-NMeFOSAA 00001	01/28/19		LLINGTON, Lot $ ext{dNM}$ LINGTON, Lot $ ext{d3NM}$			(Purchased Reag		d-N-MeFOSA-M d3-NMeFOSAA	50 ug/mL 50 ug/mL
LCd5-NEtFOSAA_00001	05/08/20		LINGTON, LOT d5NE			(Purchased Read		d5-NEtFOSAA	50 ug/mL
LCM2-6:FTS 00001	07/15/17		ELLINGTON, Lot M2			(Purchased Reag		M2-6:2FTS	47.5 ug/mL
LCM2-8:2FTS 00001	04/13/17		ELLINGTON, Lot M2			(Purchased Reag		M2-8:2FTS	47.9 ug/mL
LCPFC2-L1 00002			MeOH/H2O, Lot 104			LCMPFC2SU_00005		d-N-EtFOSA-M	50 ng/mL
101102 H1_00002	01/00/1/	07720710	110011/ 1120/ 100 10	1100	J 1112	1011110200_0000	200 41	d-N-MeFOSA-M	50 ng/mL
								d3-NMeFOSAA	50 ng/mL
								d5-NEtFOSAA	50 ng/mL
								M2-6:2FTS	47.5 ng/mL
								M2-8:2FTS	47.9 ng/mL
						LCPFC2SP_00014	25 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ng/mL
								Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ng/mL

Lab	Name:	TestAmerica	Sacramento	Job No.: 3	320-21044-1
				_	

				Desgent	Parent Reagen	ıt		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Reagent ID	Volume Added	Analyte	Concentration
							N-ethylperfluoro-1-octanesulfo namide	0.5 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ng/mL
							MeFOSA N-methyl perfluorooctane	0.5 ng/mL
							sulfonamidoacetic acid	0.5 ng/mL
.LCMPFC2SU 00005	01/08/17 (7/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M 00001	200 uL	d-N-EtFOSA-M	1 ug/mL
_					LCd-NMeFOSA-M 00001		d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00001	200 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS 00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00001	200 uL	M2-8:2FTS	0.958 ug/mL
LCd-NEtFOSA-M 00001	03/10/19	WE	LLINGTON, Lot dNEtFOSA03	14M	(Purchased Reage		d-N-EtFOSA-M	50 ug/mL
LCd-NMeFOSA-M 00001	01/28/19		LLINGTON, Lot dNMeFOSA01		(Purchased Reage		d-N-MeFOSA-M	50 ug/mL
LCd3-NMeFOSAA 00001	01/31/18		LLINGTON, Lot d3NMeFOSAA		(Purchased Reage		d3-NMeFOSAA	50 ug/mL
LCd5-NEtFOSAA 00001	05/08/20		LINGTON, Lot d5NEtFOSAA		(Purchased Reage		d5-NEtFOSAA	50 ug/mL
LCM2-6:FTS 00001	07/15/17		ELLINGTON, Lot M262FTS07		(Purchased Reage		M2-6:2FTS	47.5 ug/mL
LCM2-8:2FTS 00001	04/13/17		ELLINGTON, Lot M282FTS04		(Purchased Reage		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP 00014			Methanol, Lot 104453		LCPFC2SP 00013	,	Sodium	0.0948 ug/mL
.LCPFC25P_00014		.,,,					1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	_
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfo namide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001		N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001		MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS101	4	(Purchased Reage	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reager	nt		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LC8:2FTS 00001	10/03/17	1	WELLINGTON, Lot 82FTS101	4	(Purchased Reag	ent)	Sodium	47.9 ug/mI
_							1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	_
LCN-EtFOSA-M_00002	07/14/19	WE	LLINGTON, Lot NEtFOSA07	14M	(Purchased Reag	ent)	N-ethylperfluoro-1-octanesulfo namide	
LCN-EtFOSAA_00001	01/29/18	WE	LLINGTON, Lot NEtFOSAA0	113	(Purchased Reag	ent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mI
LCN-MeFOSA-M 00001	07/15/19	WE	LLINGTON, Lot NMeFOSA07	14M	(Purchased Reag	ent)	MeFOSA	50 ug/mI
LCN-MeFOSAA_00001	12/09/19	WE	LLINGTON, Lot NMeFOSAA1	214	(Purchased Reag	ent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mI
LCPFC2-L2 00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU 00005	250 uL	d-N-EtFOSA-M	50 ng/mI
			•		_		d-N-MeFOSA-M	50 ng/mI
							d3-NMeFOSAA	50 ng/mI
							d5-NEtFOSAA	50 ng/mI
							M2-6:2FTS	47.5 ng/mI
							M2-8:2FTS	47.9 ng/mI
					LCPFC2SP 00014	50 uL	Sodium	0.948 ng/mI
					_		1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	
							Sodium	0.958 ng/mI
							1H, 1H, 2H, 2H-perfluorooctane	, , , , , , , , , , , , , , , , , , , ,
							sulfonate (8:2)	
							N-ethylperfluoro-1-octanesulfo	1 ng/mI
							namide	
							N-ethyl perfluorooctane	1 ng/mI
							sulfonamidoacetic acid	
							MeFOSA	1 ng/mI
							N-methyl perfluorooctane	1 ng/mI
T 01/D T 0 0 0 0 0 5	01/00/17	07/00/16	76 - 1 7 - 1 0 4 4 5 2	10000 -	7.0.1 1771 70.03 14 0.0001	000 -	sulfonamidoacetic acid	1 / 7
.LCMPFC2SU_00005	01/08/1/	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M_00001		d-N-EtFOSA-M	1 ug/mI
					LCd-NMeFOSA-M_00001		d-N-MeFOSA-M	1 ug/mI
					LCd3-NMeFOSAA_00001		d3-NMeFOSAA d5-NEtFOSAA	1 ug/mI
					LCd5-NEtFOSAA_00001 LCM2-6:FTS 00001		M2-6:2FTS	1 ug/mI 0.95 ug/mI
					LCM2-8:2FTS 00001		M2-0:2FTS M2-8:2FTS	0.95 ug/mL
LCd-NEtFOSA-M 00001	03/10/19	ME.	LLINGTON, Lot dNEtFOSA03	21.414	(Purchased Read		d-N-EtFOSA-M	50 ug/mI
LCd-NMeFOSA-M_00001	03/10/19		LLINGTON, LOT GNECFOSAUS		(Purchased Read		d-N-MeFOSA-M	50 ug/mi
LCd3-NMeFOSAA 00001	01/28/19		LINGTON, LOT dNMeFOSAU		(Purchased Read		d3-NMeFOSAA	50 ug/mi
LCd5-NMerOSAA_00001	05/08/20		LINGTON, Lot d5NEtFOSAA		(Purchased Reag		d5-NEtFOSAA	50 ug/mi
LCM2-6:FTS 00001	07/15/17		ELLINGTON, Lot M262FTS07		(Purchased Reag		M2-6:2FTS	47.5 ug/mI
LCM2-8:2FTS 00001	04/13/17		ELLINGTON, Lot M282FTS04		(Purchased Reag		M2-8:2FTS	47.9 ug/mi
.LCPFC2SP 00014			Methanol, Lot 104453		LCPFC2SP 00013	500 uL		0.0948 ug/mI
	01,20,11	01/20/10	110011011, 200 101100	0000 42		000 42	1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0310 ug/
							Sodium	0.0958 ug/mI
							1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	disso ug/mi
							N-ethylperfluoro-1-octanesulfo namide	0.1 ug/mI

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reager	nt		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002		N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001		N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001		N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS101	4	(Purchased Reag		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS101	4	(Purchased Reag	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
LCN-EtFOSA-M_00002	07/14/19	WE	LLINGTON, Lot NETFOSA071	L4M	(Purchased Reag	ent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
LCN-EtFOSAA_00001	01/29/18		CLLINGTON, Lot NETFOSAA01	113	(Purchased Reag	ent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCN-MeFOSA-M_00001	07/15/19		LLINGTON, Lot NMeFOSA071		(Purchased Reag		MeFOSA	50 ug/mL
LCN-MeFOSAA_00001	12/09/19	WE	CLLINGTON, Lot NMeFOSAA12	214	(Purchased Reag	ent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L3 00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU 00005	250 uL	d-N-EtFOSA-M	50 ng/mL
_					_		d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCPFC2SP_00014	250 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	4.74 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	4.79 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	5 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
		1					MeFOSA	5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	5 ng/mL

Lab N	Name:	TestAmerica	Sacramento	Job N	320-21044-1

				Reagent	Parent Reager	nt		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
.LCMPFC2SU 00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M 00001	200 uL	d-N-EtFOSA-M	1 ug/mL
_					LCd-NMeFOSA-M 00001	200 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00001	200 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00001	200 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS 00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00001	200 uL	M2-8:2FTS	0.958 ug/mL
LCd-NEtFOSA-M 00001	03/10/19	WE	LLINGTON, Lot dNEtFOSA03	314M	(Purchased Reag	ent)	d-N-EtFOSA-M	50 ug/mL
LCd-NMeFOSA-M 00001	01/28/19	WE	LLINGTON, Lot dNMeFOSA01	.14M	(Purchased Reag	ent)	d-N-MeFOSA-M	50 ug/mL
LCd3-NMeFOSAA 00001	01/31/18	WEI	LINGTON, Lot d3NMeFOSAA	0113	(Purchased Reag	ent)	d3-NMeFOSAA	50 ug/mL
LCd5-NEtFOSAA 00001	05/08/20	WEI	LINGTON, Lot d5NEtFOSAA	0515	(Purchased Reag	ent)	d5-NEtFOSAA	50 ug/mL
LCM2-6:FTS 00001	07/15/17	W	ELLINGTON, Lot M262FTS07	14	(Purchased Reag	ent)	M2-6:2FTS	47.5 ug/mL
LCM2-8:2FTS 00001	04/13/17	W	ELLINGTON, Lot M282FTS04	14	(Purchased Reag		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP 00014	01/20/17	07/20/16	Methanol, Lot 104453	5000 uL	LCPFC2SP 00013	500 uL	Sodium	0.0948 ug/mL
_					_		1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfo namide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002		N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001		N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001		MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001		N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS101	.4	(Purchased Reag	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
LC8:2FTS_00001	10/03/17	,	WELLINGTON, Lot 82FTS101	. 4	(Purchased Reag	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
LCN-EtFOSA-M_00002	07/14/19	WE	CLLINGTON, Lot NEtFOSA07	14M	(Purchased Reag	ent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
LCN-EtFOSAA_00001	01/29/18	WE	CLLINGTON, Lot NETFOSAA0	113	(Purchased Reag	ent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCN-MeFOSA-M 00001	07/15/19	WE	LLINGTON, Lot NMeFOSA07	14M	(Purchased Reag	ent)	MeFOSA	50 ug/mL

Lab	Name:	TestAmerica	Sacramento	Job 1	No.:	320-2	104	4-1	

					Reagent	Parent Reager	nt			
Reagent ID	Exp Date	Prep Date	Dilutant Used		Final Volume	Reagent ID Volume		Analyte	Concentration	
LCN-MeFOSAA_00001	12/09/19	WE	ELLINGTON,	Lot NMeFOSAA12	214	(Purchased Reag	ent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL	
LCPFC2-L4_00002	01/08/17	07/20/16	MeOH/H2O,	Lot 104453	5 mL	LCMPFC2SU 00005	250 uL	d-N-EtFOSA-M	50 ng/mL	
_						_		d-N-MeFOSA-M	50 ng/mL	
								d3-NMeFOSAA	50 ng/mL	
								d5-NEtFOSAA	50 ng/mL	
								M2-6:2FTS	47.5 ng/mL	
								M2-8:2FTS	47.9 ng/mL	
						LCPFC2SP_00013	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	18.96 ng/mL	
								Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	19.16 ng/mL	
								N-ethylperfluoro-1-octanesulfo namide	20 ng/mL	
								N-ethyl perfluorooctane sulfonamidoacetic acid	20 ng/mL	
								MeFOSA	20 ng/mL	
								N-methyl perfluorooctane	20 ng/mL	
T 01/77700011 00000	01/00/17	07/00/16	26 1 2	T . 1044E0	10000 -	7.01.3771.7002.37.40.0001	000 -	sulfonamidoacetic acid	1 / -	
.LCMPFC2SU_00005	01/08/1/	07/08/16	Methanol,	Lot 104453	10000 uL	LCd-NEtFOSA-M_00001		d-N-EtFOSA-M	1 ug/mL	
						LCd-NMeFOSA-M_00001		d-N-MeFOSA-M d3-NMeFOSAA	1 ug/mL	
						LCd3-NMeFOSAA_00001 LCd5-NEtFOSAA_00001		d5-NEtFOSAA	1 ug/mL 1 ug/mL	
						LCM2-6:FTS 00001		M2-6:2FTS	0.95 ug/mL	
						LCM2-8:2FTS 00001		M2-8:2FTS	0.958 ug/mL	
LCd-NEtFOSA-M 00001	03/10/19	ME	T T T N C T O N	Lot dNEtFOSA03	1 / M	(Purchased Reag		d-N-EtFOSA-M	50 ug/mL	
LCd-NMeFOSA-M 00001	01/28/19			Lot dNMeFOSA01		(Purchased Reag		d-N-MeFOSA-M	50 ug/mL	
LCd3-NMeFOSAA 00001	01/31/18			Lot d3NMeFOSAAC		(Purchased Reag		d3-NMeFOSAA	50 ug/mL	
LCd5-NEtFOSAA 00001	05/08/20			Lot d5NEtFOSAA((Purchased Reag		d5-NEtFOSAA	50 ug/mL	
LCM2-6:FTS 00001	07/15/17			Lot M262FTS07		(Purchased Reag		M2-6:2FTS	47.5 ug/mL	
LCM2-8:2FTS 00001	04/13/17			Lot M282FTS04		(Purchased Reag		M2-8:2FTS	47.9 ug/mL	
.LCPFC2SP_00013				Lot 104453		LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL	
						LC8:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL	
						LCN-EtFOSA-M_00002		N-ethylperfluoro-1-octanesulfo namide	1 ug/mL	
						LCN-EtFOSAA_00001		N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL	
			1			LCN-MeFOSA-M_00001		MeFOSA	1 ug/mL	
						LCN-MeFOSAA_00001		N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL	
LC6:2FTS_00001	10/03/17		WELLINGTON	J, Lot 62FTS101	4	(Purchased Reag	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL	

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reager	nt		
	Exp	Prep	Dilutant	Final		Volume	=	
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LC8:2FTS 00001	10/03/17	1	WELLINGTON, Lot 82FTS101	. 4	(Purchased Reag	ent)	Sodium	47.9 ug/mI
_							1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	
LCN-EtFOSA-M_00002	07/14/19		LLINGTON, Lot NEtFOSA07	14M	(Purchased Reag		N-ethylperfluoro-1-octanesulfo namide	50 ug/mI
LCN-EtFOSAA_00001	01/29/18	WE	LLINGTON, Lot NETFOSAA0	113	(Purchased Reag	ent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mI
LCN-MeFOSA-M_00001	07/15/19		LLINGTON, Lot NMeFOSA07		(Purchased Reag		MeFOSA	50 ug/mI
LCN-MeFOSAA_00001	12/09/19	WE	LLINGTON, Lot NMeFOSAA1	214	(Purchased Reag	ent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mI
LCPFC2-L5 00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU 00005	250 uL	d-N-EtFOSA-M	50 ng/mI
_					_		d-N-MeFOSA-M	50 ng/mI
							d3-NMeFOSAA	50 ng/mI
							d5-NEtFOSAA	50 ng/mI
							M2-6:2FTS	47.5 ng/mI
							M2-8:2FTS	47.9 ng/mI
					LCPFC2SP_00013	250 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ng/mI
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ng/mI
							N-ethylperfluoro-1-octanesulfo namide	50 ng/mI
							N-ethyl perfluorooctane sulfonamidoacetic acid	50 ng/mI
							MeFOSA	50 ng/mI
							N-methyl perfluorooctane sulfonamidoacetic acid	50 ng/mI
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M_00001		d-N-EtFOSA-M	1 ug/mI
					LCd-NMeFOSA-M_00001		d-N-MeFOSA-M	1 ug/mI
					LCd3-NMeFOSAA_00001		d3-NMeFOSAA	1 ug/mI
					LCd5-NEtFOSAA_00001		d5-NEtFOSAA	1 ug/mI
					LCM2-6:FTS_00001		M2-6:2FTS	0.95 ug/mI
					LCM2-8:2FTS_00001		M2-8:2FTS	0.958 ug/mI
LCd-NEtFOSA-M_00001	03/10/19		LLINGTON, Lot dNEtFOSA03		(Purchased Reag		d-N-EtFOSA-M	50 ug/mI
LCd-NMeFOSA-M_00001	01/28/19		LLINGTON, Lot dNMeFOSA01		(Purchased Reag		d-N-MeFOSA-M	50 ug/mI
LCd3-NMeFOSAA_00001	01/31/18		LINGTON, Lot d3NMeFOSAA		(Purchased Reag		d3-NMeFOSAA	50 ug/mI
LCd5-NEtFOSAA_00001	05/08/20		LINGTON, Lot d5NEtFOSAA		(Purchased Reag		d5-NEtFOSAA	50 ug/mI
LCM2-6:FTS_00001	07/15/17		ELLINGTON, Lot M262FTS07		(Purchased Reag		M2-6:2FTS	47.5 ug/mI
LCM2-8:2FTS_00001 .LCPFC2SP 00013	04/13/17		ELLINGTON, Lot M282FTS04		(Purchased Reag		M2-8:2FTS Sodium	47.9 ug/mI 0.948 ug/mI
.LCPFC2SP_00013	01/20/1/	07/20/16	Methanol, Lot 104453	10000 uL	_	200 uL	1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	_
					LC8:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mI
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mI

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1
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				Reagent	Parent Reagen	ıt		
	Exp	Prep	Dilutant	Final		Volume		
Reagent ID	Date	Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M 00001		MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001		N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS1014	1	(Purchased Reage	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS1014	1	(Purchased Reage	ent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
LCN-EtFOSA-M_00002	07/14/19	WE	ELLINGTON, Lot NEtFOSA071	4M	(Purchased Reag	ent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
LCN-EtFOSAA_00001	01/29/18	WE	ELLINGTON, Lot NETFOSAA01	13	(Purchased Reag	ent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCN-MeFOSA-M 00001	07/15/19	WE	ELLINGTON, Lot NMeFOSA071	4M	(Purchased Reage		MeFOSA	50 ug/mL
LCN-MeFOSAA_00001	12/09/19	WE	ELLINGTON, Lot NMeFOSAA12	14	(Purchased Reage	ent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFC2-L6 00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU 00005	250 uL	d-N-EtFOSA-M	50 ng/mL
	, , , , ,		, , , ,				d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCPFC2SP 00013	1000 uL	Sodium	189.6 ng/mL
					_		1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	191.6 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	200 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
							MeFOSA	200 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M_00001		d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00001		d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00001		d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00001		d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00001		M2-6:2FTS	0.95 ug/mL
TO 1 NEL EOG 2 M 00001	02/10/10		I I INGMON THE AND TO SERVE	1.434	LCM2-8:2FTS_00001		M2-8:2FTS	0.958 ug/mL
LCd-NEtFOSA-M_00001	03/10/19		LLINGTON, Lot dNEtFOSA03		(Purchased Reage		d-N-EtFOSA-M	50 ug/mI
LCd-NMeFOSA-M_00001 LCd3-NMeFOSAA 00001	01/28/19 01/31/18		LLINGTON, Lot dNMeFOSA01: LLINGTON, Lot d3NMeFOSAA0		(Purchased Reagon) (Purchased Reagon)		d-N-MeFOSA-M d3-NMeFOSAA	50 ug/mI 50 ug/mI
LCd3-NMeFOSAA_00001	05/08/20		LLINGTON, LOT GINMEFOSAAU LLINGTON, LOT GINETFOSAAO		(Purchased Reage		d5-NEtFOSAA	50 ug/ml 50 ug/ml
LCM2-6:FTS 00001	07/15/17		ELLINGTON, LOT GENETIOSAAU		(Purchased Reage		M2-6:2FTS	47.5 ug/mI
LCM2-8:2FTS 00001	04/13/17		ELLINGTON, Lot M282FTS04		(Purchased Reage		M2-8:2FTS	47.9 ug/mI

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reage:	nt		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
.LCPFC2SP_00013	01/20/17	07/20/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mI
					LC8:2FTS_00001	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mI
					LCN-EtFOSA-M_00002	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mI
					LCN-EtFOSAA_00001	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mI
					LCN-MeFOSA-M 00001	200 uL	MeFOSA	1 ug/mI
					LCN-MeFOSAA_00001	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mI
LC6:2FTS_00001	10/03/17		WELLINGTON, Lot 62FTS101	4	(Purchased Reag		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mI
LC8:2FTS_00001	10/03/17		WELLINGTON, Lot 82FTS101	. 4	(Purchased Reag	gent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mI
LCN-EtFOSA-M_00002	07/14/19	WE	LLINGTON, Lot NETFOSA07	14M	(Purchased Read	gent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mI
LCN-EtFOSAA_00001	01/29/18	WE	LLINGTON, Lot NETFOSAAO	113	(Purchased Read	gent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mI
LCN-MeFOSA-M 00001	07/15/19	WE	LLINGTON, Lot NMeFOSA07	14M	(Purchased Read	gent)	MeFOSA	50 ug/mI
LCN-MeFOSAA_00001	12/09/19	WE	LLINGTON, Lot NMeFOSAA12	214	(Purchased Read	gent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mI
LCPFC2-L7_00002	01/08/17	07/20/16	MeOH/H2O, Lot 104453	5 mL	LCMPFC2SU 00005	250 uL	d-N-EtFOSA-M	50 ng/mI
			,		_		d-N-MeFOSA-M	50 ng/mI
							d3-NMeFOSAA	50 ng/mI
							d5-NEtFOSAA	50 ng/mI
							M2-6:2FTS	47.5 ng/mI
							M2-8:2FTS	47.9 ng/mI
					LCPFC2SP_00013	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	379.2 ng/mI
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	383.2 ng/mI
							N-ethylperfluoro-1-octanesulfo	400 ng/mI
							N-ethyl perfluorooctane sulfonamidoacetic acid	400 ng/mI
				1			MeFOSA	400 ng/mI
							N-methyl perfluorooctane sulfonamidoacetic acid	400 ng/mI
.LCMPFC2SU_00005	01/08/17	07/08/16	Methanol, Lot 104453	10000 uL	LCd-NEtFOSA-M_00001		d-N-EtFOSA-M	1 ug/mI
					LCd-NMeFOSA-M_00001		d-N-MeFOSA-M	1 ug/mI
					LCd3-NMeFOSAA_00001		d3-NMeFOSAA	1 ug/mI
				1	LCd5-NEtFOSAA_00001	200 uL	d5-NEtFOSAA	1 ug/mI

Lab	Name:	TestAmerica	Sacramento	Job No.: 320-21044-1

				Reagent	Parent Reage	ent		
Reagent ID		Prep Dilutant Date Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration	
					LCM2-6:FTS 00001	200 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00001	200 uL	M2-8:2FTS	0.958 ug/mL
LCd-NEtFOSA-M 00001	03/10/19	WELL	INGTON, Lot dNEtFOSA03	314M	(Purchased Rea	gent)	d-N-EtFOSA-M	50 ug/mL
LCd-NMeFOSA-M 00001	01/28/19		INGTON, Lot dNMeFOSA01		(Purchased Rea		d-N-MeFOSA-M	50 ug/mL
LCd3-NMeFOSAA 00001	01/31/18		INGTON, Lot d3NMeFOSAA		(Purchased Rea		d3-NMeFOSAA	50 ug/mL
LCd5-NEtFOSAA 00001	05/08/20		INGTON, Lot d5NEtFOSAA		(Purchased Rea		d5-NEtFOSAA	50 ug/mL
LCM2-6:FTS 00001	07/15/17		LINGTON, Lot M262FTS0		(Purchased Rea		M2-6:2FTS	47.5 ug/mL
LCM2-8:2FTS 00001	04/13/17		LINGTON, Lot M282FTS04		(Purchased Rea		M2-8:2FTS	47.9 ug/mL
.LCPFC2SP_00013	01/20/17)7/20/16 M	ethanol, Lot 104453	10000 uL	LC6:2FTS_00001	200 uL	1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00001		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00002		N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00001		N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00001	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00001		N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
LC6:2FTS_00001	10/03/17		LLINGTON, Lot 62FTS101		(Purchased Rea	gent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
LC8:2FTS_00001	10/03/17	WE	LLINGTON, Lot 82FTS103	L 4	(Purchased Rea	gent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
LCN-EtFOSA-M_00002	07/14/19	WELI	LINGTON, Lot NEtFOSA07	14M	(Purchased Rea	gent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
LCN-EtFOSAA_00001	01/29/18	WELI	LINGTON, Lot NEtFOSAA0	113	(Purchased Rea	gent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCN-MeFOSA-M_00001	07/15/19	WELI	LINGTON, Lot NMeFOSA07	14M	(Purchased Rea	gent)	MeFOSA	50 ug/mL
LCN-MeFOSAA_00001	12/09/19	WELI	LINGTON, Lot NMeFOSAA1	214	(Purchased Rea	gent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
LCPFCIC 00019	12/02/16 0	06/25/16 M	eOH/H2O, Lot 09285	5 mL	LCMPFCSU 00043	250 uL	13C2-PFHxDA	50 ng/mL
_					_		13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
1				1			13C2 PFUnA	50 ng/mL

Lab Na	ame:	TestAmerica	Sacramento	Job No.: 320-21044-1
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				Reagent	Parent Reage	ent		
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	Analyte	Concentration
					LCPFACMXB_00007	125 uL	Perfluorobutanesulfonic acid (PFBS)	44.25 ng/mL
							Perfluoroheptanoic acid (PFHpA)	50 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	47.25 ng/mL
							Perfluorononanoic acid (PFNA)	50 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	47.75 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
.LCMPFCSU_00043	12/02/16 0	6/02/16	Methanol, Lot Baker 115935	50000 uL	LCM2PFHxDA_00006	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00006		13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00006	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA 00007	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00010		13C8 FOSA	1 ug/mL
					LCMPFBA_00007		13C4 PFBA	1 ug/mL
					LCMPFDA 00010	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00007		13C2 PFDoA	1 ug/mL
					LCMPFHxA_00011	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00007		1802 PFHxS	0.946 ug/mL
					LCMPFNA_00007		13C5 PFNA	1 ug/mL
					LCMPFOA_00011	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00015		13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00008	1000 uL	13C2 PFUnA	1 ug/mL
LCM2PFHxDA_00006			on Laboratories, Lot M2		(Purchased Rea		13C2-PFHxDA	50 ug/mL
LCM2PFTeDA_00006			on Laboratories, Lot M2		(Purchased Rea		13C2-PFTeDA	50 ug/mL
LCM4PFHPA_00006			on Laboratories, Lot M		(Purchased Rea		13C4-PFHpA	50 ug/mL
LCM5PFPEA_00007	05/22/20	Wellingt	on Laboratories, Lot M	5PFPeA0515	(Purchased Rea	agent)	13C5-PFPeA	50 ug/mL
LCM8FOSA_00010	12/22/17	Wellingt	on Laboratories, Lot M	BFOSA1215I	(Purchased Rea	agent)	13C8 FOSA	50 ug/mL
LCMPFBA_00007	05/24/21	Welling	gton Laboratories, Lot N	MPFBA0516	(Purchased Rea	agent)	13C4 PFBA	50 ug/mL
LCMPFDA_00010	08/19/20		gton Laboratories, Lot N		(Purchased Rea		13C2 PFDA	50 ug/mL
LCMPFDoA_00007		Welling	ton Laboratories, Lot M	PFDoA0416	(Purchased Rea		13C2 PFDoA	50 ug/mL
LCMPFHxA_00011	04/08/21	Welling	ton Laboratories, Lot M	PFHxA0416	(Purchased Rea	agent)	13C2 PFHxA	50 ug/mL
LCMPFHxS_00007	10/23/20	Welling	ton Laboratories, Lot M	PFHxS1015	(Purchased Rea	agent)	1802 PFHxS	47.3 ug/mL
LCMPFNA_00007	04/13/19	Welling	gton Laboratories, Lot N	MPFNA0414	(Purchased Rea	agent)	13C5 PFNA	50 ug/mL
LCMPFOA_00011	01/22/21		gton Laboratories, Lot N		(Purchased Rea	agent)	13C4 PFOA	50 ug/mL
LCMPFOS 00015	01/22/21	Welling	gton Laboratories, Lot N	MPFOS0116	(Purchased Rea	agent)	13C4 PFOS	47.8 ug/mL
LCMPFUdA 00008	10/31/19	Welling	ton Laboratories, Lot M	PFUdA1014	(Purchased Rea	agent)	13C2 PFUnA	50 ug/mL
.LCPFACMXB_00007	11/06/20	Wellingt	on Laboratories, Lot Pl	FACMXB1115	(Purchased Rea	agent)	Perfluorobutanesulfonic acid (PFBS)	1.77 ug/mL
							Perfluoroheptanoic acid (PFHpA)	2 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	1.89 ug/mL
							Perfluorononanoic acid (PFNA)	2 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	1.91 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1
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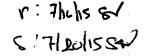
			Reagent	Parent Reage	ent		
	Exp Prep	Dilutant	Final		Volume		
Reagent ID	Date Date	Used	Volume	Reagent ID	Added	Analyte	Concentration
LCPFCSP 00053	01/06/17 07/06/16	Methanol, Lot 090285	10000 uL	LCPFBA 00004	100 uL	Perfluorobutyric acid	0.5 ug/mL
		,		LCPFBS 00003	100 uL	Perfluorobutane Sulfonate	0.442 ug/mL
				LCPFBSA 00001	100 uL	Perfluorobutanesulfonic acid	0.442 ug/mL
				_		(PFBS)	
				LCPFDA_00004		Perfluorodecanoic acid	0.5 ug/mL
				LCPFDoA_00004		Perfluorododecanoic acid	0.5 ug/mL
				LCPFDS_00005	100 uL	Perfluorodecane Sulfonate	0.482 ug/mL
						Perfluorodecane Sulfonic acid	0.482 ug/mL
				LCPFHpA_00005	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
				I CDEIISC 00000	100 11	(PFHpA) Perfluoroheptane Sulfonate	0.476 ug/mL
				LCPFHpS_00008	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
				LCPFHxA 00004	100 11	Perfluorohexanoic acid	0.476 ug/mL
				LCPFHxDA 00004		Perfluorohexadecanoic acid	0.5 ug/mL
				LCPFHxS-br 00001		Perfluorohexane Sulfonate	0.455 ug/mL
				ECTINAS DI_00001	100 41	Perfluorohexanesulfonic acid	0.455 ug/mL
						(PFHxS)	0.100 49/111
				LCPFNA 00005	100 uL	Perfluorononanoic acid (PFNA)	0.5 ug/mL
				LCPFNS 00002	100 uL		0.48 ug/mL
				_		(Perflouro-1-nonanesulfonate)	
				LCPFOA_00005		Perfluorooctanoic acid (PFOA)	0.5 ug/mL
				LCPFODA_00005		Perfluorooctadecanoic acid	0.5 ug/mL
				LCPFOS-br_00001		Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
				LCPFOSA 00006		Perfluorooctane Sulfonamide	0.5 ug/mL
				LCPFPeA 00004		Perfluoropentanoic acid	0.5 ug/mL
				LCPFPeS_00002	100 uL		0.469 ug/mL
						(Perflouro-1-pentanesulfonate)	
				LCPFTeDA_00004		Perfluorotetradecanoic acid	0.5 ug/mL
				LCPFTrDA_00004		Perfluorotridecanoic acid	0.5 ug/mL
T. GD TD 7 . 0.0.0.4	01/20/00		DDD 3 0 1 1 F	LCPFUdA_00004		Perfluoroundecanoic acid	0.5 ug/mL
.LCPFBA_00004	01/30/20 Wellin	gton Laboratories, Lot : gton Laboratories, Lot I	PFBAULI5	(Purchased Rea		Perfluorobutyric acid	50 ug/mL
.LCPFBS_00003			(Purchased Reagent) (Purchased Reagent)		Perfluorobutane Sulfonate Perfluorobutanesulfonic acid	44.2 ug/mL 44.2 ug/mL	
.LCPFBSA_00001		gton Laboratories, Lot I		·		(PFBS)	
.LCPFDA_00004		gton Laboratories, Lot		(Purchased Rea		Perfluorodecanoic acid	50 ug/mL
.LCPFDoA_00004		gton Laboratories, Lot F		(Purchased Rea		Perfluorododecanoic acid	50 ug/mL
.LCPFDS_00005	07/02/20 Welling	gton Laboratories, Lot I	JPFDS0615	(Purchased Rea	.gent)	Perfluorodecane Sulfonate	48.2 ug/mL
	04 (00 (04		0116			Perfluorodecane Sulfonic acid	48.2 ug/mL
.LCPFHpA_00005		gton Laboratories, Lot F	-	(Purchased Rea	.gent)	Perfluoroheptanoic acid (PFHpA)	50 ug/mL
.LCPFHpS_00008	11/06/20 Welling	ton Laboratories, Lot L	PFHpS1115	(Purchased Rea	gent)	Perfluoroheptane Sulfonate	47.6 ug/mL
						Perfluoroheptanesulfonic Acid	47.6 ug/mL
.LCPFHxA_00004		gton Laboratories, Lot F		(Purchased Rea		Perfluorohexanoic acid	50 ug/mL
.LCPFHxDA_00004		ton Laboratories, Lot P		(Purchased Rea (Purchased Rea		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00001	07/03/20 Wellingt	07/03/20 Wellington Laboratories, Lot brPFHx			.gent)	Perfluorohexane Sulfonate	45.5 ug/mL
						Perfluorohexanesulfonic acid (PFHxS)	45.5 ug/mL
.LCPFNA 00005	10/23/20 Wellin	gton Laboratories, Lot	PFNA1015	(Purchased Rea	gent)	Perfluorononanoic acid (PFNA)	50 ug/mL

Lab	Name:	TestAmerica	Sacramento	Job No.:	320-21044-1
SDG	No.:				

				Reagent	Parent Reagent			
Reagent ID	Exp Date	Prep Date	Dilutant Used	Final Volume	Reagent ID	Volume Added	- Analyte	Concentration
.LCPFNS_00002	07/04/17	Welling	ton Laboratories, Lot LE	PFNS0712	(Purchased Reage	ent)	PFNS (Perflouro-1-nonanesulfonate)	48 ug/mL
.LCPFOA 00005	11/06/20	Wellin	gton Laboratories, Lot P	FOA1115	(Purchased Reage	ent)	Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA 00005	01/30/20	/20 Wellington Laboratories, Lot PFODA0115			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00001	10/14/20	Wellingt	on Laboratories, Lot br	FOSK1015	(Purchased Reag	ent)	Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
.LCPFOSA 00006	09/02/17	Welling	ton Laboratories, Lot FC	SA0815I	(Purchased Reage	ent)	Perfluorooctane Sulfonamide	50 ug/mL
.LCPFPeA 00004	01/30/20	Welling	ton Laboratories, Lot PE	PeA0115	(Purchased Reage	ent)	Perfluoropentanoic acid	50 ug/mL
.LCPFPeS_00002	07/04/17	Welling	ton Laboratories, Lot LP	FPeS0712	(Purchased Reag	ent)	PFPeS (Perflouro-1-pentanesulfonate)	46.9 ug/mL
.LCPFTeDA_00004	12/09/20	Welling	ton Laboratories, Lot PF	TeDA1215	(Purchased Reage	ent)	Perfluorotetradecanoic acid	50 ug/mL
.LCPFTrDA 00004	12/10/18	Welling	ton Laboratories, Lot PF	TrDA1213	(Purchased Reage	ent)	Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA 00004	08/19/20	Welling	gton Laboratories, Lot PE	UdA0815	(Purchased Reage	ent)	Perfluoroundecanoic acid	50 ug/mL

Reagent

LC6:2FTS_00001





CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

6:2FTS

LOT NUMBER:

62FTS1014

COMPOUND:

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

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C_aH₄F₁₃SO₃Na

MOLECULAR WEIGHT:

450.15

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu g/ml$ (Na salt) SOLVENT(S):

(6:2FTS anion) 47.4 ± 2.4 µg/ml

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/03/2014

EXPIRY DATE: (mm/dd/yyyy)

10/03/2017

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:

Date: 03/27/2015

B.G. Chittim

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, $u_x(y)$, of a value y and the uncertainty of the independent parameters

 $x_1, x_2,...x_n$ on which it depends is:

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

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:

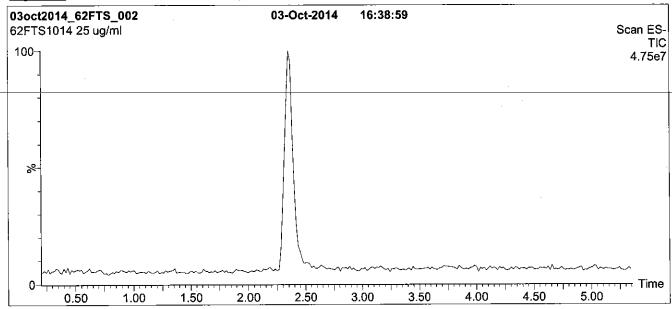
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

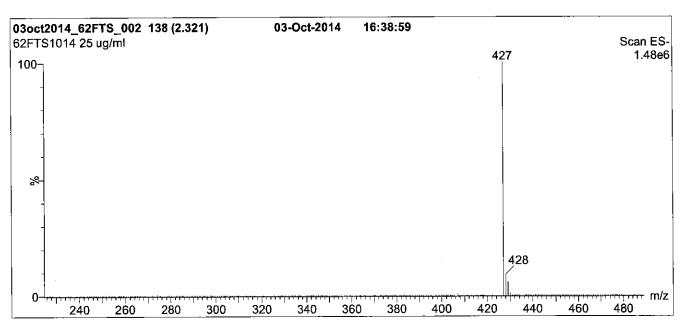




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





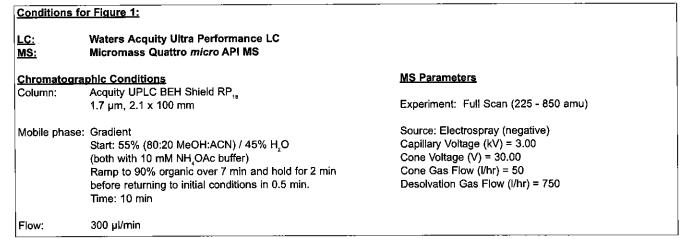
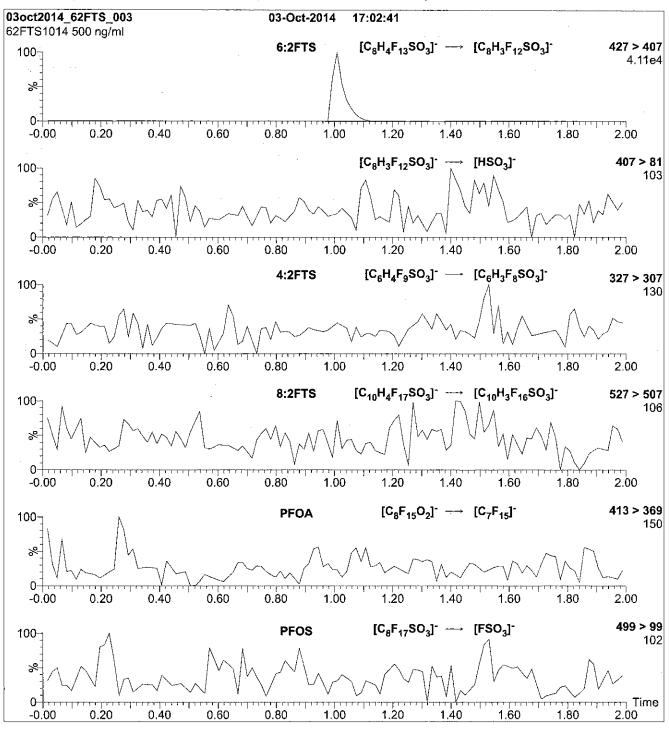
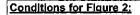


Figure 2: 6:2FTS; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 µl (500 ng/ml 6:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3 Collision Energy (eV) = 25

Reagent

LC8:2FTS_00001

Y: 716/15 8V 5:712d1557



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

8:2FTS

LOT NUMBER:

82FTS1014

COMPOUND:

Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C,H,F,SO,Na

 $47.9 \pm 2.4 \,\mu g/ml$

MOLECULAR WEIGHT:

550.16

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu g/ml$ (Na salt) SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/03/2014

EXPIRY DATE: (mm/dd/yyyy)

10/03/2017

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

(8:2FTS anion)

Certified By:

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

 $x_1, x_2,...x_n$ 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:

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:

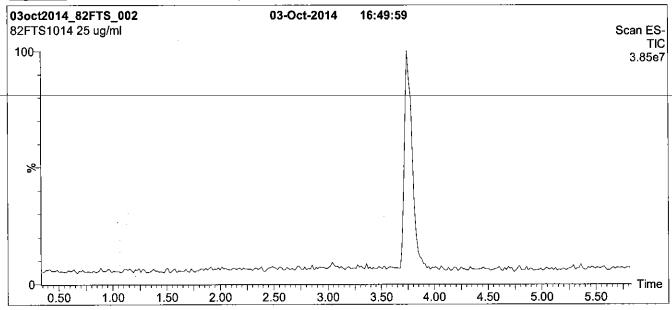
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

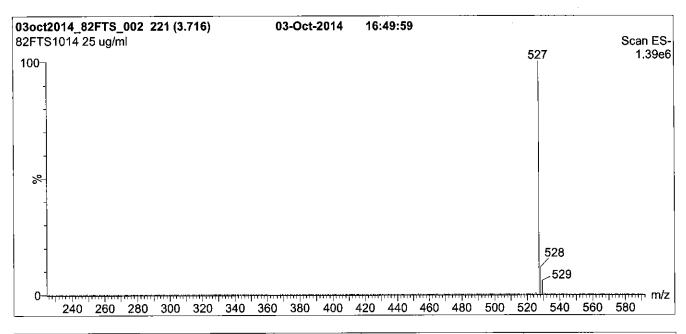




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





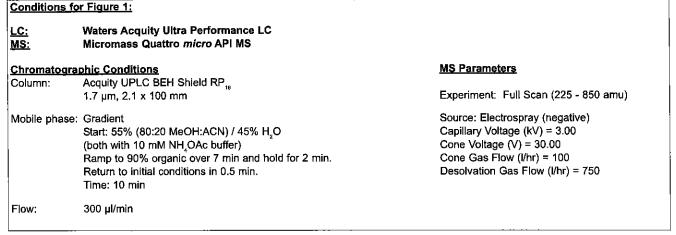
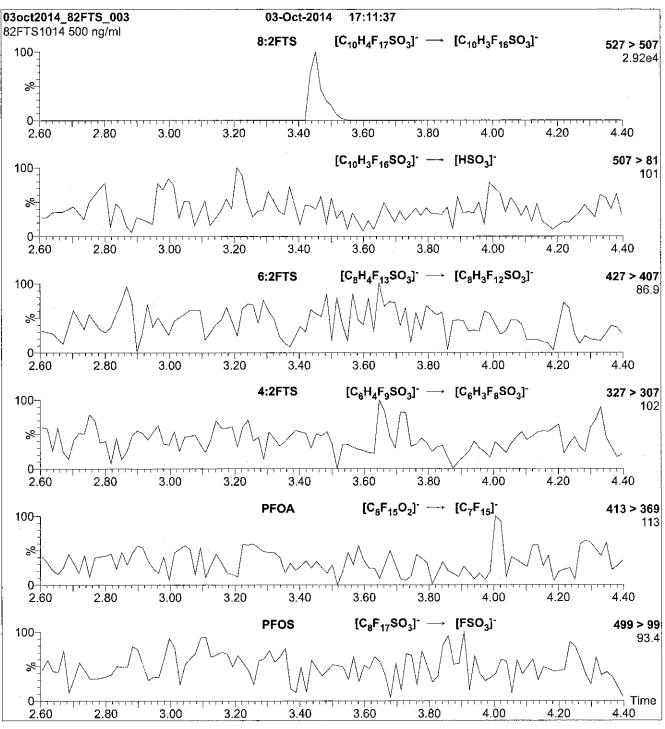
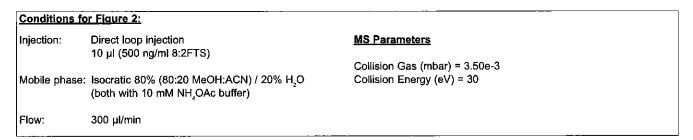


Figure 2: 8:2FTS; LC/MS/MS Data (Selected MRM Transitions)





LCd-NEtFOSA-M_00001



PRODUCT CODE:

d-N-EtFOSA-M

LOT NUMBER:

MOLECULAR WEIGHT:

ISOTOPIC PURITY:

SOLVENT(S):

dNEtFOSA0314M

532.23

Methanol

≥98% ²H_s

COMPOUND:

N-ethyl-d_e-perfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C₁₀D₅HF₁₇NO₂S

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/10/2014

EXPIRY DATE: (mm/dd/yyyy)

03/10/2019

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: <u>04/01/2015</u>

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:

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The combined relative standard uncertainty, $u_a(y)$, 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:

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.

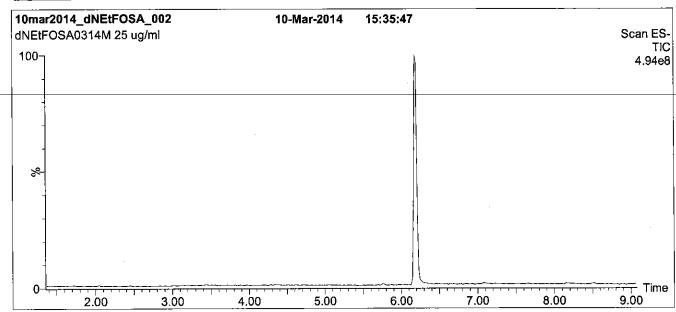
QUALITY MANAGEMENT:

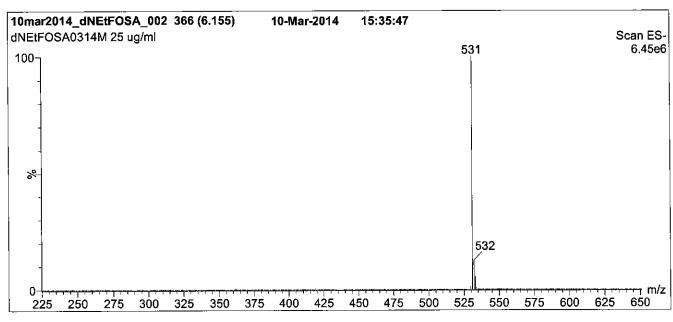
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).





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





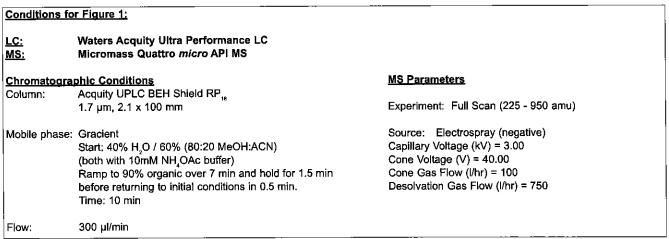
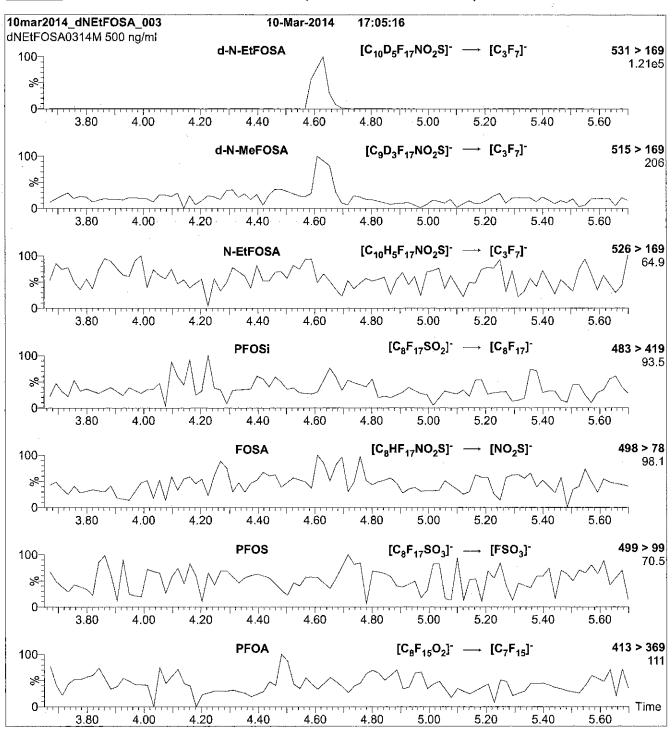
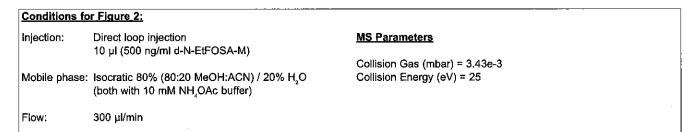


Figure 2: d-N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)





LCd-NMeFOSA-M_00001



PRODUCT CODE:

d-N-MeFOSA-M

LOT NUMBER:

MOLECULAR WEIGHT:

SOLVENT(S):

ISOTOPIC PURITY:

dNMeFOSA0114M

516.19

Methanol

≥98% 2H,

COMPOUND:

N-methyl-d,-perfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C₉D₃HF₁₇NO₂S

CONCENTRATION:

 $50 \pm 2.5 \, \mu g/ml$

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/28/2014

EXPIRY DATE: (mm/dd/yyyy)

01/28/2019

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: 04/01/2015

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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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:

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.

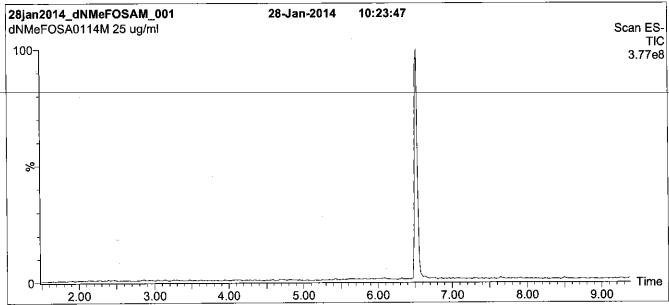
QUALITY MANAGEMENT:

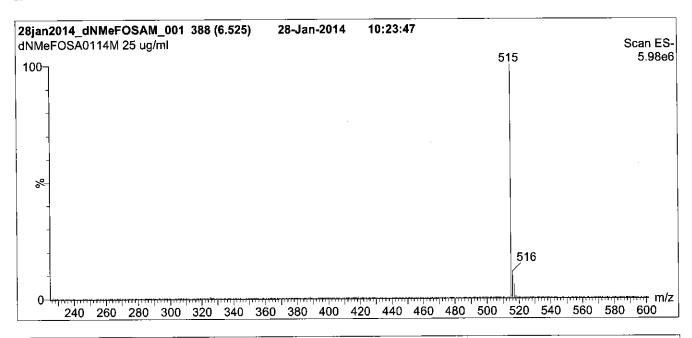
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).





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





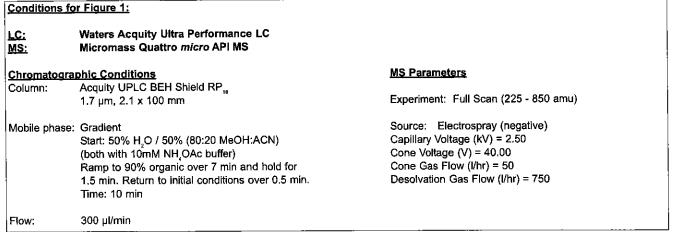
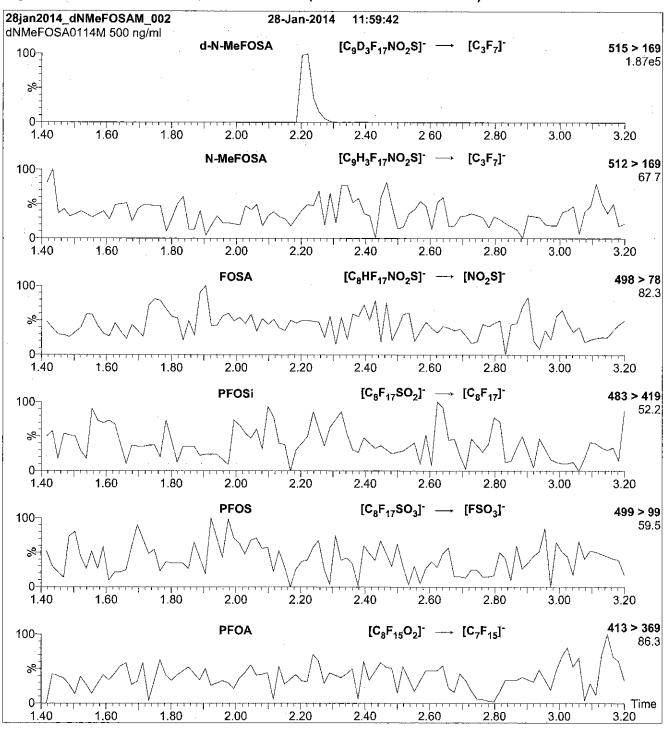
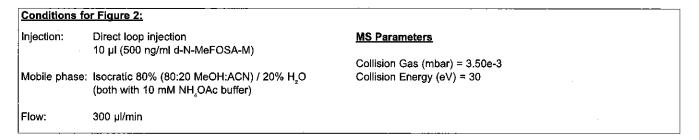


Figure 2: d-N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)





LCd3-NMeFOSAA_00001



PRODUCT CODE:

d3-N-MeFOSAA

LOT NUMBER:

d3NMeFOSAA0113

COMPOUND:

N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C₁₁D₃H₃F₁₇NO₄S

MOLECULAR WEIGHT:

ISOTOPIC PURITY:

574.23

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

SOLVENT(S):

Methanol

Water (<1%) ≥98% ²H₃

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/31/2013

EXPIRY DATE: (mm/dd/yyyy)

01/31/2018

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:

B.G. Chittim

Date:

<u>04/06/2015</u>

(mm/dd/yyyy)

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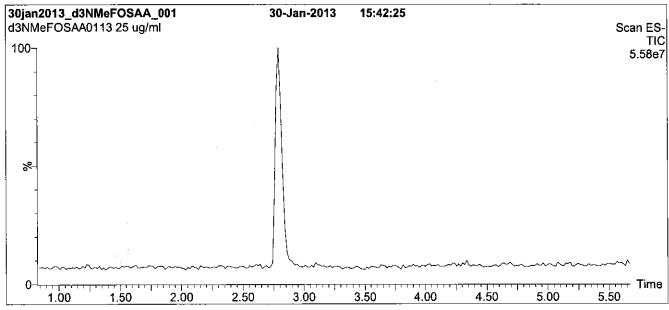
QUALITY MANAGEMENT:

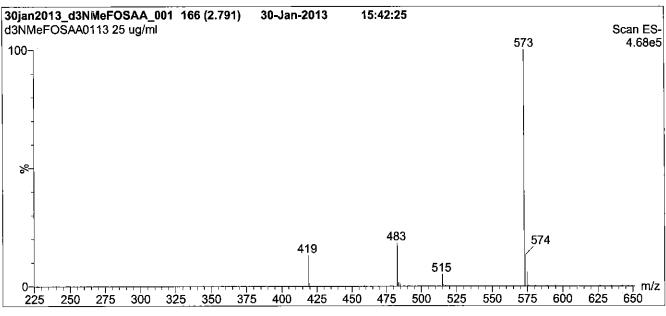
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Figure 1: d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)





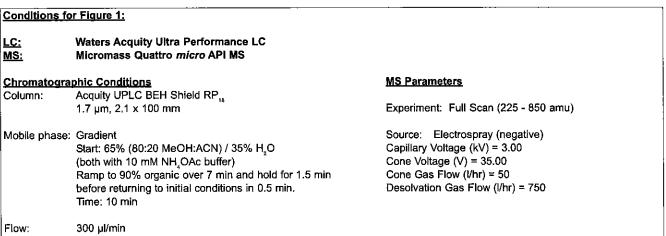
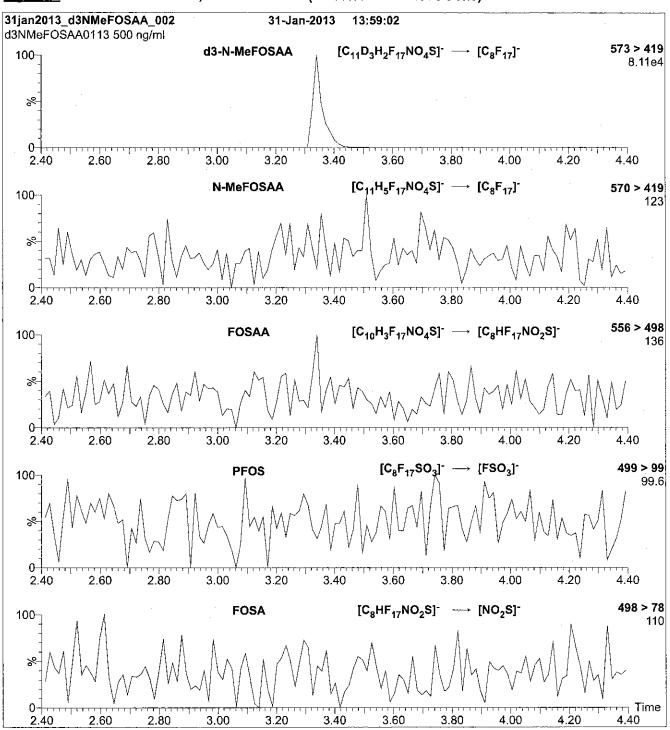
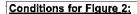


Figure 2: d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml d3-N-MeFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow:

300 µl/min

MS Parameters

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

LCd5-NEtFOSAA_00001



PRODUCT CODE:

d5-N-EtFOSAA

LOT NUMBER:

d5NEtFOSAA0515

COMPOUND:

N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C,,D,H,F,,NO,S

MOLECULAR WEIGHT:

590.27

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥98% ²H_E

LAST TESTED: (mm/dd/yyyy)

05/08/2015

EXPIRY DATE: (mm/dd/yyyy)

05/08/2020

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.

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Certified By:

Date: 05/11/2015

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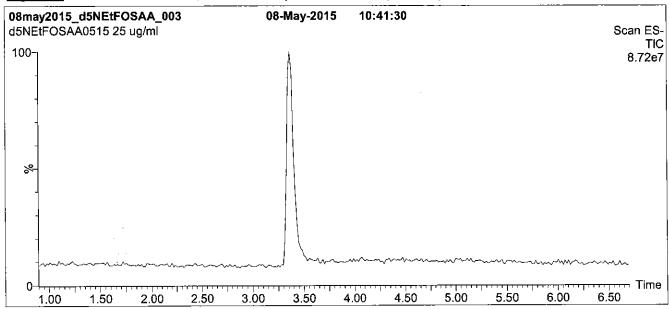
QUALITY MANAGEMENT:

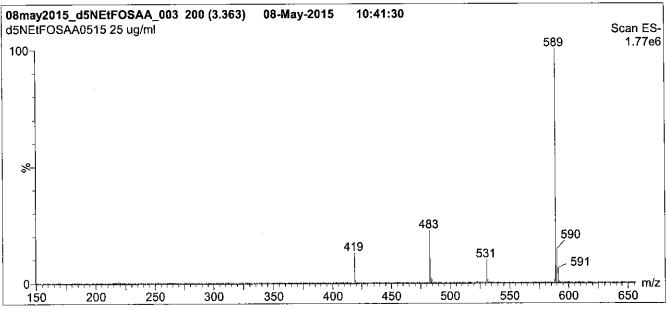
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Figure 1: d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)





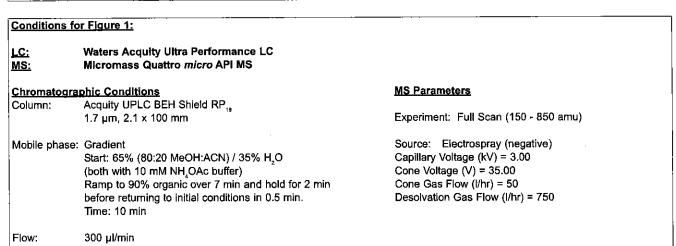
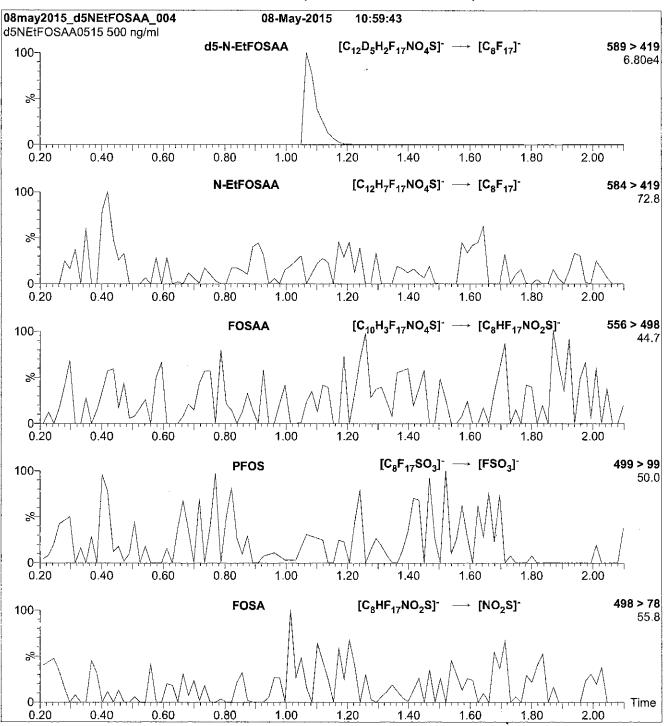
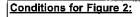


Figure 2: d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Flow:

Direct loop injection

10 μl (500 ng/ml d5-N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

•

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.24e-3 Collision Energy (eV) = 25

LCM2-6:FTS_00001



PRODUCT CODE:

M2-6:2FTS

LOT NUMBER:

M262FTS0714

COMPOUND:

Sodium 1H,1H,2H,2H-perfluoro-[1,2-13C, Joctane sulfonate

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

¹³C₂¹²C₆H₄F₁₃SO₃Na

MOLECULAR WEIGHT:

452.13

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu g/ml$

SOLVENT(S): (Na salt)

Methanol

 $47.5 \pm 2.4 \,\mu g/ml$

(M2-6:2FTS anion)

>99% 13C

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

 $(1,2^{-13}C_{2})$

LAST TESTED: (mm/dd/yyyy)

07/15/2014

EXPIRY DATE: (mm/dd/yyyy)

07/15/2017

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.

The native 6:2FTS contains 4.22% of 34S (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:

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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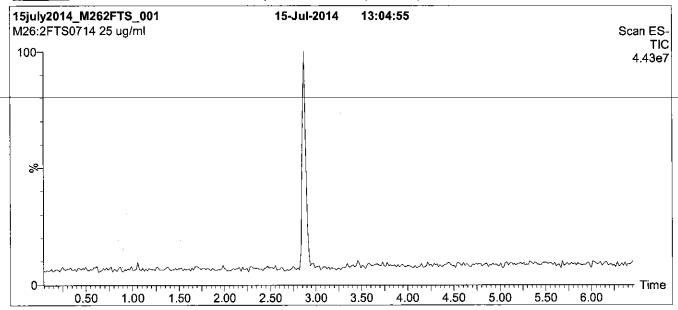
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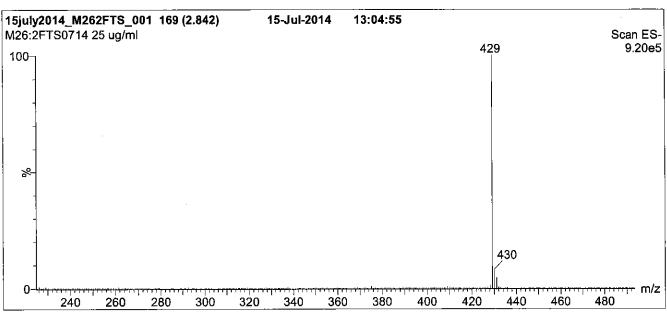




^{**}For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com**

Figure 1: M2-6:2FTS; LC/MS Data (TIC and Mass Spectrum)





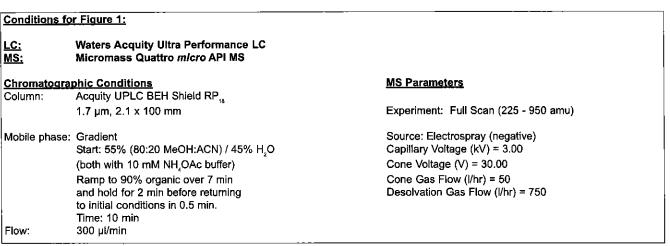
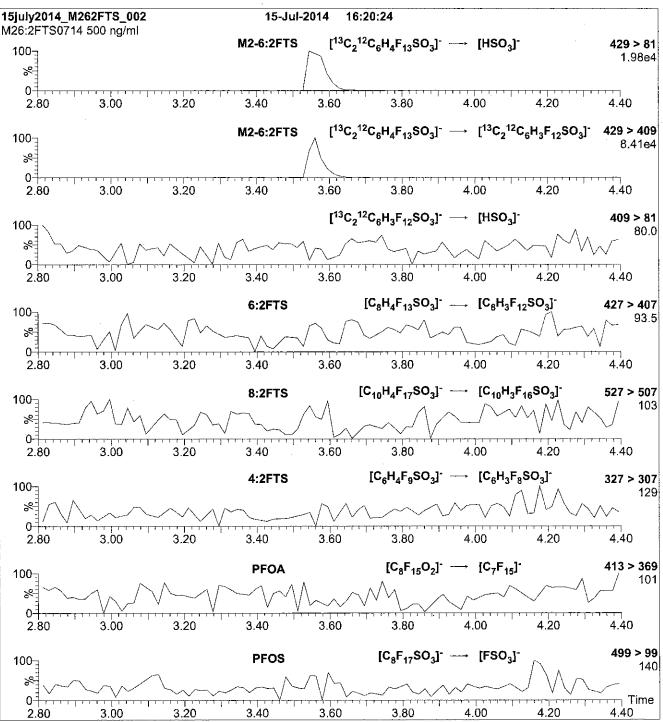
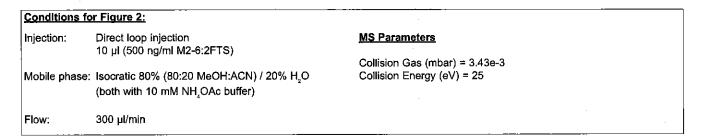


Figure 2: M2-6:2FTS; LC/MS/MS Data (Selected MRM Transitions)





LCM2-8:2FTS 00001



PRODUCT CODE:

M2-8:2FTS

LOT NUMBER:

M282FTS0414

COMPOUND:

Sodium 1H,1H,2H,2H-perfluoro-[1,2-13C,]decane sulfonate

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

¹³C₂¹²C₈H₄F₁₇SO₃Na

MOLECULAR WEIGHT:

552.15

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu g/ml$ (Na salt) **SOLVENT(S):**

Methanol

 $47.9 \pm 2.4 \,\mu g/ml$ (M2-8:2FTS anion)

≥99% 13C

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

(1,2-13C₂)

LAST TESTED: (mm/dd/yyyy)

04/13/2014

04/13/2017

EXPIRY DATE: (mm/dd/yyyy) **RECOMMENDED STORAGE:**

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

See page 2 for further details.

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The combined relative standard uncertainty, $u_x(y)$, 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:

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EXPIRY DATE / PERIOD OF VALIDITY:

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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.

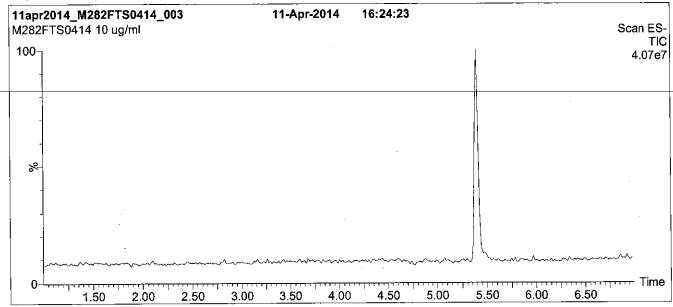
QUALITY MANAGEMENT:

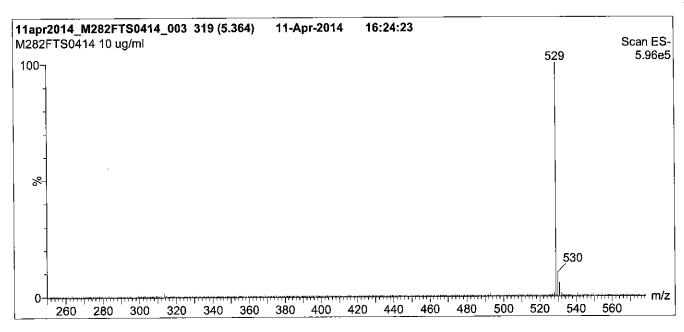
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).





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





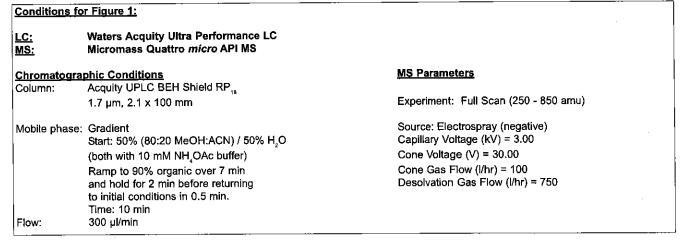
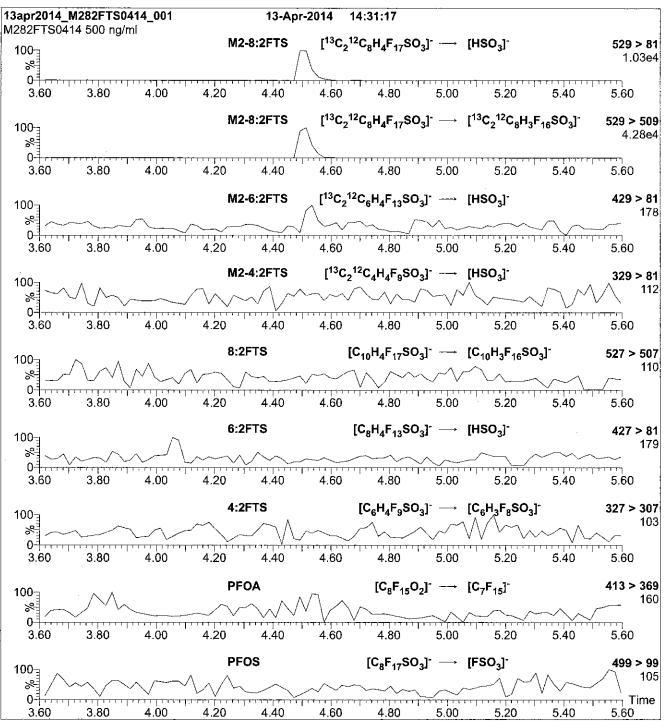
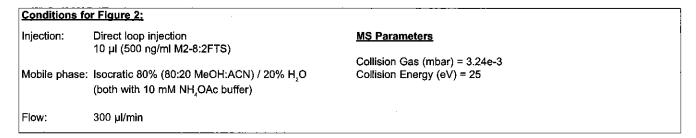


Figure 2: M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)





LCN-EtFOSA-M_00002



PRODUCT CODE:

N-EtFOSA-M

LOT NUMBER:

SOLVENT(S):

NEtFQSA0714M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

4151-50-2

MOLECULAR FORMULA:

C₁₀H₈F₁₇NO₂S

MOLECULAR WEIGHT:

527.20 Methanol

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/14/2014

EXPIRY DATE: (mm/dd/yyyy)

07/14/2019

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: 04/01/2015

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

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.

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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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LIMITED WARRANTY:

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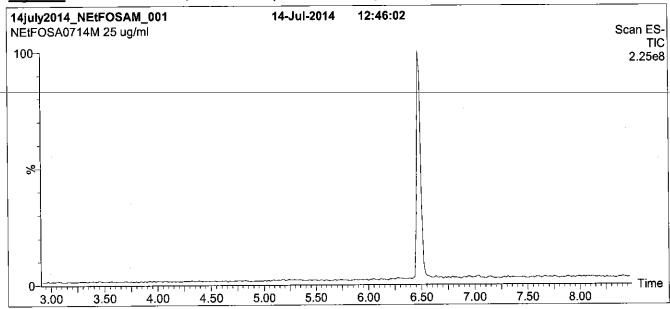
QUALITY MANAGEMENT:

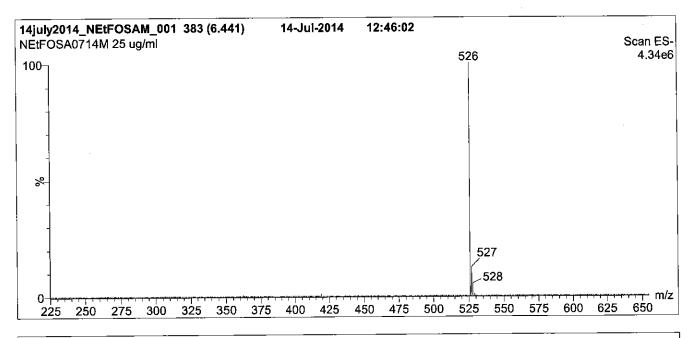
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Figure 1: N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)





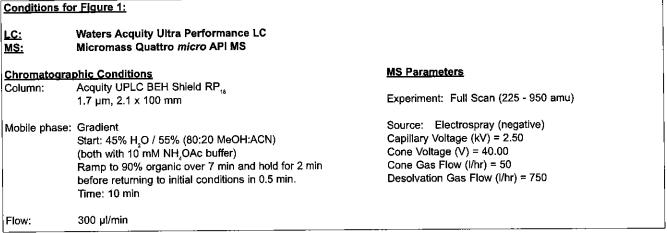
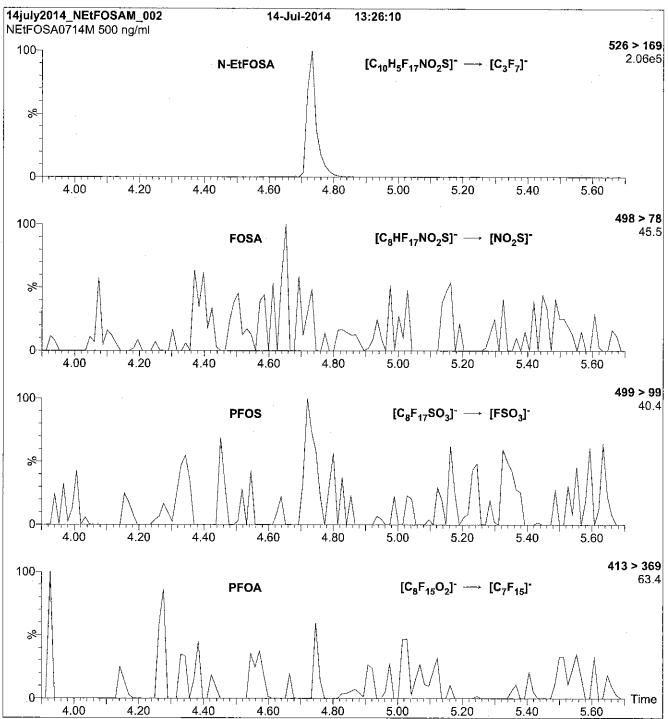


Figure 2: N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml N-EtFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

MS Parameters

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

Flow:

300 µl/min

LCN-EtFOSAA_00001



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSAA

LOT NUMBER:

NEtFOSAA0113

COMPOUND:

N-ethylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

2991-50-6

ÇH₂CH₃

MOLECULAR FORMULA:

C₁₂H₈F₁₇NO₄S

MOLECULAR WEIGHT:

585.23

CONCENTRATION:

 $50 \pm 2.5 \, \mu g/ml$

SOLVENT(S):

Methanol Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/29/2013

EXPIRY DATE: (mm/dd/yyyy)

01/29/2018

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: 04/06/2015

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:

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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UNCERTAINTY:

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

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TRACEABILITY:

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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:

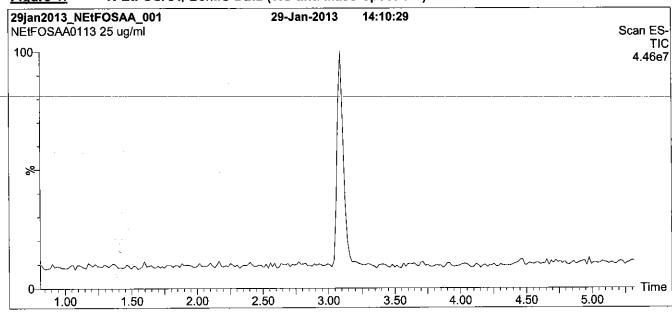
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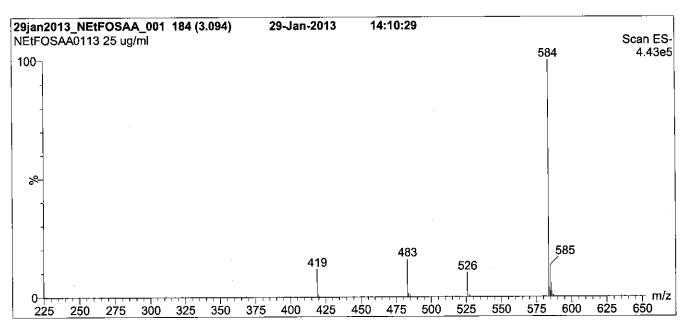




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





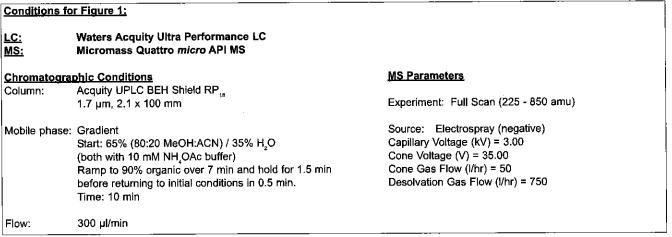
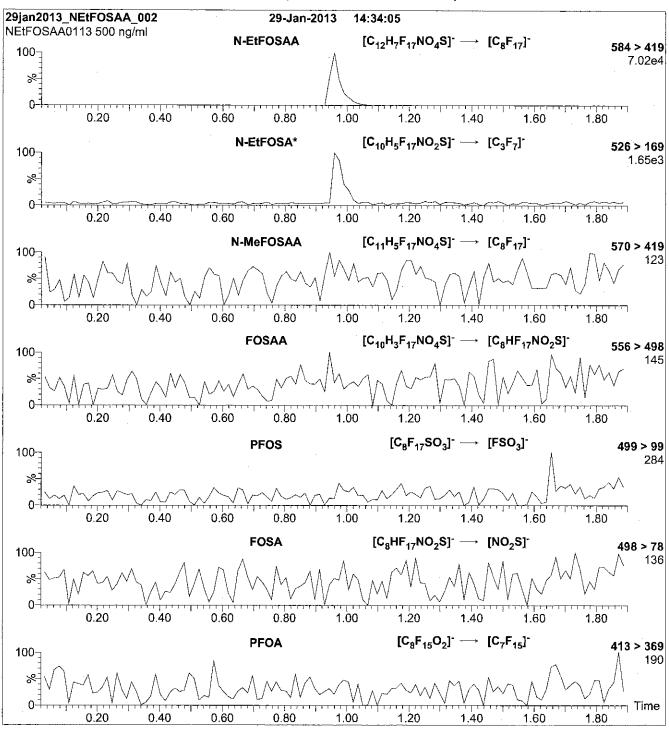
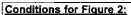


Figure 2: N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)



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



Injection:

Direct loop injection

10 µl (500 ng/ml N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH OAc buffer)

MS Parameters

Collision Gas (mbar) = 3.43e-3

Collision Energy (eV) = 25

Flow: 300 µl/min

LCN-MeFOSA-M_00001



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSA-M

LOT NUMBER:

MOLECULAR WEIGHT:

SOLVENT(S):

NMeFOSA0714M

513.17

Methanol

COMPOUND:

N-methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8

MOLECULAR FORMULA:

C₂H₄F₁₇NO₂S

CONCENTRATION:

 $50 \pm 2.5 \, \mu g/ml$

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/15/2014

EXPIRY DATE: (mm/dd/yyyy)

07/15/2019

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: 04/01/2015

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

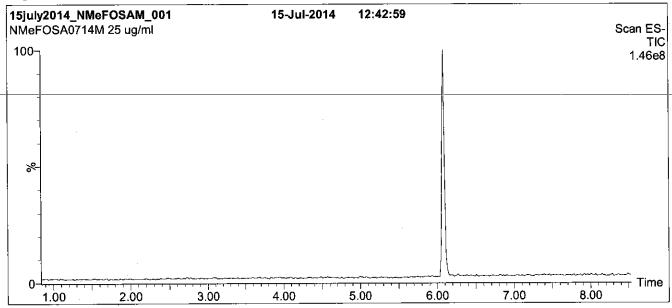
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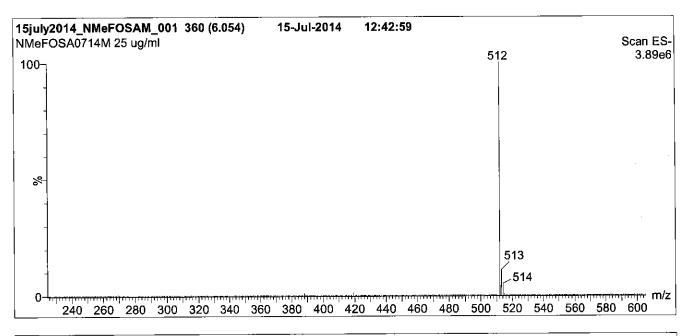




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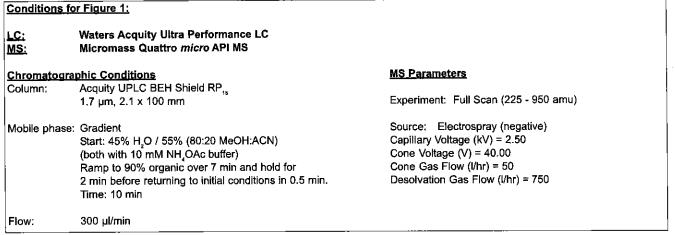
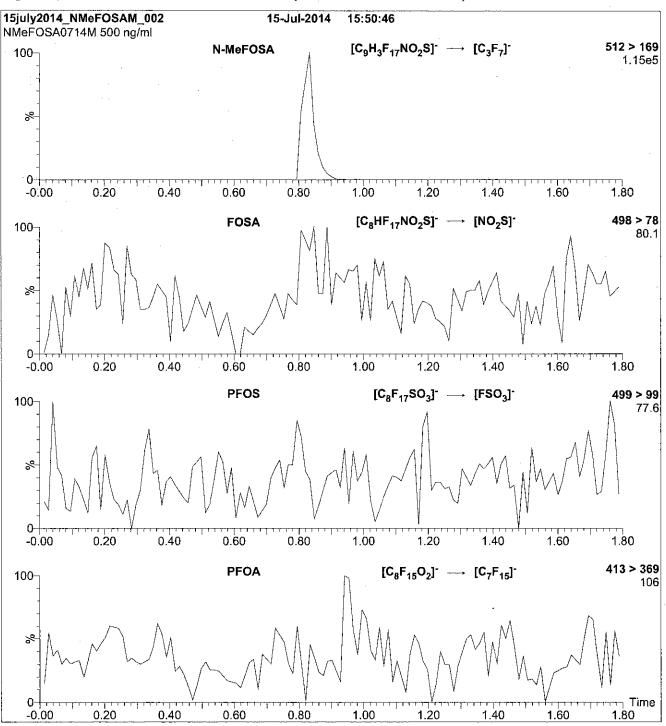


Figure 2: N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 µl (500 ng/ml N-MeFOSA-M)

Flow:

300 µl/min

MS Parameters

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

LCN-MeFOSAA_00001



CERTIFICATE OF ANALYSIS **DOCUMENTATION**

PRODUCT CODE:

N-MeFOSAA

LOT NUMBER:

NMeFOSAA1214

COMPOUND:

N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #:

2355-31-9

MOLECULAR FORMULA:

C₁₁H₆F₁₇NO₄S

MOLECULAR WEIGHT:

571.21

CONCENTRATION:

 $50 \pm 2.5 \, \mu g/ml$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/09/2014

EXPIRY DATE: (mm/dd/yyyy)

12/09/2019

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: 04/06/2015

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

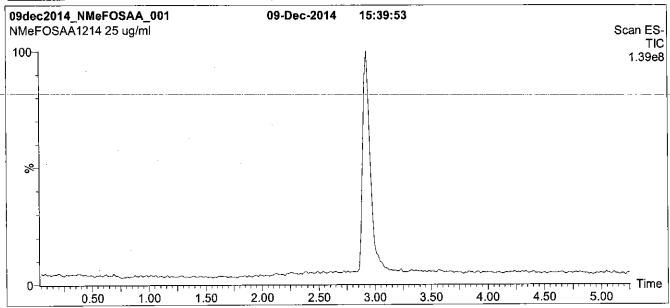
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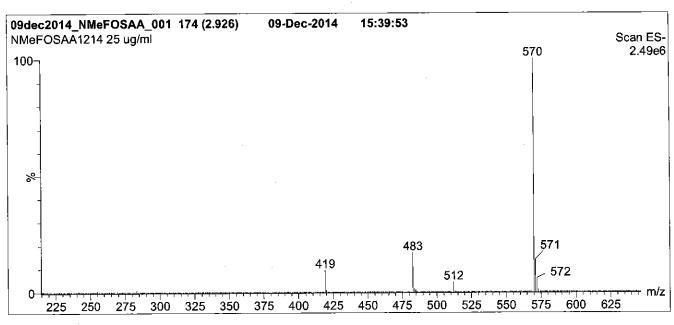




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Figure 1: N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)





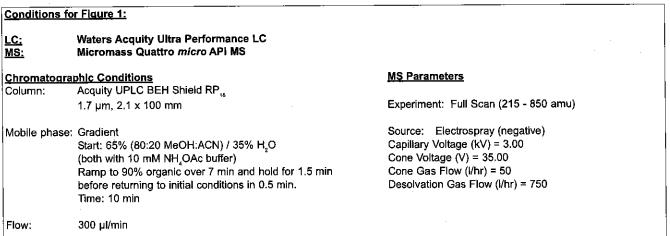
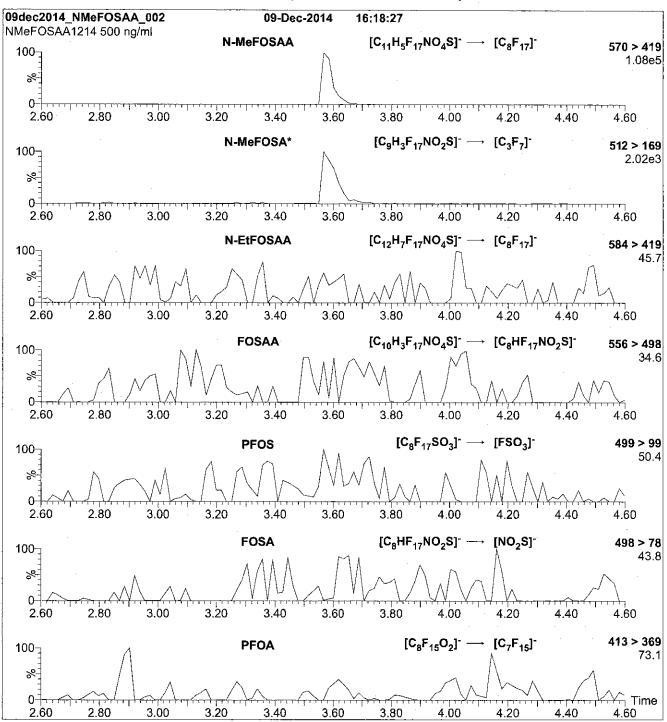
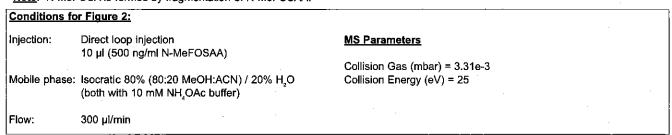


Figure 2: N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)



*Note: N-MeFOSA is formed by fragmentation of N-MeFOSAA.



LCPFACMXB_00007



CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXB

Solution/Mixture of Native Perfluoroalkylcarboxylic Acids and Native Perfluoroalkylsulfonates

PRODUCT CODE:

PFAC-MXB

LOT NUMBER:

PFACMXB1115

SOLVENT(S):

Methanol / Water (<1%)

DATE PREPARED: (mm/dd/yyyy)

11/04/2015

LAST TESTED: (mm/dd/yyyy)

11/06/2015

EXPIRY DATE: (mm/dd/yyyy)

11/06/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXB is a solution/mixture of thirteen native perfluoroalkylcarboxylic acids (C_4 - C_{14} , C_{16} , and C_{18}) and four native perfluoroalkylsulfonates (C_4 , C_8 , C_8 and C_{10}). The full name, abbreviation and concentration for each of the components are given in Table A.

The individual perfluoroalkylcarboxylic acids and perfluoroalkylsulfonates all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture

Figure 1: LC/MS Data (SIR)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)
Figure 3: 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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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, $u_{x}(y)$, of a value y and the uncertainty of the independent parameters

$$x_{ij} x_{ij} ... x_{ij}$$
 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 $\pm 5\%$ (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).





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Table A: PFAC-MXB; Components and Concentrations (ng/ml, ± 5% in Methanol / Water (<1%))

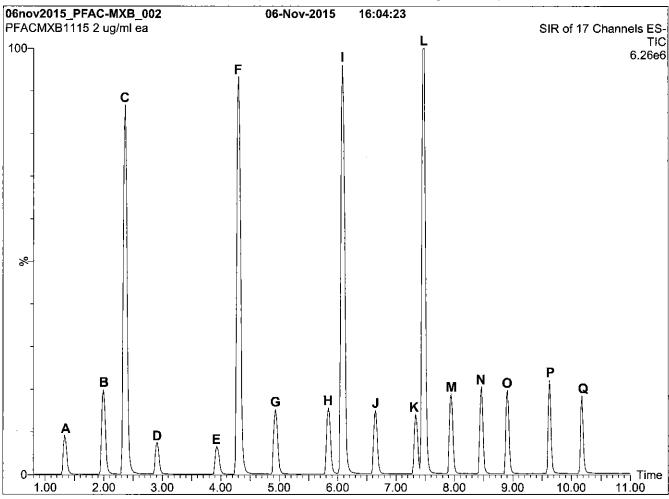
Name	Abbreviation	Concentration (ng/ml)		Peak Assignment In Figure 1
Perfluoro-n-butanoic acid	PFBA	2000		A
Perfluoro-n-pentanoic acid	PFPeA	2000		В
Perfluoro-n-hexanoic acid	PFHxA	2000		D
Perfluoro-n-heptanoic acid	PFHpA	2000		E
Perfluoro-n-octanoic acid	PFOA	2000		G
Perfluoro-n-nonanoic acid	PFNA	2000		н
Perfluoro-n-decanoic acid	PFDA	2000		J
Perfluoro-n-undecanoic acid	PFUdA	2000		К
Perfluoro-n-dodecanoic acid	PFDoA	2000		М
Perfluoro-n-tridecanoic acid	PFTrDA	2000		N
Perfluoro-n-tetradecanoic acid	PFTeDA	2000		0
Perfluoro-n-hexadecanoic acid	PFHxDA	2000		Р
Perfluoro-n-octadecanoic acid	PFODA	2000		Q
Name	Abbreviation	Concentration (ng/ml)		Peak
		as the	as the anion	Assignment in Figure 1
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	С
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	F
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	ı
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	L

Certified By:

R.G. Chittim

Date: 11/11/2015

Figure 1: PFAC-MXB; 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,16

1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% H₂O / 45% (80:20 MeOH:ACN)

(both with 10 mM NH, OAc buffer)

Ramp to 95% organic over 10 min and hold for 1 min

before returning to initial conditions in 0.5 min.

Time: 12 min

Flow:

300 µl/min

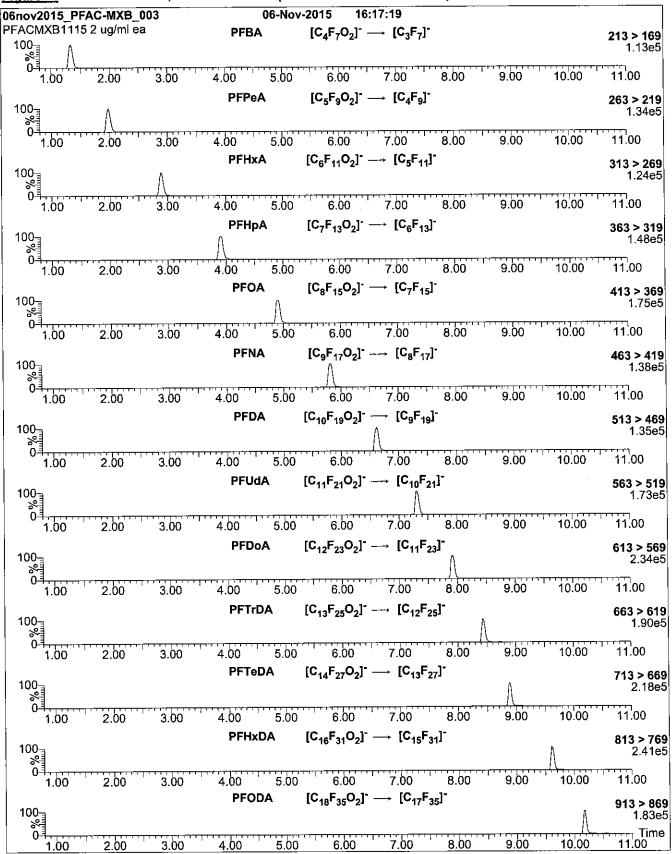
MS Parameters

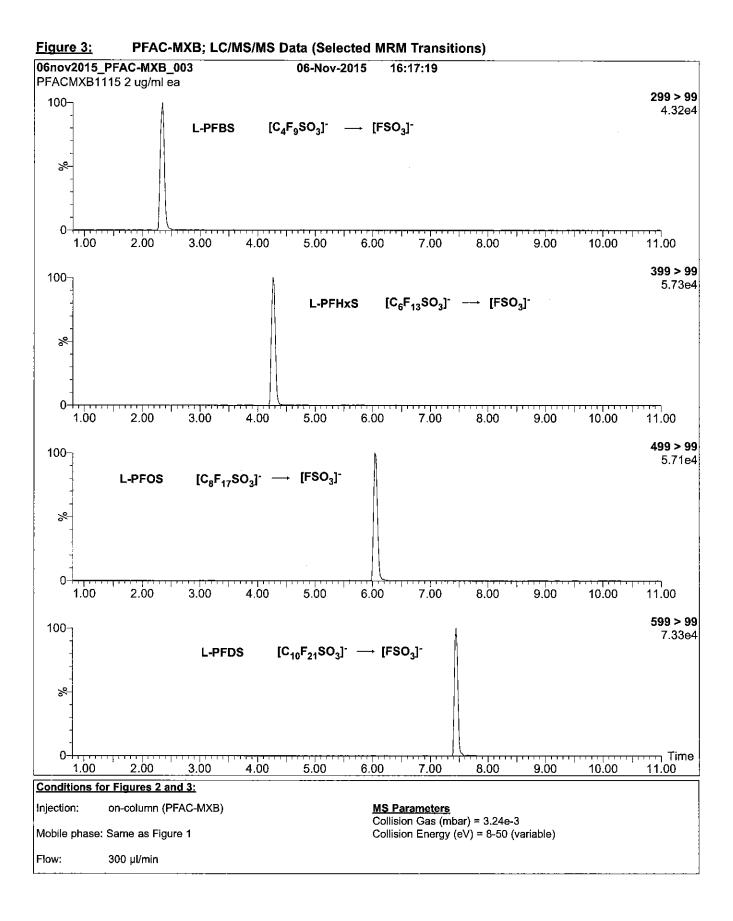
Experiment: SIR of 17 Channels

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (10-70)
Cone Gas Flow (l/hr) = 50

Desolvation Gas Flow (I/hr) = 750

Figure 2: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)





LCPFBA 00004



ID: LCPFBA_00004 Exp: 01/30/20 Prpd: CBW PF-n-butanoic acid



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFBA

LOT NUMBER:

PFBA0115

COMPOUND:

Perfluoro-n-butanoic acid

STRUCTURE:

CAS #:

375-22-4

F F F F

MOLECULAR FORMULA:

C₄HF₂O₂

MOLECULAR WEIGHT:

214.04

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/30/2015

EXPIRY DATE: (mm/dd/yyyy)

01/30/2020

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: _

<u>3/23/20 13</u>

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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:

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HOMOGENEITY:

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UNCERTAINTY:

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TRACEABILITY:

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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:

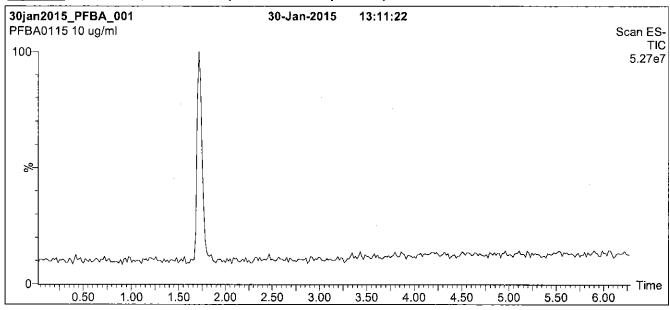
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

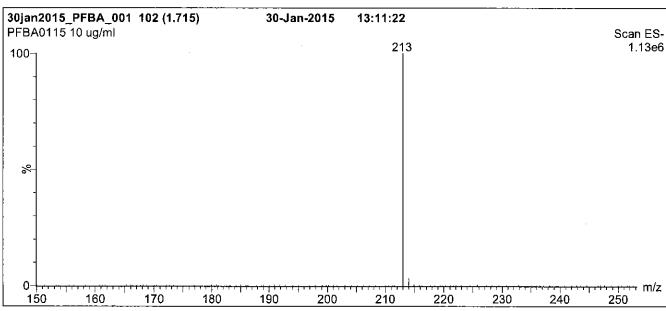


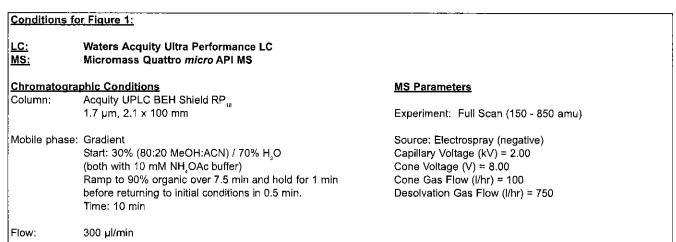


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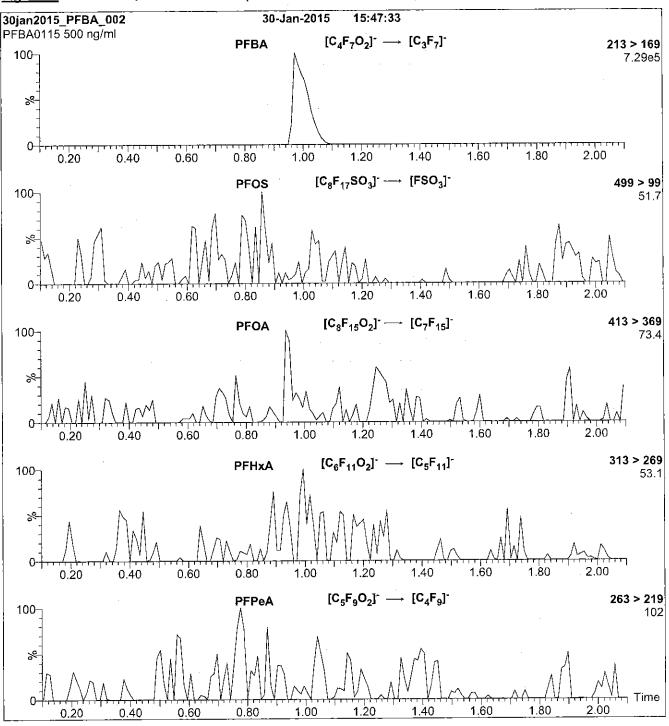
Figure 1: PFBA; LC/MS Data (TIC and Mass Spectrum)

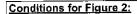






PFBA; LC/MS/MS Data (Selected MRM Transitions) Figure 2:





Injection:

Direct loop injection

10 µl (500 ng/ml PFBA)

 $\begin{array}{lll} \mbox{Mobile phase: Isocratic 80\% (80:20 MeOH:ACN) / 20\% \ H_{\rm 2}O \\ \mbox{(both with 10 mM NH}_{\rm 4}OAc \ buffer) \end{array}$

Flow:

300 µl/min

MS Parameters

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

LCPFBS_00003



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFBS

LOT NUMBER:

MOLECULAR WEIGHT:

SOLVENT(S):

LPFBS1014

COMPOUND:

Potassium perfluoro-1-butanesulfonate

STRUCTURE:

CAS #:

29420-49-3

338.19

Methanol

F F F F

MOLECULAR FORMULA:

C₄F₈SO₃K

50.0 ± 2.5 μg/ml (K salt)

44.2 ± 2.2 µg/ml (PFBS anion)

CHEMICAL PURITY:

CONCENTRATION:

>98%

LAST TESTED: (mm/dd/yyyy)

10/09/2014

EXPIRY DATE: (mm/dd/yyyy)

10/09/2019

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:

(mm/dd/www)

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HAZARDS:

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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, 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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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 17025:2005 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 for the period of time specified by the 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:

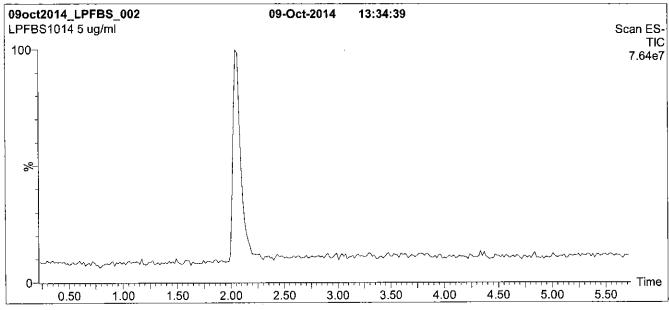
This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

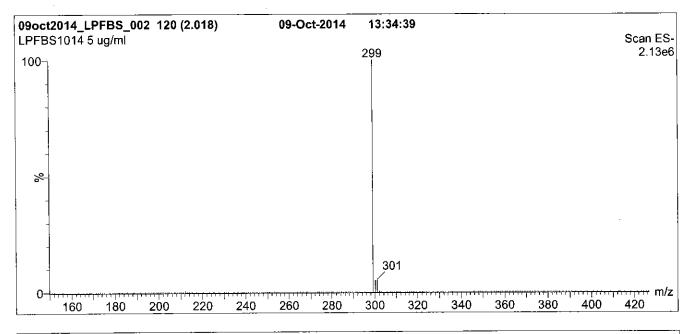




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Figure 1: L-PFBS; LC/MS Data (TIC and Mass Spectrum)





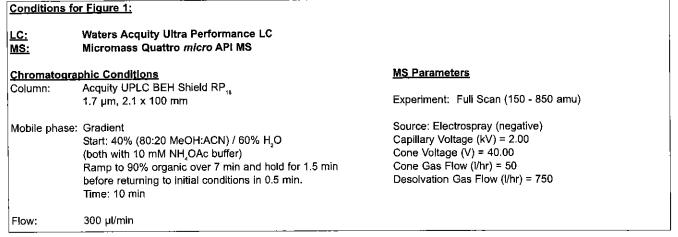
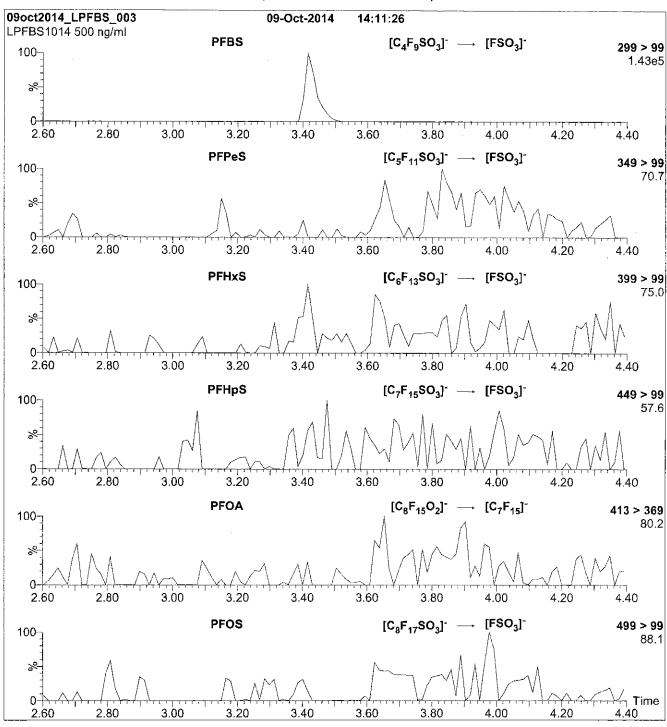
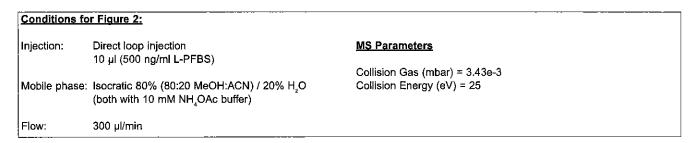


Figure 2: L-PFBS; LC/MS/MS Data (Selected MRM Transitions)





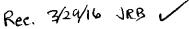
LCPFBS 00004



ID: LCPFBS_00004

Exp: 10/09/19 Prpd: CBW

PF-1-butanesulfonate K sa





CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFBS

LOT NUMBER:

MOLECULAR WEIGHT:

SOLVENT(S):

LPFBS1014

COMPOUND:

Potassium perfluoro-1-butanesulfonate

STRUCTURE:

CAS #:

29420-49-3

338,19

Methanol

F F F F

MOLECULAR FORMULA:

C,F,SO,K

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu g/ml$ (K salt)

44.2 ± 2.2 μg/ml (PFBS anion)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/09/2014

EXPIRY DATE: (mm/dd/yyyy)

10/09/2019

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:

<u>04/02/2015 </u>

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

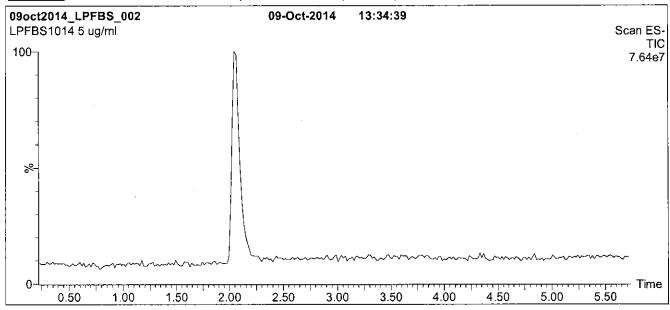
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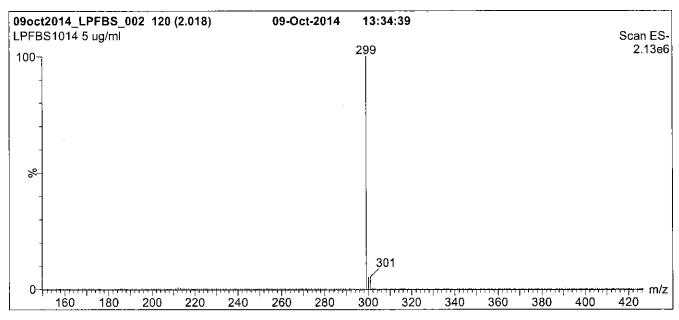




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: L-PFBS; LC/MS Data (TIC and Mass Spectrum)





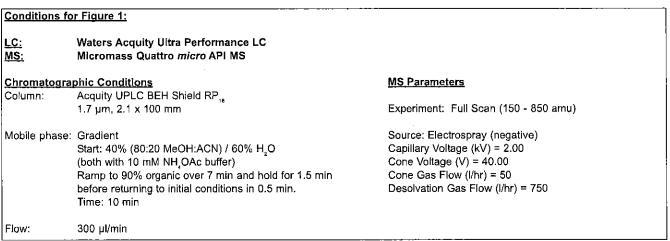
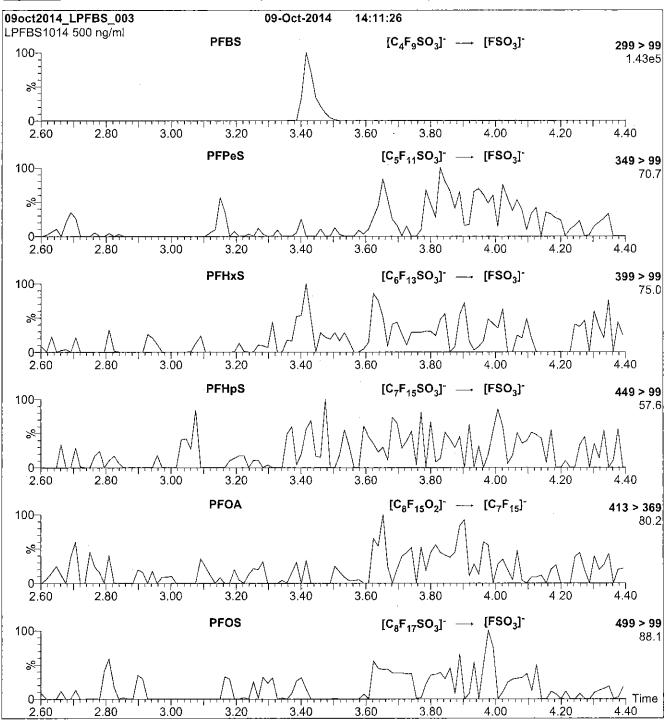
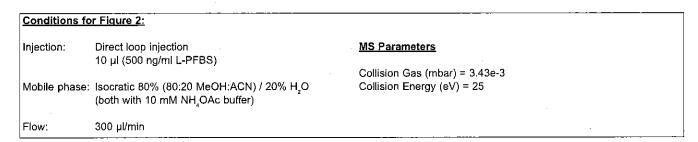


Figure 2: L-PFBS; LC/MS/MS Data (Selected MRM Transitions)





LCPFDA_00004



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFDA

LOT NUMBER:

PFDA0615

COMPOUND:

Perfluoro-n-decanoic acid

STRUCTURE:

CAS #:

335-76-2

MOLECULAR FORMULA:

C, HF, O,

50 ± 2.5 μg/ml

MOLECULAR WEIGHT:

514.08

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

CONCENTRATION:

>98%

LAST TESTED: (mm/dd/yyyy)

07/02/2015

EXPIRY DATE: (mm/dd/yyyy)

07/02/2020

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 ~ 0.6% PFNA and ~ 0.3% PFOA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B G Chittim

Date:

(mm/dd/yyyy)

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, $u_a(y)$, 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:

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.

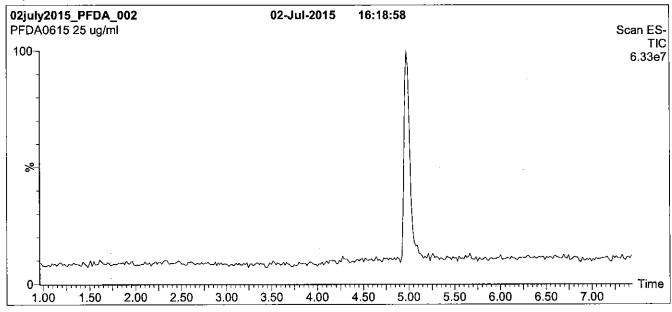
QUALITY MANAGEMENT:

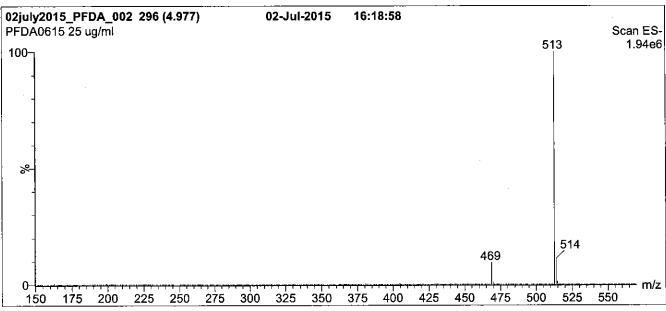
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).





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





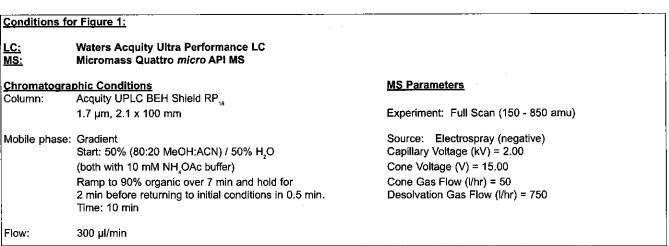
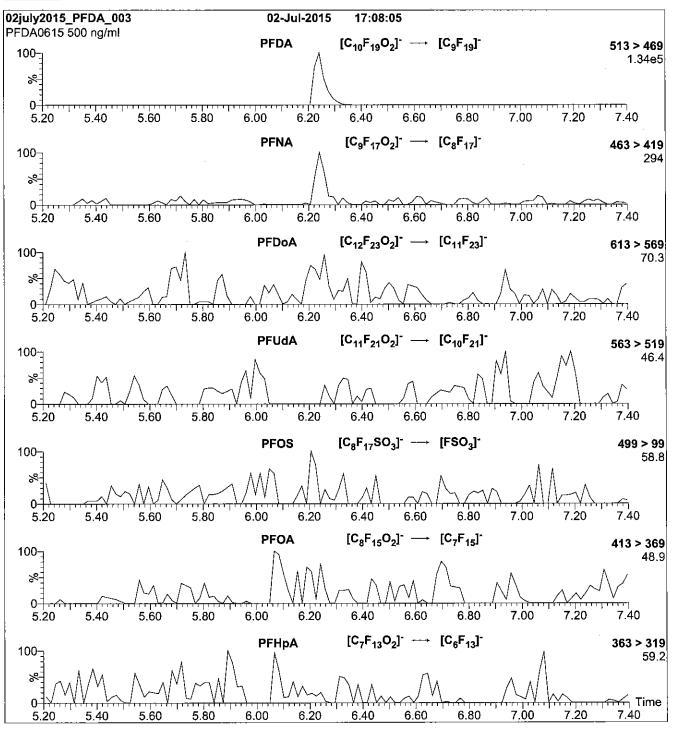
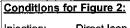


Figure 2: PFDA; LC/MS/MS Data (Selected MRM Transitions)





Injection: Dire

Direct loop injection

10 µl (500 ng/ml PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH₄OAc buffer)

Flow:

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.62e-3 Collision Energy (eV) = 13

LCPFDoA_00004



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFDoA

LOT NUMBER:

PFDoA0115

COMPOUND:

Perfluoro-n-dodecanoic acid

STRUCTURE:

CAS #:

307-55-1

MOLECULAR FORMULA:

C₁₂HF₂₃O₂

MOLECULAR WEIGHT:

614.10

CONCENTRATION:

50 ± 2.5 μg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/30/2015

EXPIRY DATE: (mm/dd/yyyy)

d/ywy) 01/30/2020

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

D.C. Schrifting

Date:

(mm/dd/sss/)

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

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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UNCERTAINTY:

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

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 $\pm 5\%$ (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:

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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.

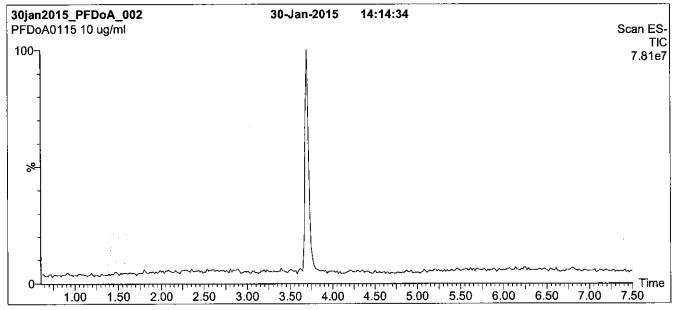
QUALITY MANAGEMENT:

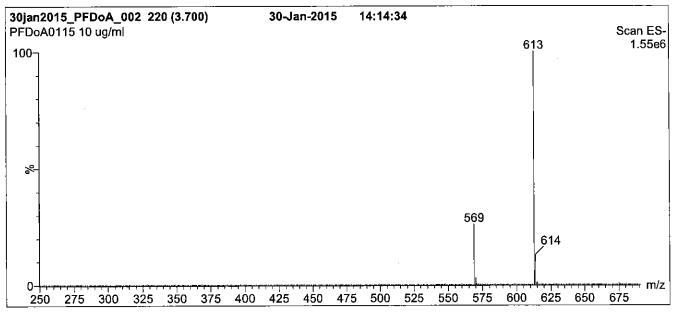
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).





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





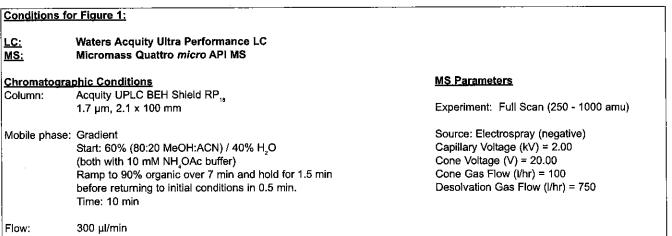
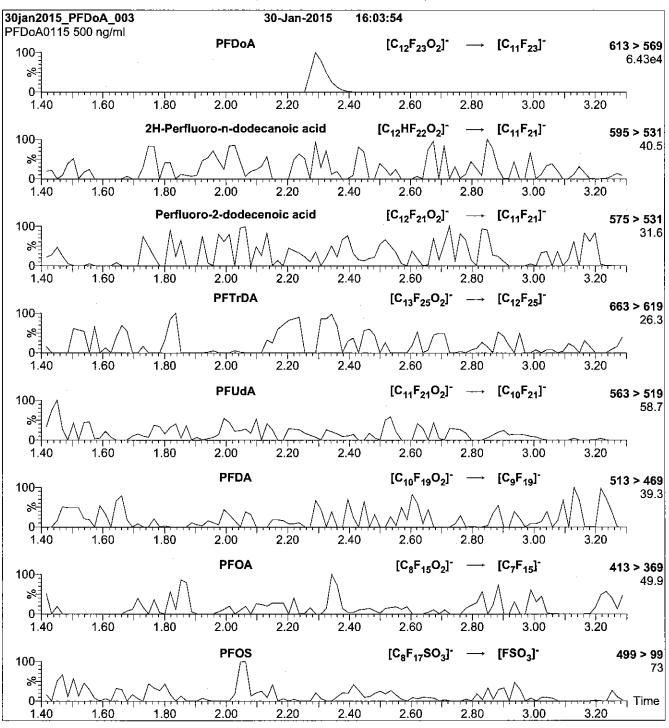
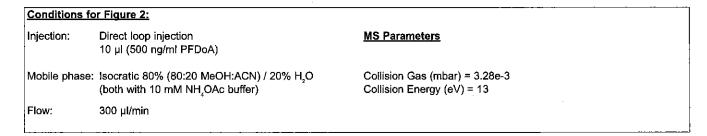


Figure 2: PFDoA; LC/MS/MS Data (Selected MRM Transitions)





LCPFDS_00005

ID: LCPFDS_00005 Exp: 07/02/20 Ppd: CBW PF-1-decanesulfonate sodi



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFDS

LOT NUMBER:

MOLECULAR WEIGHT:

SOLVENT(S):

LPFDS0615

COMPOUND:

Sodium perfluoro-1-decanesulfonate

STRUCTURE:

CAS #:

2806-15-7

622,13

Methanol

MOLECULAR FORMULA:

C₁₀F₂₁SO₃Na

50.0 ± 2.5 μg/ml (Na salt)

 $48.2 \pm 2.4 \mu g/ml$ (PFDS anion)

CHEMICAL PURITY:

CONCENTRATION:

>98%

LAST TESTED: (mm/dd/yyyy)

07/02/2015

EXPIRY DATE: (mm/dd/yyyy)

07/02/2020

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 ~ 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: 12/07/2015

(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

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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UNCERTAINTY:

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The combined relative standard uncertainty, u_i(y), of a value y and the uncertainty of the independent parameters

 $x_4, x_2,...x_n$ on which it depends is:

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

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:

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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.

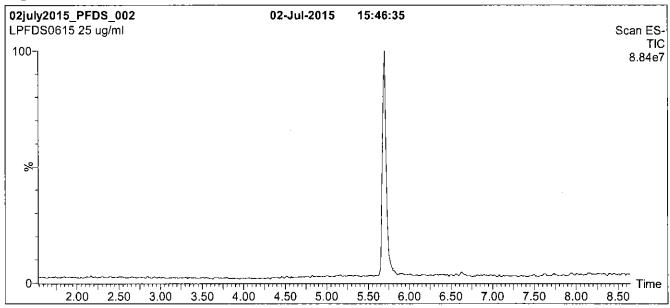
QUALITY MANAGEMENT:

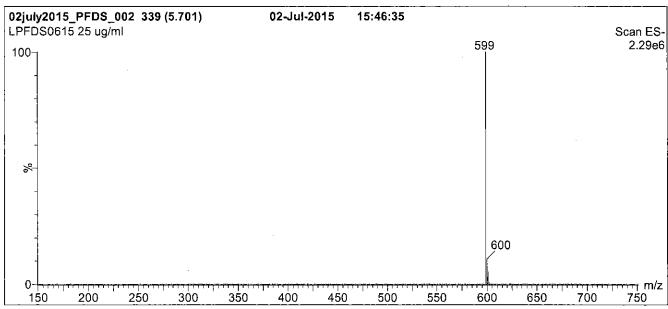
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Figure 1: L-PFDS; LC/MS Data (TIC and Mass Spectrum)





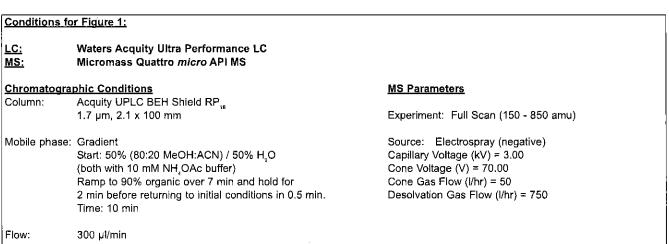
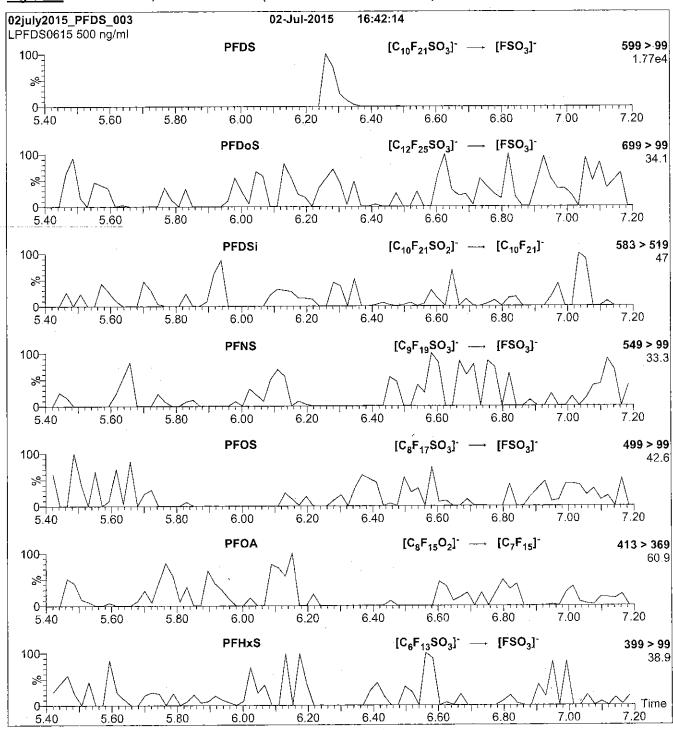
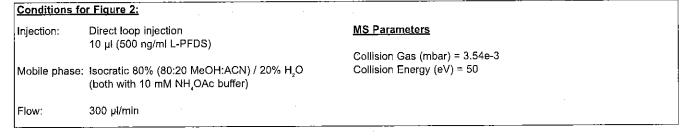


Figure 2: L-PFDS; LC/MS/MS Data (Selected MRM Transitions)





LCPFHpA_00005



ID: LCPFHpA_00005 Exp: 01/22/21 Prpd: CBW PF-n-heptanoic acid

R: 4/7/16 CBW



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHpA

LOT NUMBER:

PFHpA0116

COMPOUND:

Perfluoro-n-heptanoic acid

CAS #:

375-85-9

STRUCTURE:

MOLECULAR FORMULA:

C,HF,O2

CONCENTRATION:

 $50 \pm 2.5 \, \mu g/ml$

MOLECULAR WEIGHT:

364.06

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/22/2016

EXPIRY DATE: (mm/dd/yyyy)

01/22/2021

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

Date: 02/02/2016

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

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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UNCERTAINTY:

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

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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 fisted 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.

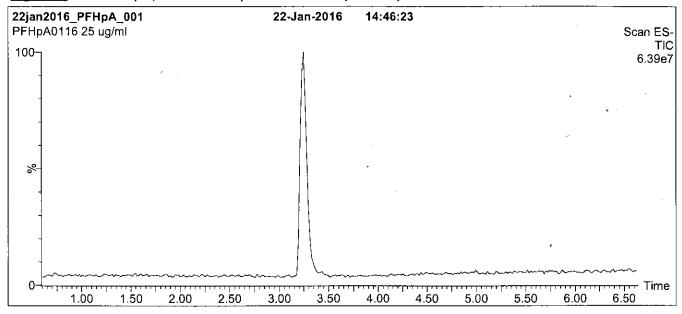
QUALITY MANAGEMENT:

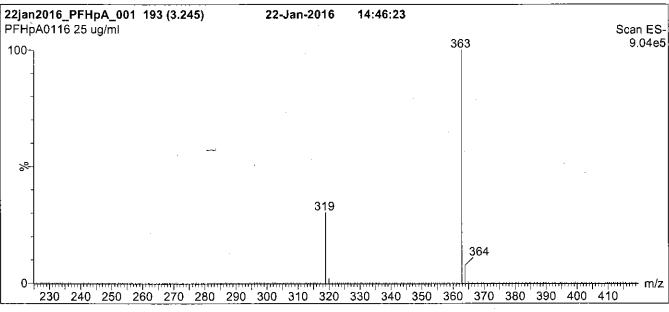
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Figure 1: PFHpA; LC/MS Data (TIC and Mass Spectrum)





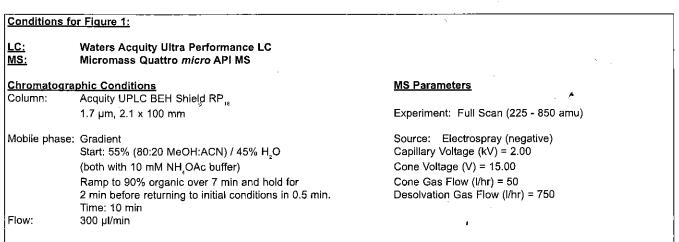
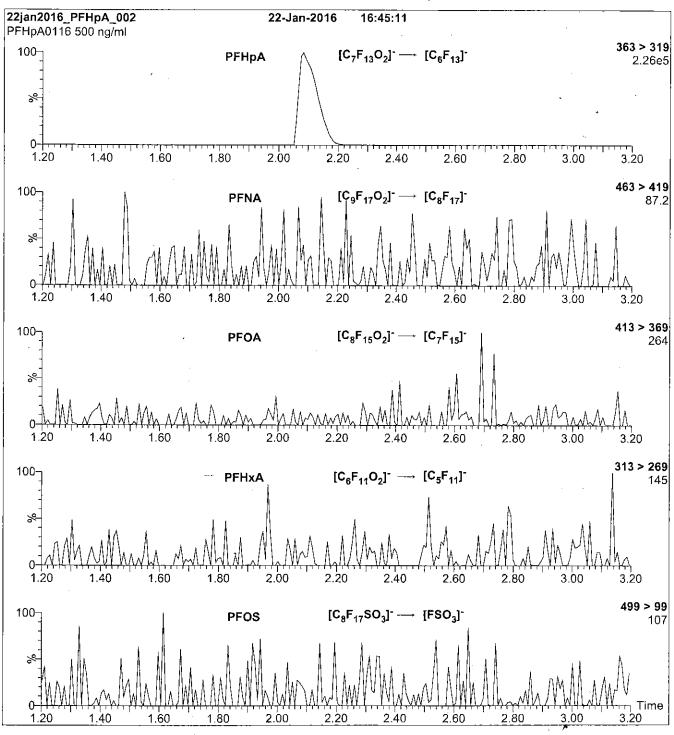
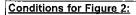


Figure 2: PFHpA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH₄OAc buffer)

Flow:

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3 Collision Energy (eV) = 11

LCPFHpS_00008





CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFHpS

LOT NUMBER:

LPFHpS1115

COMPOUND:

Sodium perfluoro-1-heptanesulfonate

CAS #:

Not available

STRUCTURE:

MOLECULAR FORMULA:

C₇F₁₅SO₃Na

MOLECULAR WEIGHT:

472.10

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu\text{g/ml}$ (Na salt)

 $47.6 \pm 2.4 \mu g/ml$ (PFHpS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/06/2015

EXPIRY DATE: (mm/dd/yyyy)

11/06/2020

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 ~ 0.1% of L-PFHxS (C₂F₄,SO₃Na) and ~ 0.2% of L-PFOS (C₂F₄,SO₃Na).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

Date: 11/09/2015

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

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

$$x_1, x_2, ... x_n$$
 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 $\pm 5\%$ (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.

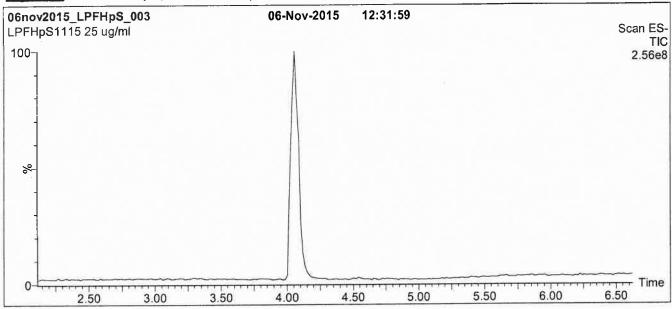
QUALITY MANAGEMENT:

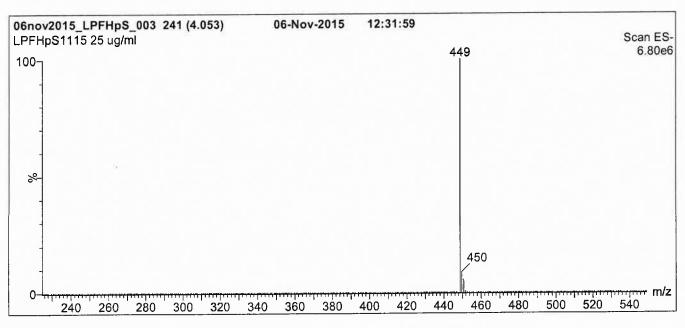
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).





Figure 1: L-PFHpS; LC/MS Data (TIC and Mass Spectrum)





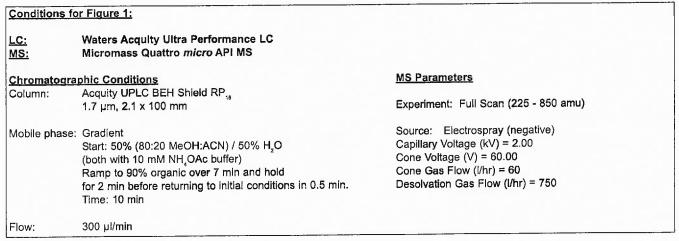
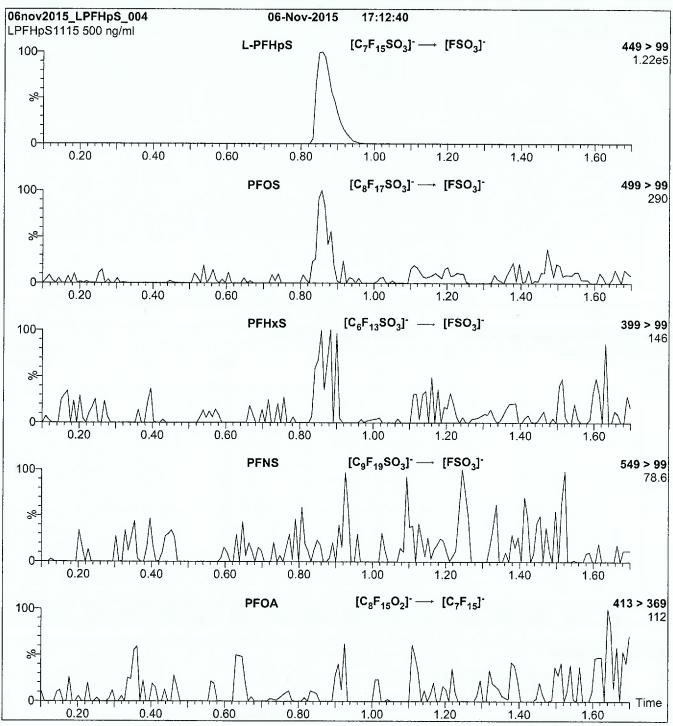
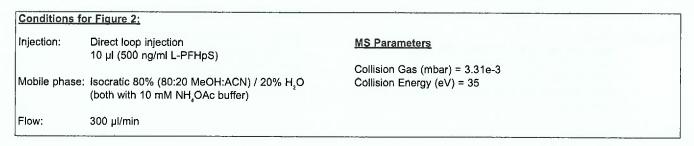


Figure 2: L-PFHpS; LC/MS/MS Data (Selected MRM Transitions)





LCPFHxA_00004

PF-n-hexanoic acid



ELLINGTON BORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFHxA

LOT NUMBER:

PFHxA1215

COMPOUND:

Perfluoro-n-hexanoic acid

STRUCTURE:

CAS #:

307-24-4

MOLECULAR FORMULA:

C,HF,O,

 $50 \pm 2.5 \,\mu g/ml$

MOLECULAR WEIGHT:

CONCENTRATION:

SOLVENT(S):

314.05 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:

Date: 12/23/2015

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LIMITED WARRANTY:

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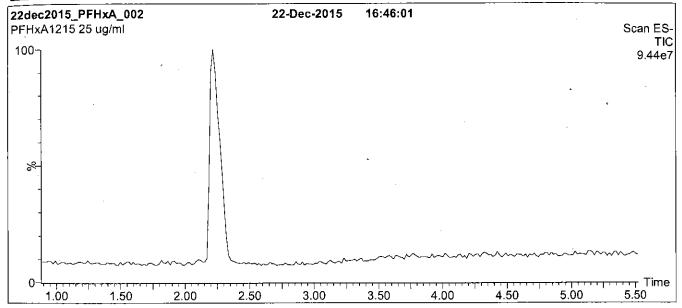
QUALITY MANAGEMENT:

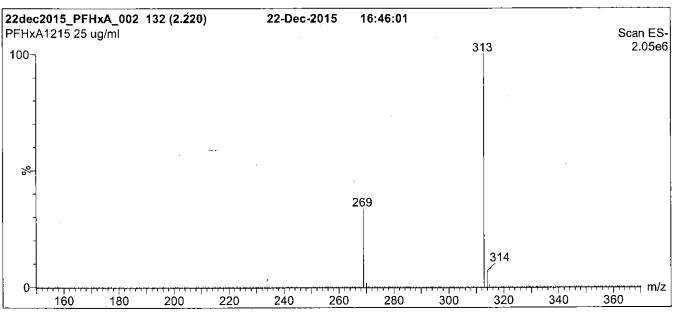
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Figure 1: PFHxA; LC/MS Data (TIC and Mass Spectrum)





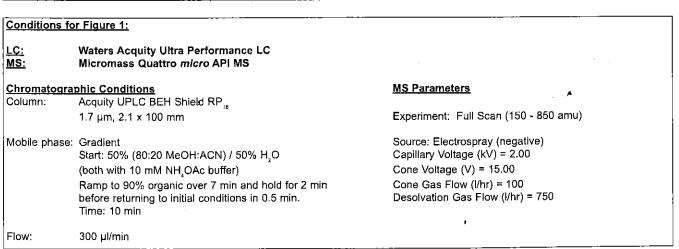
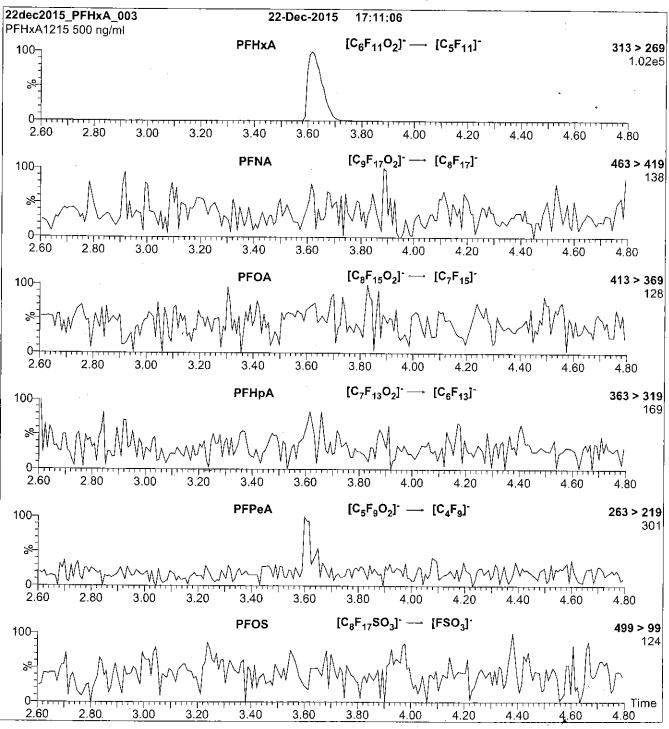
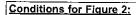


Figure 2: PFHxA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml PFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow:

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3 Collision Energy (eV) = 10

LCPFHxS-br_00001





CERTIFICATE OF ANALYSIS DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:

br-PFHxSK

LOT NUMBER:

brPFHxSK0615

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu\text{g/ml}$ (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 ¹⁹F-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

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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Table A: br-PFHxSK; Isomeric Components and Percent Composition (by 19F-NMR)*

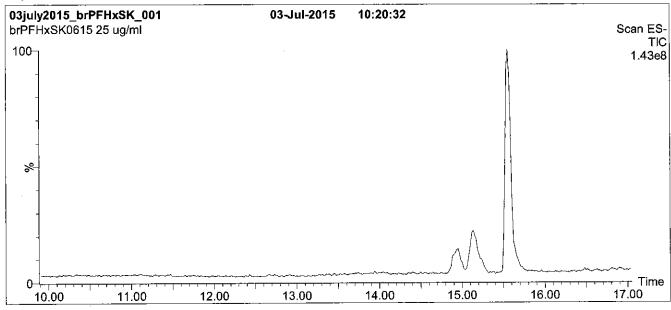
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-hexanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ -K+	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ -K ⁺ CF ₃	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ -K ⁺ CF ₃	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ -K ⁺ CF ₃	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ -K ⁺ CF ₃	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	CF ₃ CF ₃ CCF ₂ CF ₂ SO ₃ -K ⁺ CF ₃	0.2
7	Other Unidentified Isomers		0.5

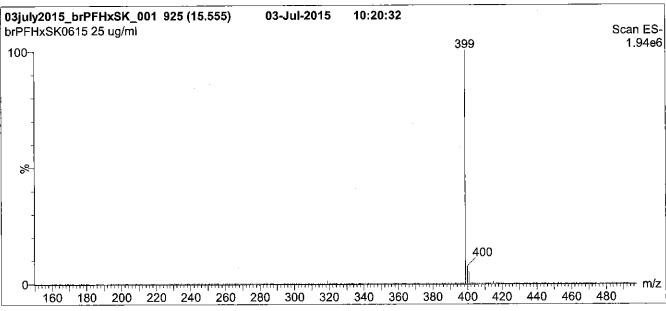
Percent of total perfluorohexanesulfonate isomers only.
Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By:

Date: <u>07/15/2015</u>

Figure 1: br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)





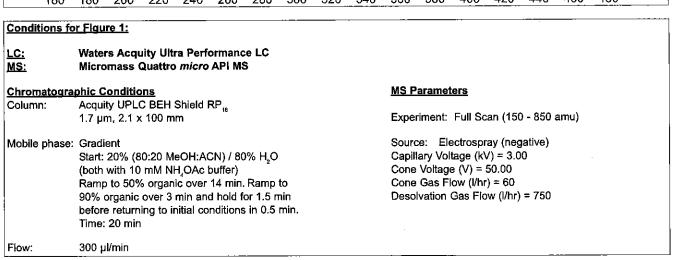
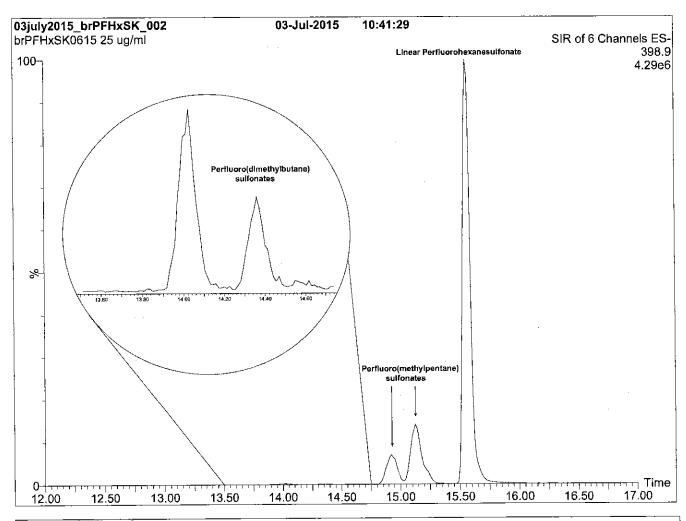


Figure 2: br-PFHxSK; LC/MS Data





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

Chromatographic Conditions

Column:

Acquity UPLC BEH Shield RP,

1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 20% (80:20 MeOH:ACN) / 80% H₂O

(both with 10 mM NH₂OAc 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:

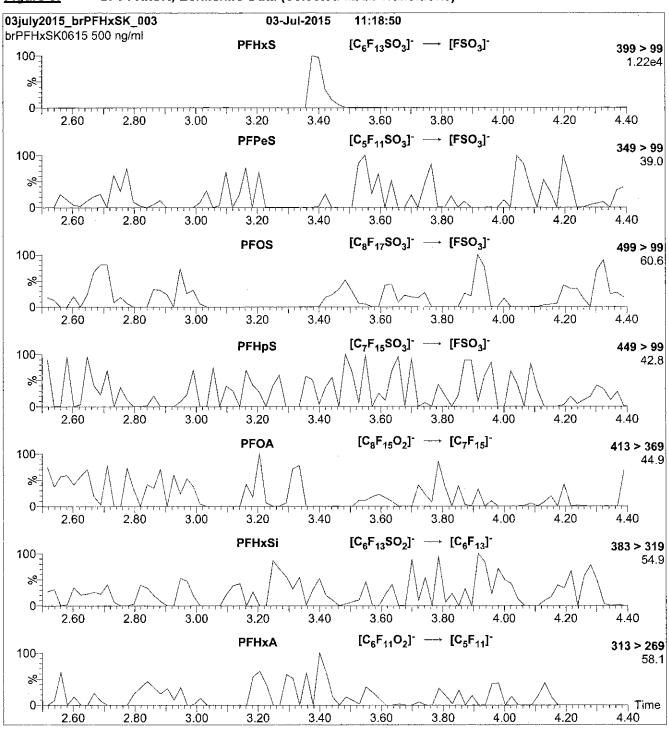
300 µl/min

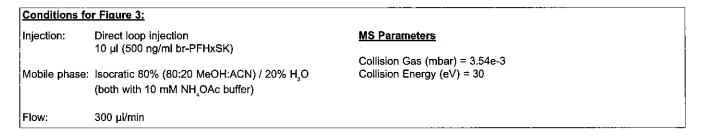
MS Parameters

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)





LCPFNA 00005

Exp: 10/23/20 Prpd: CBW

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFNA

LOT NUMBER:

PFNA1015

COMPOUND:

Perfluoro-n-nonanoic acid

STRUCTURE:

CAS #:

375-95-1

MOLECULAR FORMULA:

C_aHF₁₇O₂

CONCENTRATION:

 $50 \pm 2.5 \, \mu g/ml$

MOLECULAR WEIGHT:

464.08

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/23/2015

EXPIRY DATE: (mm/dd/yyyy)

10/23/2020

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 ~ 0.1% of perfluoro-n-octanoic acid (PFOA) and < 0.1% of perfluoro-n-heptanoic acid (PFHpA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

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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LIMITED WARRANTY:

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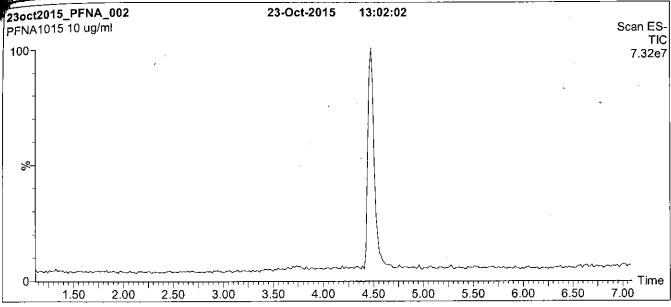
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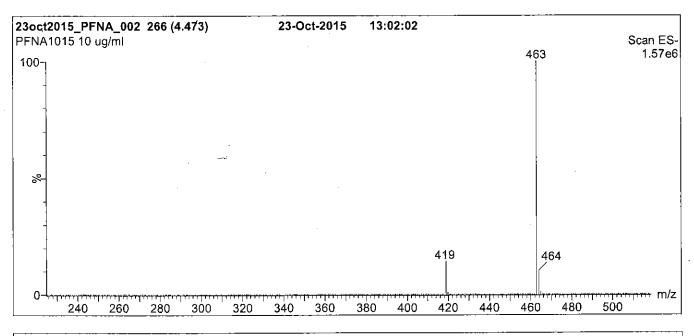




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com







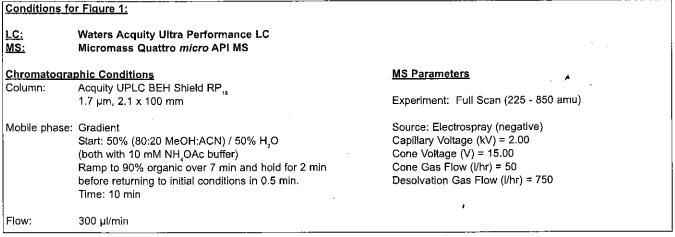
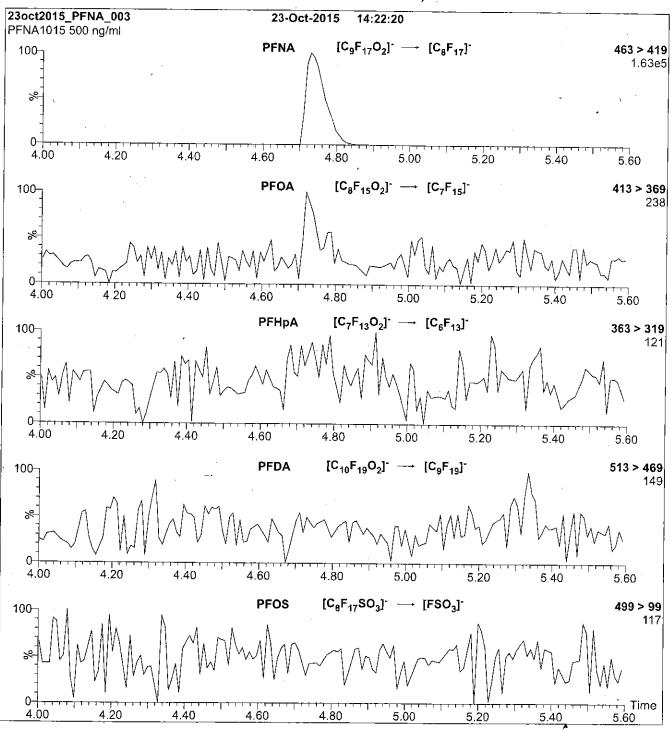
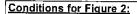


Figure 2: PFNA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 µI (500 ng/ml PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow:

300 µI/min

MS Parameters

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

LCPFNS_00002



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFNS

LOT NUMBER:

LPFNS0712

COMPOUND:

Sodium perfluoro-1-nonanesulfonate

STRUCTURE:

CAS #:

98789-57-2

MOLECULAR FORMULA:

C_aF₁₉SO₃Na

MOLECULAR WEIGHT:

572.12

CONCENTRATION:

 $50.0 \pm 2.5 \mu g/ml$ (Na salt)

 $48.0 \pm 2.4 \mu g/ml$ (PFNS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/04/2012

EXPIRY DATE: (mm/dd/yyyy)

07/04/2017

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: 01/15/2013

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

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. Material Safety Data Sheets (MSDSs) 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, x-ray crystallography and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

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UNCERTAINTY:

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The combined relative standard uncertainty, $u_{x}(y)$, 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 our products.

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration for the period of time specified by the 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:

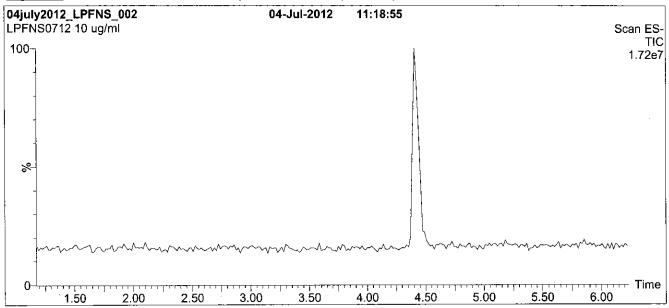
This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

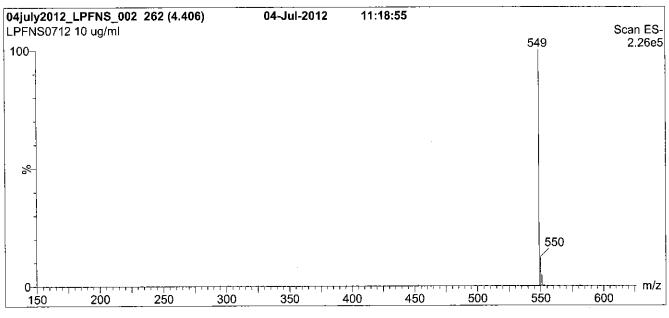




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Figure 1: L-PFNS; LC/MS Data (TIC and Mass Spectrum)





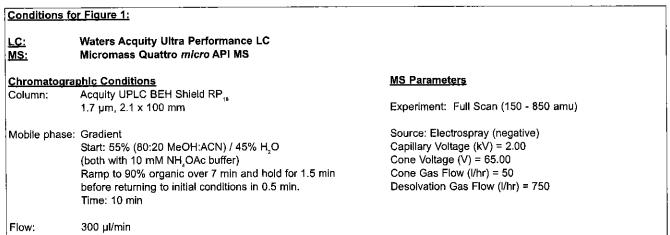
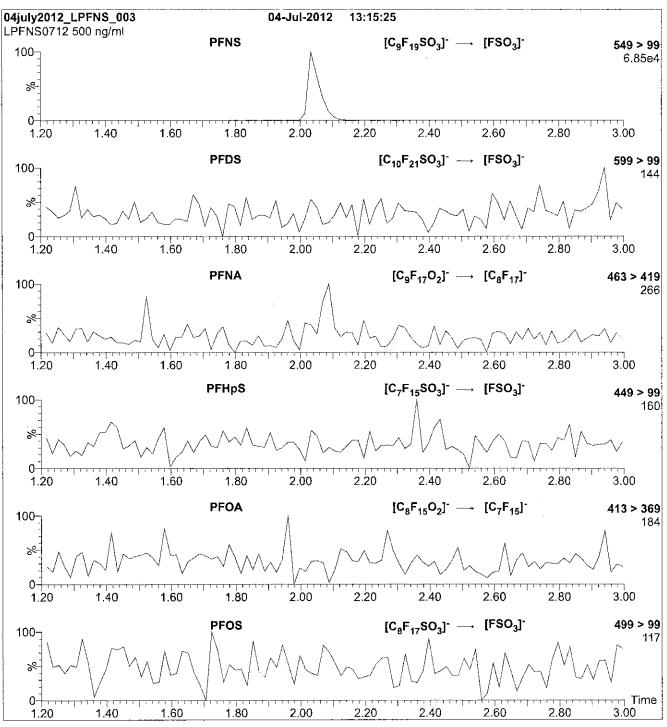
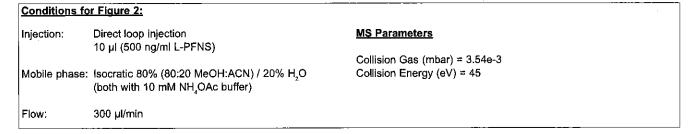


Figure 2: L-PFNS; LC/MS/MS Data (Selected MRM Transitions)





LCPFOA_00005



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFOA

LOT NUMBER:

PFOA1115

COMPOUND:

Perfluoro-n-octanoic acid

STRUCTURE:

CAS #:

335-67-1

MOLECULAR FORMULA:

C, HF, O,

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

414.07

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/06/2015

EXPIRY DATE: (mm/dd/yyyy)

11/06/2020

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

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

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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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

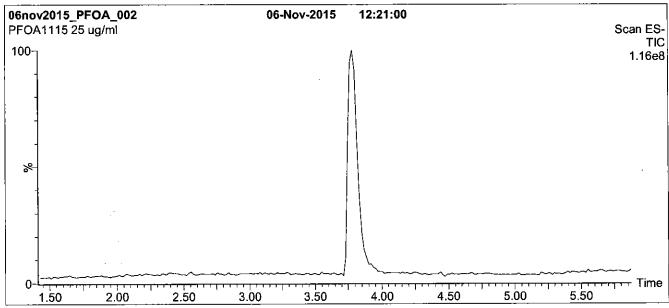
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

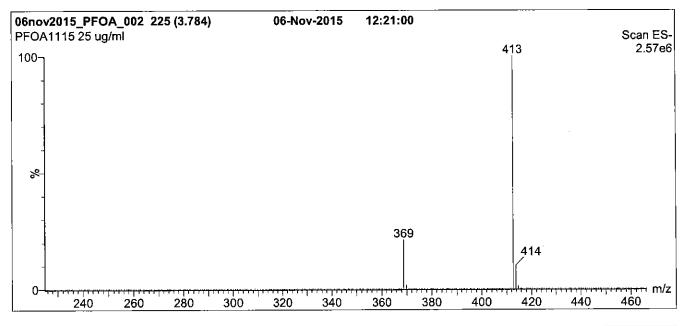




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Figure 1: PFOA; LC/MS Data (TIC and Mass Spectrum)





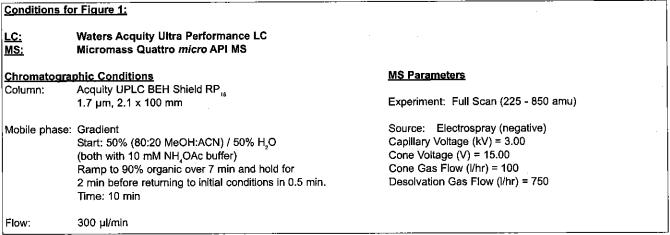
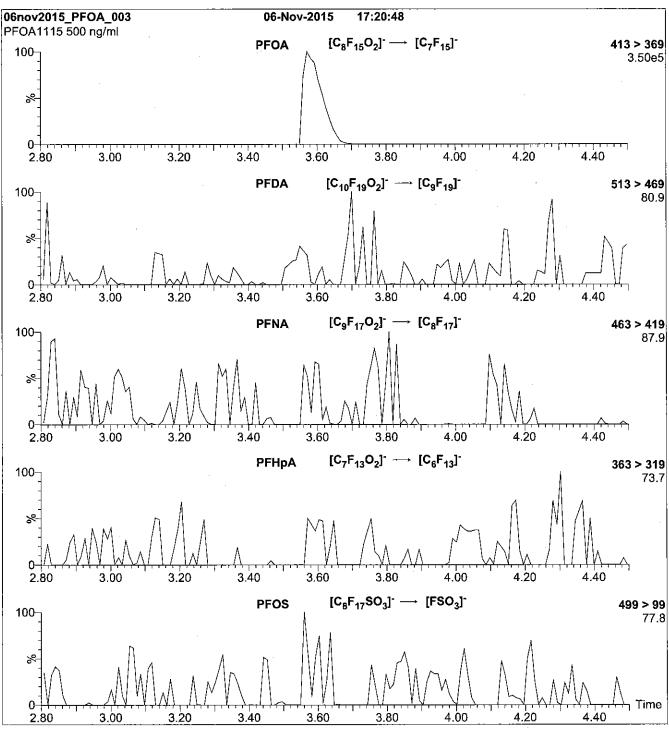
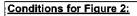


Figure 2: PFOA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 µl (500 ng/ml PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH₂OAc buffer)

Flow:

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3 Collision Energy (eV) = 10

LCPFODA_00005

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0115

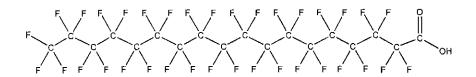
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C, HF, O,

 $50 \pm 2.5 \,\mu g/ml$

MOLECULAR WEIGHT:

914.14

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

CONCENTRATION:

>98%

LAST TESTED: (mm/dd/yyyy)

01/30/2015

EXPIRY DATE: (mm/dd/yyyy)

01/30/2020

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.

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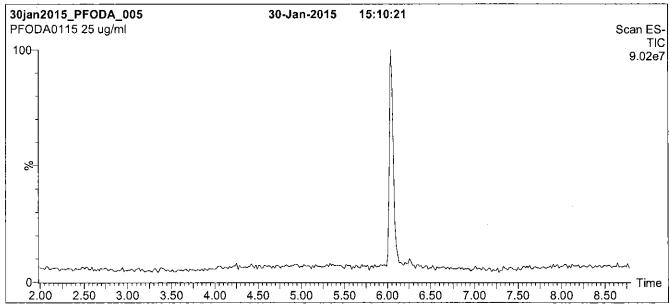
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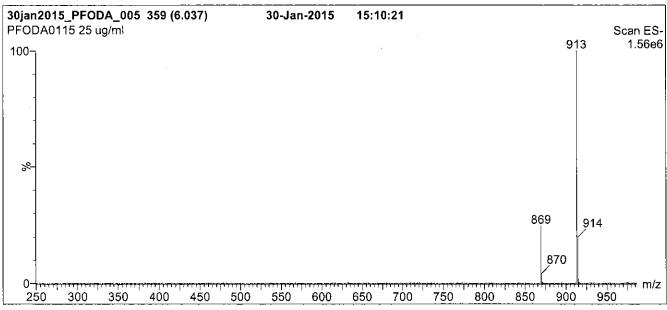




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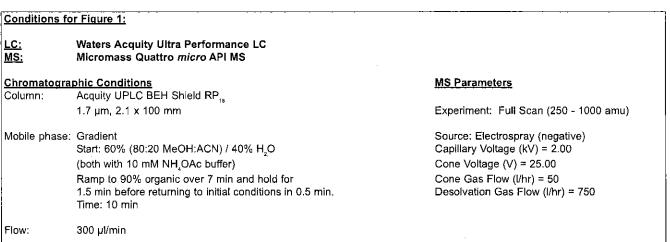
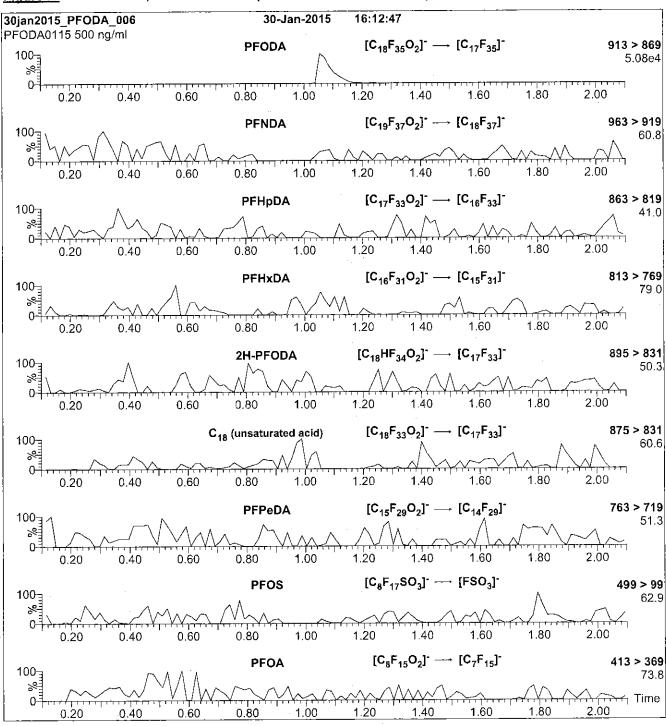
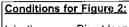


Figure 2: PFODA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml PFODA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% $\rm H_{\rm 2}O$

(both with 10 mM NH₂OAc buffer)

MS Parameters

Collision Gas (mbar) = 3.31e-3 Collision Energy (eV) = 15

Flow:

 $300~\mu\text{l/min}$

LCPFOS-br_00001



CERTIFICATE OF ANALYSIS DOCUMENTATION

<u>br-PFOSK</u>

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT_CODE:

br-PFOSK

LOT NUMBER:

brPFOSK1015

CONCENTRATION:

 $50 \pm 2.5 \,\mu\text{g/ml}$ (total potassium salt)

 $46.4 \pm 2.3 \,\mu\text{g/ml}$ (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 19F-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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Table A: br-PFOSK; Isomeric Components and Percent Composition (by 19F-NMR)*

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-octanesulfonate	CF ₃ CF ₂ SO ₃ K*	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₃ K ⁺ CF ₃	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K* CF ₃	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K* CF ₃	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₃ SO ₃ K ⁺ CF ₃	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CFCF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K [†] CF ₃	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	CF ₃ CFCF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K ⁺ CF ₃	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ CF ₃ -CCF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K ⁺ CF ₃	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ CF ₃ CF ₂ -C-CF ₂ CF ₂ CF ₂ SO ₃ K ⁺ CF ₃	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ -CF-CF-CF ₂ CF ₂ CF ₂ SO ₃ K ⁺ CF ₃ CF ₃	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ -CF-CF ₂ -CF-CF ₂ CF ₂ SO ₃ K ⁺ CF ₃ CF ₃	0.07

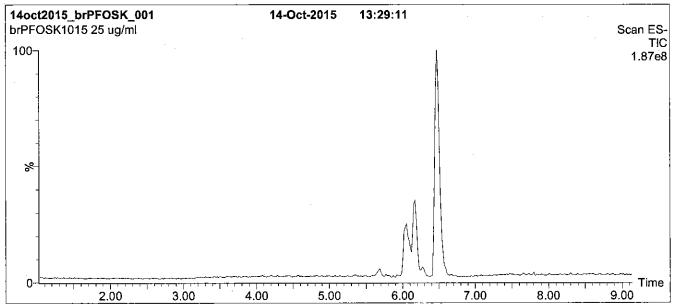
Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
 Systematic Name: Potassium perfluorooctane-2-sulfonate.

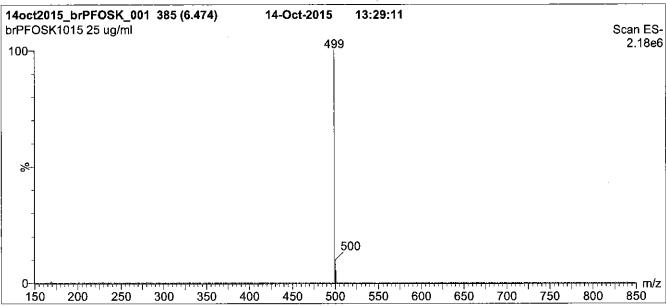
Certified By:

Date:

<u> 10/15/2015</u>

Figure 1: br-PFOSK; LC/MS Data (TIC and Mass Spectrum)





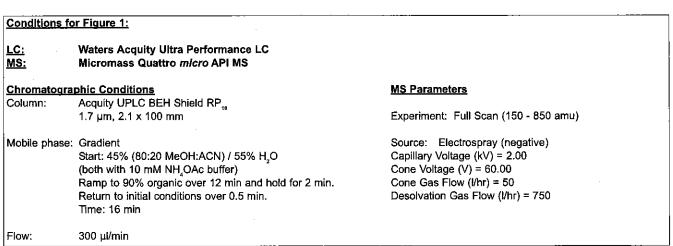
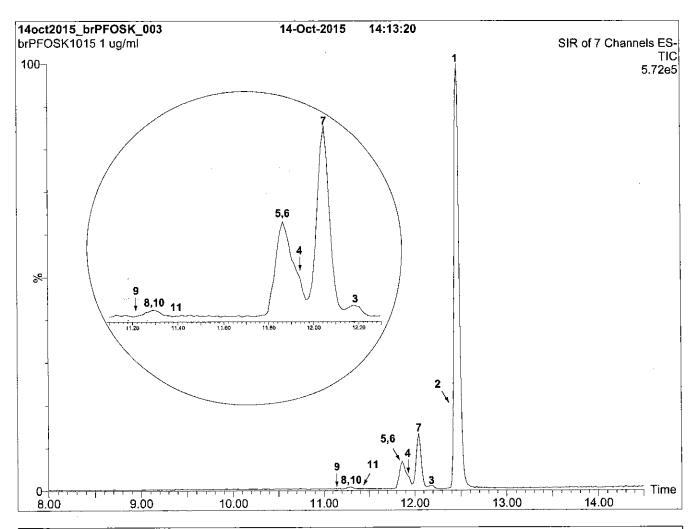


Figure 2: br-PFOSK; LC/MS Data (SIR)



Conditions for Figure 2:

<u>LC:</u> MS: Waters Acquity Ultra Performance LC Micromass Quattro micro API MS

Chromatographic Conditions:

Column:

Acquity UPLC BEH Shield RP18 (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% H₂O (both with 10 mM NH₂OAc buffer)

Ramp to 90% organic over 15 min and hold for 3 min. Return to initial conditions over 1 min.

Time: 20 min

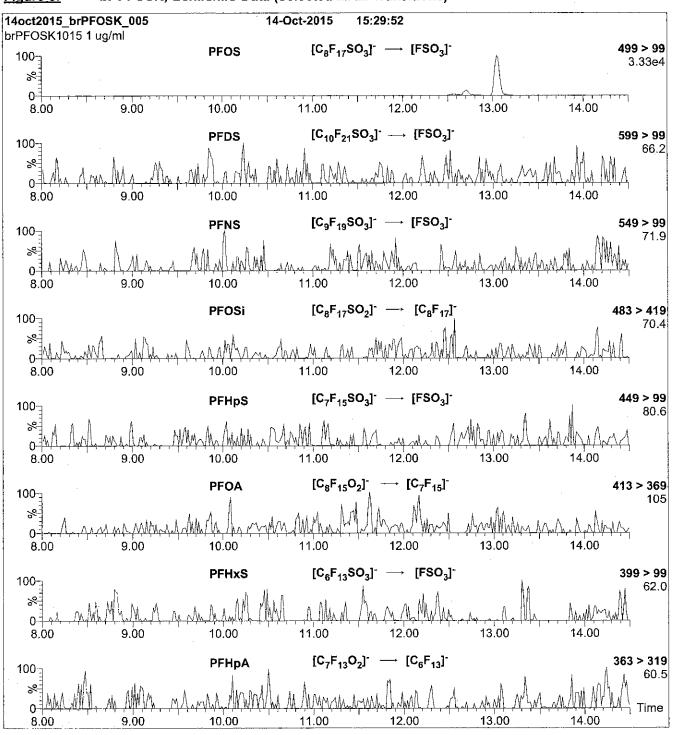
Flow:

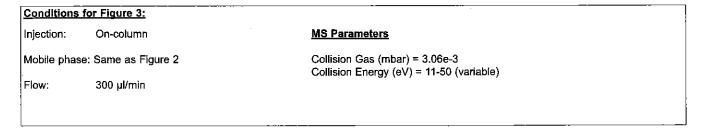
300 µl/min

MS Conditions:

SIR (ES') Source = 110 °C Desolvation = 325 °C Cone Voltage = 60V

Figure 3: br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)





LCPFOSA_00006



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FOSA-I

LOT NUMBER:

MOLECULAR WEIGHT:

SOLVENT(S):

FOSA0815I

COMPOUND:

Perfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

754-91-6

499.14

Isopropanol

F F F F F F F

MOLECULAR FORMULA:

C,H,F,,NO,S

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/02/2015

EXPIRY DATE: (mm/dd/yyyy)

09/02/2017

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:

(mm/dd/vvvv)

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

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, $u_{\epsilon}(y)$, of a value y and the uncertainty of the independent parameters

$$x_{ij} x_{ij} ... x_{ij}$$
 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:

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:

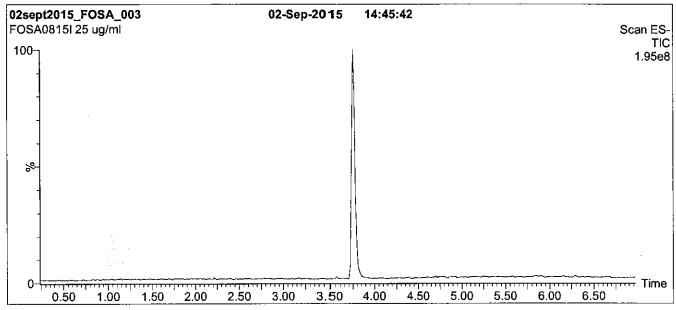
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

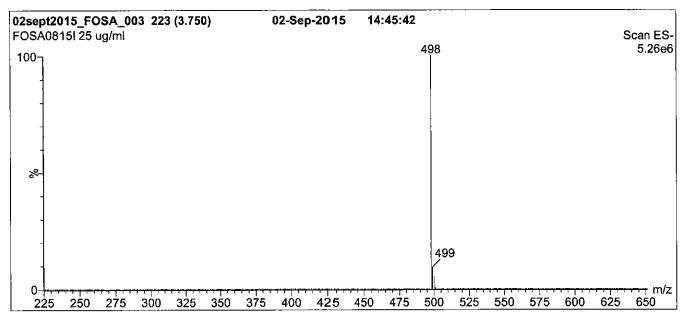




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Figure 1: FOSA-I; LC/MS Data (TIC and Mass Spectrum)





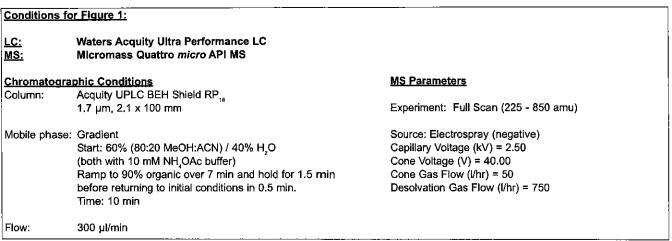
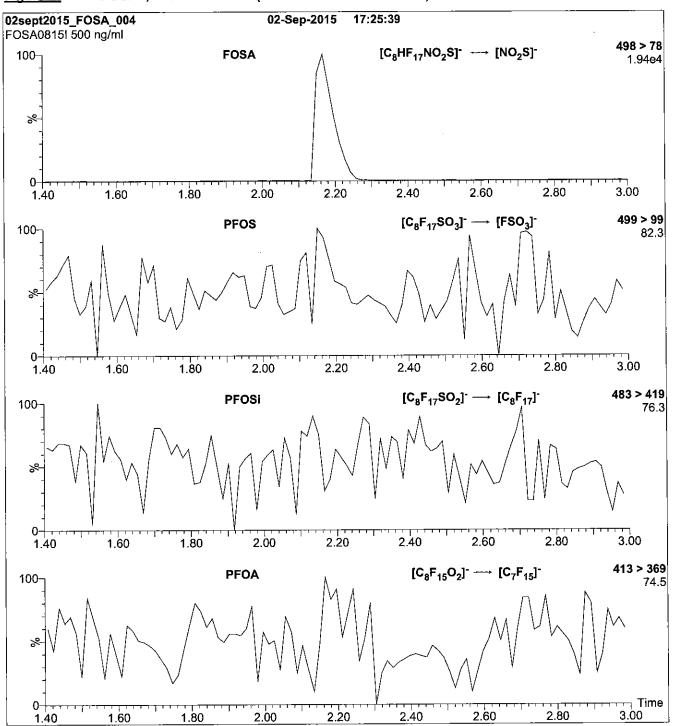
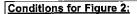


Figure 2: FOSA-I; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% $\rm H_{\rm 2}O$

(both with 10 mM NH,OAc buffer)

Flow:

300 µl/min

MS Parameters

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

LCPFPeA_00004



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFPeA

LOT NUMBER:

PFPeA0115

COMPOUND:

Perfluoro-n-pentanoic acid

STRUCTURE:

CAS #:

2706-90-3

MOLECULAR FORMULA:

C,HF,O,

MOLECULAR WEIGHT:

264.05

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

01/30/2015

EXPIRY DATE: (mrn/dd/yyyy)

01/30/2020

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 ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By

B G Chiltim

Date:

<u>U3/26/2015</u>

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(y), of a value y and the uncertainty of the independent parameters

 x_{ij} x_{2i} ... x_{n} on which it depends is:

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

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:

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:

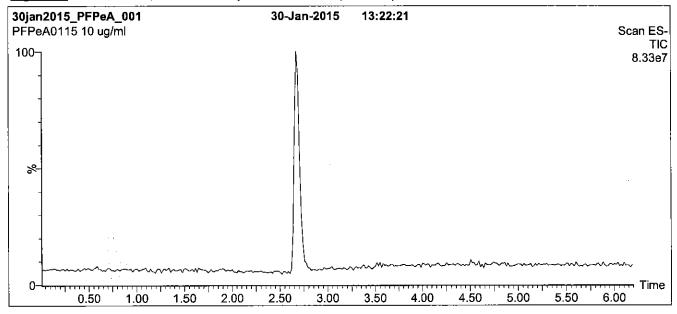
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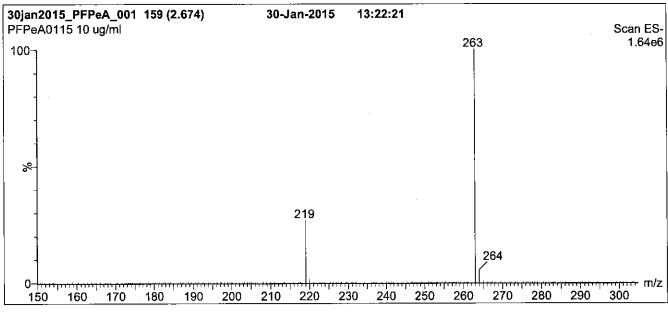




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Figure 1: PFPeA; LC/MS Data (TIC and Mass Spectrum)





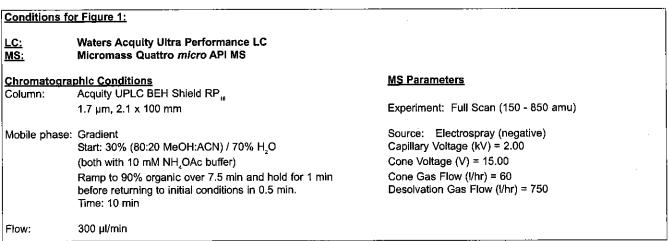
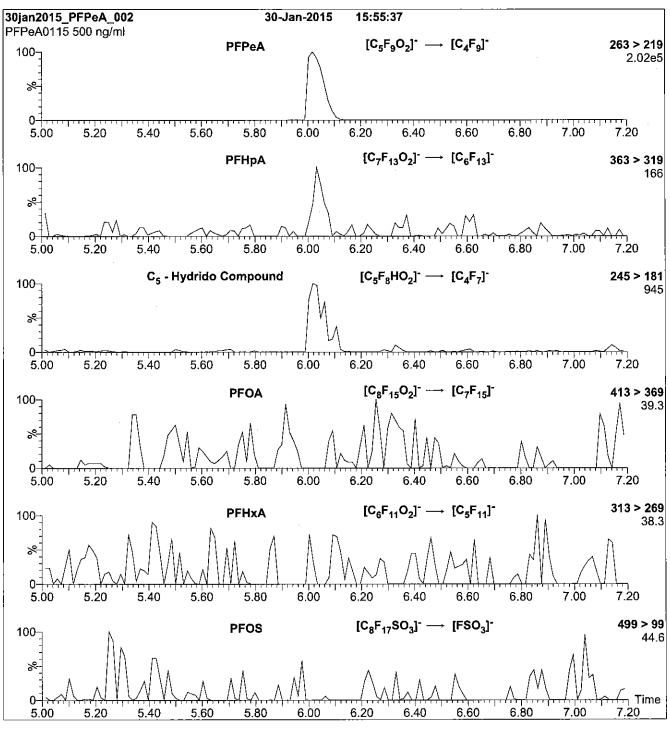
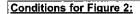


Figure 2: PFPeA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 µl (500 ng/ml PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow:

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3 Collision Energy (eV) = 9

Reagent

LCPFPeS_00002



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPe\$

LOT NUMBER:

LPFPeS0712

COMPOUND:

Sodium perfluoro-1-pentanesulfonate

STRUCTURE:

CAS #:

Not available

MOLECULAR FORMULA:

C₅F₄SO₃Na

MOLECULAR WEIGHT:

372.09

CONCENTRATION:

 $50.0 \pm 2.5 \,\mu g/ml$ (Na salt)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/04/2012

EXPIRY DATE: (mm/dd/yyyy)

RECOMMENDED STORAGE:

07/04/2017 Store ampoule in a cool, dark place

 $46.9 \pm 2.3 \mu g/ml$ (PFPeS anion)

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: 01/15/2013

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. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

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. Material Safety Data Sheets (MSDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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UNCERTAINTY:

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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 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 17025:2005 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 for the period of time specified by the 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:

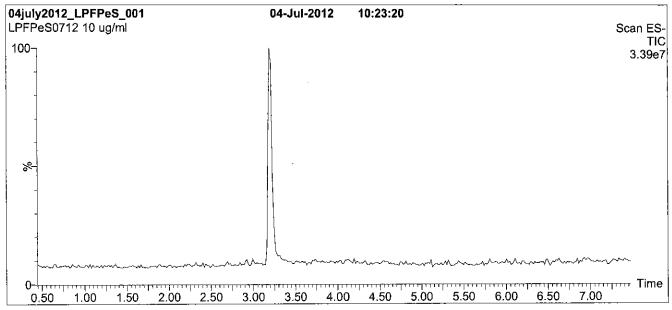
This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

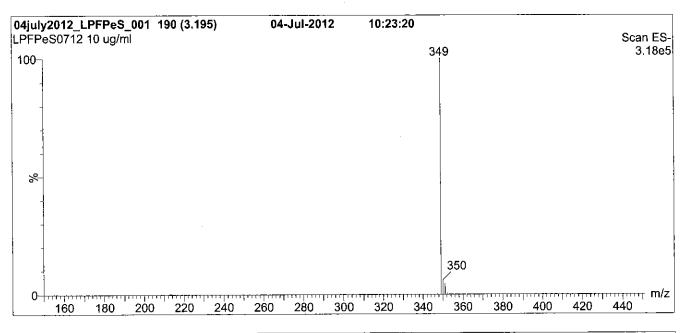


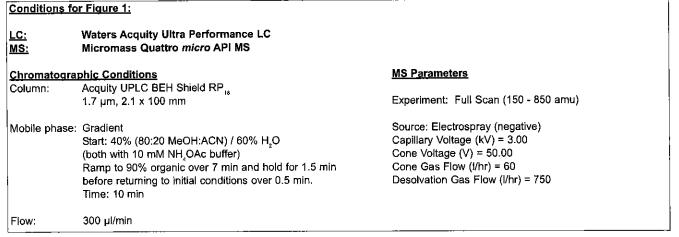


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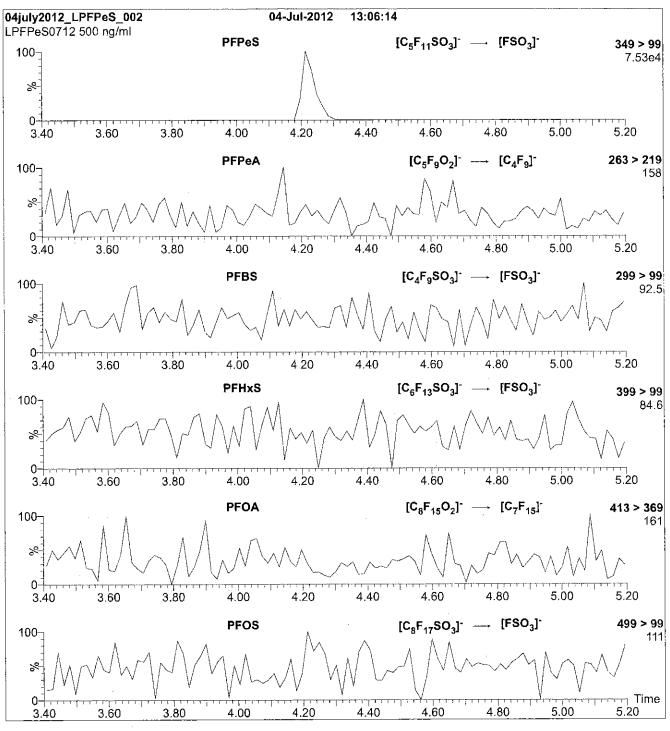
Figure 1: L-PFPeS; LC/MS Data (TIC and Mass Spectrum)

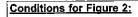






L-PFPeS; LC/MS/MS Data (Selected MRM Transitions) Figure 2:





Injection:

Direct loop injection

10 μl (500 ng/ml L-PFPeS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow:

300 µl/min

MS Parameters

Collision Gas (mbar) = 3.66e-3

Collision Energy (eV) = 30

Reagent

LCPFTeDA_00004

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFTeDA

LOT NUMBER:

PFTeDA1215

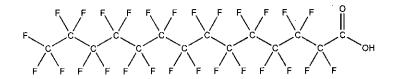
COMPOUND:

Perfluoro-n-tetradecanoic acid

STRUCTURE:

CAS #:

376-06-7



MOLECULAR FORMULA:

C, HF, O,

MOLECULAR WEIGHT:

714.11

50 ± 2.5 µg/ml SOLVENT(S): Methanol Water (<1%)

CHEMICAL PURITY:

CONCENTRATION:

>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 ($C_{15}HF_{24}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

Date: 12/09/2015

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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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:

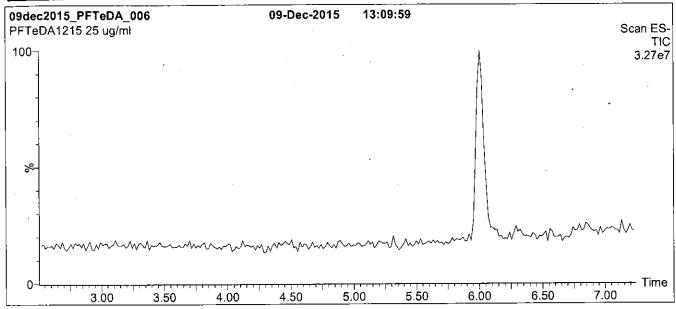
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

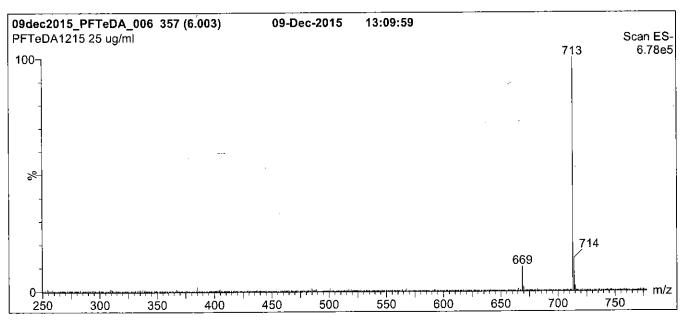




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





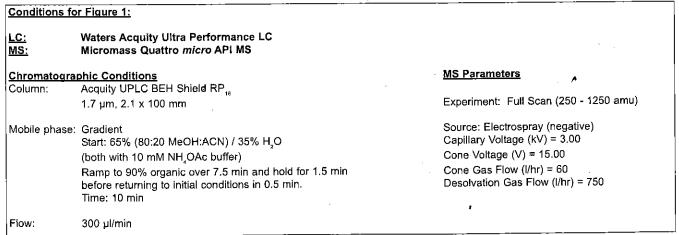
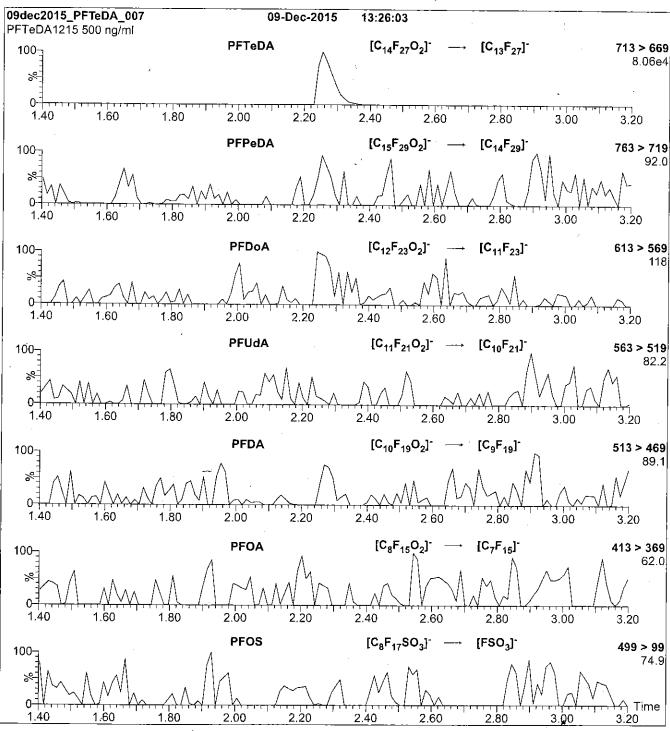
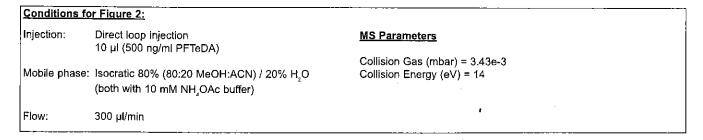


Figure 2: PFTeDA; LC/MS/MS Data (Selected MRM Transitions)





Reagent

LCPFTrDA_00004



ID: LCPFTrDA_00004 Exp: 12/10/18 Prpd: CBW PF-n-tridecanoic acid



CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFTrDA

LOT NUMBER:

PFTrDA1213

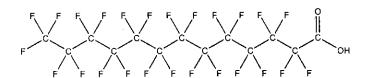
COMPOUND:

Perfluoro-n-tridecanoic acid

STRUCTURE:

CAS#:

72629-94-8



MOLECULAR FORMULA:

C, HF, O,

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

664.11

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

CONCENTRATION:

>98%

LAST TESTED: (mm/dd/yyyy)

12/10/2013

EXPIRY DATE: (mm/dd/yyyy)

12/10/2018

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,4HF,7O,).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

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

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, $u_{\epsilon}(y)$, 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:

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:

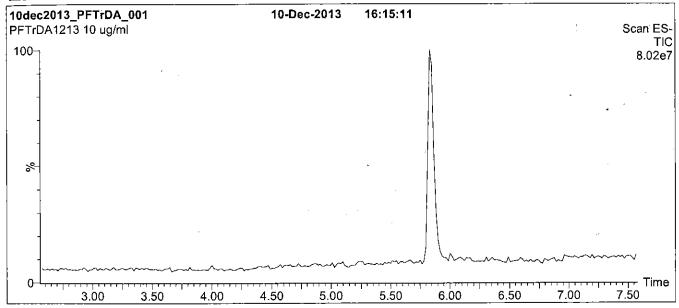
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDÉ 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

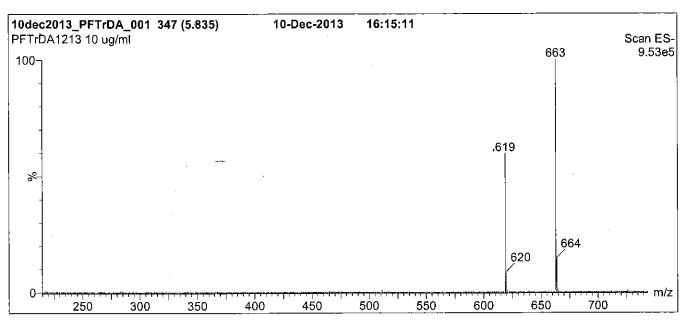




For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com







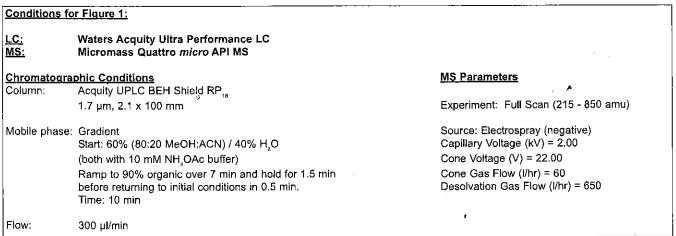
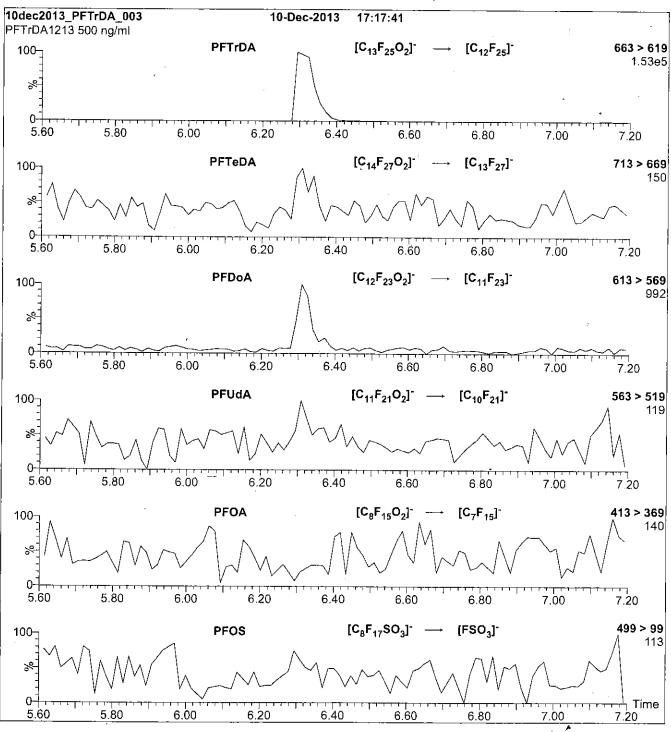
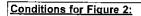


Figure 2: PFTrDA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Direct loop injection

10 μl (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH,OAc buffer)

Flow:

300 µl/min

MS Parameters

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

Reagent

LCPFUdA_00004





CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFUdA

LOT NUMBER:

PFUdA0815

COMPOUND:

Perfluoro-n-undecanoic acid

CAS #:

2058-94-8

STRUCTURE:

F C C C C C C C C C OH

MOLECULAR FORMULA:

C₁₁HF₂₁O₂

MOLECULAR WEIGHT:

564.09

CONCENTRATION:

 $50 \pm 2.5 \,\mu g/ml$

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/19/2015

EXPIRY DATE: (mm/dd/yyyy)

08/19/2020

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.C. Chittim

Date:

<u>08/21/2015 </u>

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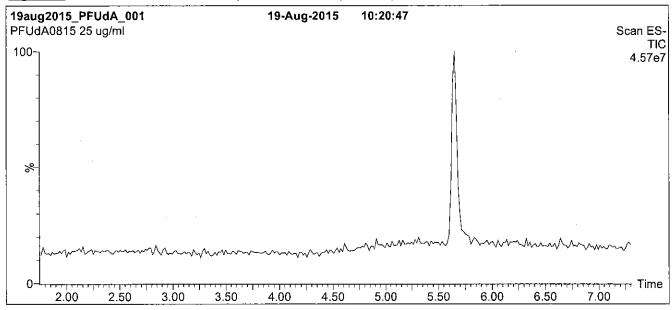
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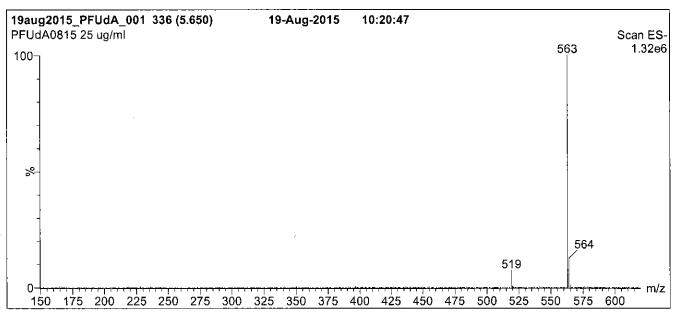




^{**}For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com**

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





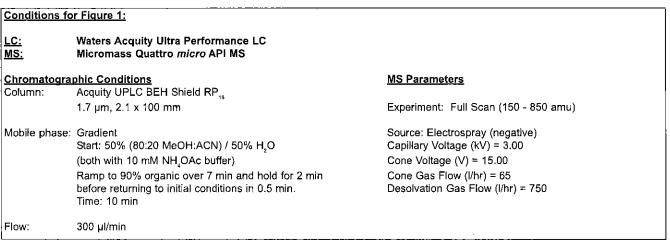
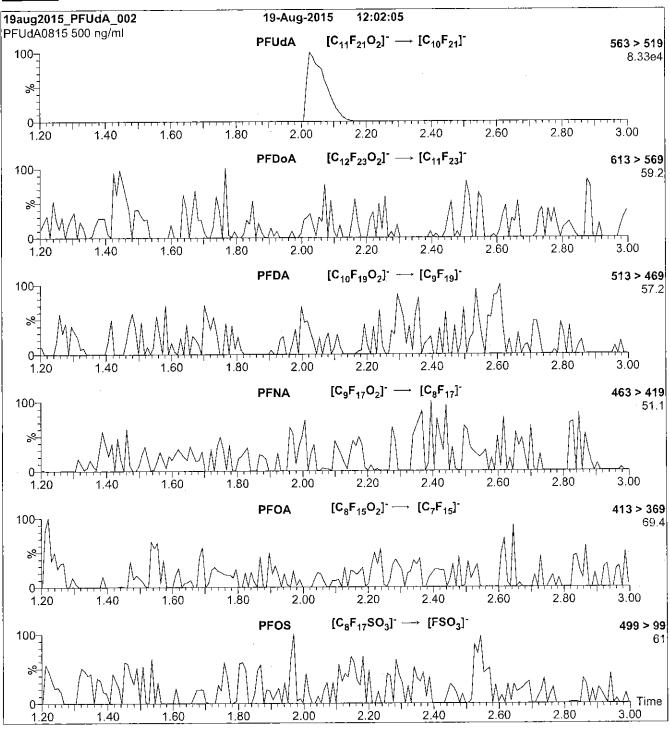
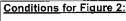


Figure 2: PFUdA; LC/MS/MS Data (Selected MRM Transitions)





Injection:

Flow:

Direct loop injection

10 μl (500 ng/ml PFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O

(both with 10 mM NH OAc buffer)

300 µl/min

MS Parameters

Collision Gas (mbar) ≈ 3.31e-3 Collision Energy (eV) = 11

Form#:27, Issued 2004-11-10

Revision#:3, Revised 2015-03-24

Method PFC DOD

Perfluronated Hydrocarbons (LC/MS) by Method PFC_DOD

FORM II LCMS SURROGATE RECOVERY

Lab	Name:	TestAmerica	Sacramento	Job No.:	320-21044-1
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SDG No.: ____

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFHxA #	13CHpA #	PFHxS #	PFOA #	PFOS #	PFNA #
FB081716	320-21044-1	140	148	142	149	141	137 M
EB081716	320-21044-2	134	144	136	139	131	134
MCFSMW-3_0816	320-21044-3	84	80	91	89	102	62
MCFSMW-3_0816 DL	320-21044-3 DL	110	91	110	99	113	77
46MW05_0816	320-21044-4	96	89	109	91	105	58
46MW05_0816 DL	320-21044-4 DL	123	114	138	117	133	91
46MW03_0816	320-21044-5	100	109	126	104	132	83
MCFSMW-14_0816	320-21044-6	101	109	126	102	128	92
MCFSMW-4_0816	320-21044-7	78	88	104	89	117	86
MCFSMW-5_0816	320-21044-8	90	100	119	95	117	75
	MB 320-123451/1-A	130	147	133	139	130	129
	LCS 320-123451/2-A	123	131	128	131	125	120
	LCSD 320-123451/3-A	128	137	132	135	128	122

	QC LIMITS
PFHxA = 13C2 PFHxA	25-150
13CHpA = 13C4-PFHpA	25-150
PFHxS = 1802 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	25-150
PFNA = 13C5 PFNA	25-150

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name	e: TestAmerica Sacr	amento	Job No.:	320-	-21044-1		
SDG No.:	:						
Matrix:	Water	Level: Low	Lab File	ID:	03SEP2016D_006_p1_e1.d		
Lab ID:	LCS 320-123451/2-A		Client ID	:			

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ng/L)	(ng/L)	REC	REC	
13C2 PFHxA	100	123	123	25-150	
13C4 PFOA	100	131	131	25-150	
13C4 PFOS	95.6	119	125	25-150	
13C4-PFHpA	100	131	131	25-150	
13C5 PFNA	100	120	120	25-150	
1802 PFHxS	94.6	121	128	25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	34.2	97	50-150	
Perfluoroheptanoic acid (PFHpA)	40.0	36.6	91	60-140	
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.2	86	60-140	
Perfluorononanoic acid (PFNA)	40.0	36.5	91	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	29.5	79	60-140	
Perfluorooctanoic acid (PFOA)	40.0	37.9	95	60-140	

[#] Column to be used to flag recovery and RPD values FORM III 537 (Modified)

FORM III LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name	e: TestAmerica Sa	acramento	Job	No.:	320-	-21044-1
SDG No.	:					
Matrix:	Water	Level: Low	Lab	File	ID:	03SEP2016D_007_p1_e1.d

Lab ID: LCSD 320-123451/3-A Client ID:

	SPIKE ADDED	LCSD CONCENTRATION	LCSD	90	QC L	QC LIMITS	
COMPOUND	(ng/L)	(ng/L)	REC	RPD	RPD	REC	#
13C2 PFHxA	100	128	128			25-150	
13C4 PFOA	100	135	135			25-150	
13C4 PFOS	95.6	123	128			25-150	
13C4-PFHpA	100	137	137			25-150	
13C5 PFNA	100	122	122			25-150	
1802 PFHxS	94.6	125	132			25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	34.6	98	1	30	50-150	
Perfluoroheptanoic acid (PFHpA)	40.0	35.4	89	3	30	60-140	
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.8	87	2	30	60-140	
Perfluorononanoic acid (PFNA)	40.0	36.6	91	0	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	30.0	81	2	30	60-140	
Perfluorooctanoic acid (PFOA)	40.0	36.6	91	4	30	60-140	

[#] 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.: 320-21044-1
SDG No.:	
Lab File ID: 03SEP2016D_005_p1_e1.d	Lab Sample ID: MB 320-123451/1-A
Matrix: Water	Date Extracted: 08/22/2016 13:34
Instrument ID: A8	Date Analyzed: 09/04/2016 13:08
Level: (Low/Med) Low	

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

		LAB		
CLIENT SAMPLE ID	LAB SAMPLE ID	FILE ID	DATE ANALY	YZED
	LCS 320-123451/2-A	03SEP2016D	09/04/2016	13:16
		006 p1 e1.d		
	LCSD 320-123451/3-A	03SEP2016D_	09/04/2016	13:23
		007_p1_e1.d		
FB081716	320-21044-1	03SEP2016D_	09/04/2016	13:31
		008_p1_e1.d		
EB081716	320-21044-2	03SEP2016D_	09/04/2016	13:38
		009_p1_e1.d		
MCFSMW-3_0816	320-21044-3	03SEP2016D_	09/04/2016	13:46
		010 p1 e1.d		
46MW05_0816	320-21044-4	03SEP2016D_	09/04/2016	13:54
		011_p1_e1.d		
46MW03_0816	320-21044-5	03SEP2016D_	09/04/2016	14:01
		012 p1 e1.d		
MCFSMW-14_0816	320-21044-6	03SEP2016D_	09/04/2016	14:08
		013_p1_e1.d		
MCFSMW-4_0816	320-21044-7	03SEP2016D_	09/04/2016	14:16
		014 p1 e1.d		
MCFSMW-5_0816	320-21044-8	03SEP2016D_	09/04/2016	14:54
		019_p1_e1.d		
MCFSMW-3_0816 DL	320-21044-3 DL	19SEP2016B_	09/19/2016	20:40
		019_p1_e1.d		
46MW05_0816 DL	320-21044-4 DL	19SEP2016B_	09/19/2016	20:48
		020 p1 e1.d		

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: FB081716 Lab Sample ID: 320-21044-1

Matrix: Water Lab File ID: 03SEP2016D_008_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 10:20

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 551.1(mL) Date Analyzed: 09/04/2016 13:31

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.4		2.3	1.8	0.73
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.4		2.3	1.8	0.79
375-95-1	Perfluorononanoic acid (PFNA)	1.8	U	2.3	1.8	0.59
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9	JМ	3.6	2.7	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	2.7	М	2.3	1.8	0.68

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	140		25-150
STL00990	13C4 PFOA	149		25-150
STL00991	13C4 PFOS	141		25-150
STL01892	13C4-PFHpA	148		25-150
STL00995	13C5 PFNA	137	М	25-150
STL00994	1802 PFHxS	142		25-150

Report Date: 17-Sep-2016 12:06:18 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_008_p1_e1.d

Lims ID: 320-21044-A-1-A

Client ID: FB081716 Sample Type: Client

Inject. Date: 04-Sep-2016 13:31:00 ALS Bottle#: 0 Worklist Smp#: 8

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 11:33:44

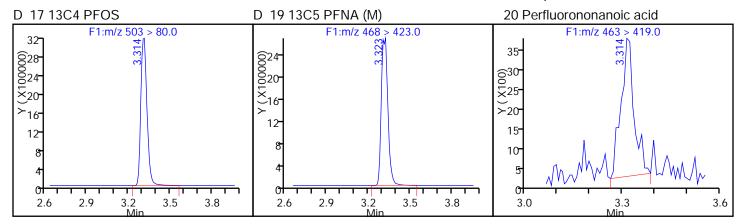
r irst Level Reviewer, barriettj					Date.		17-3ep-2010 11.33.44				
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid											
:	298.9 > 80.0	1.942	1.944	-0.002	1.000	145605	0.3736				
	298.9 > 99.0	1.942	1.944	-0.002	1.000	61846		2.35(0.00-0.00)			
	0 6 13C2 PFHx										
	315 > 270.0	2.209	2.213	-0.004		10122805	70.1		140	122643	8
) 11 13C4-PFH _I										
	367 > 322.0	2.559	2.556	0.003		9669752	73.9		148	550566	
	12 Perfluorohe	•		0.000	1 000	2/5522	1.00			2072	
•	363 > 319.0	2.559	2.556	0.003	1.000	265500	1.32			2872	
	9 Perfluorohex				1 000	2/2120	1 22				
	399 > 80.0	2.574	2.571	0.003	1.000	363120	1.32				
) 10 18O2 PFH: 403 > 84.0	xS 2.574	2.571	0.003		12113979	67.0		142	715173	
•	15 Perfluorooct			0.003		12113777	07.0		142	713173	М
	413 > 369.0	2.937	.iu 2.919	0.018	1.000	336410	1.49			4260	M
	413 > 169.0	2.929	2.919	0.010	0.997	226161	1.17	1.49(0.90-1.10)			M
Г	D 14 13C4 PFO	Α						,			
	417 > 372.0	2.929	2.928	0.001		10882883	74.6		149	439337	
	18 Perfluorooct	tane sulf	onic acid	t							М
	499 > 80.0	3.188	3.195	-0.006	1.000	383186	1.60			13318	
4	499 > 99.0	3.305	3.195	0.111	1.037	124803		3.07(0.90-1.10)		6766	M
	0 17 13C4 PFO	S									
ļ	503 > 80.0	3.314	3.304	0.010		9761196	67.4		141	522363	
) 19 13C5 PFN										M
4	468 > 423.0	3.323	3.312	0.011		8705976	68.3		137	438993	M
	20 Perfluoronoi										
4	463 > 419.0	3.314	3.312	0.002	1.000	10041	0.0569			296	

Report Date: 17-Sep-2016 12:06:18 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Report Date: 17-Sep-2016 12:06:18 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:31:00 Instrument ID: **A8** Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1 Client ID: FB081716 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 8 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: LC PFC_DOD ICAL PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298,9 > 80.0 F1:m/z 298,9 > 99.0 F1:m/z 315 > 270.0 56 35⁻ 00030 25⁻ 24 (000140 × 32 ∑₁₆-_20 24 15 16 10 1.9 1.8 2.1 2.2 1.8 1.5 2.4 1.6 1.5 2.4 2.7 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid F1:m/z 363 > 319.0 F1:m/z 367 > 322.0F1:m/z 399 > 80.0 91 91 ©30 00 025 (278- 65 265 265 ∑65 _ ≻52 -52 15 39 39 10 26 26 13 13 2.9 2.8 2.2 3.1 2.3 2.6 1.9 2.8 2.0 2.5 2.5 3.4 2.2 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 F1:m/z 413 > 169.0 42 48 77 836 666 666 0641**-**1534**-**≥30 × × ×24 ×55- ≻27 >₄₄-18 20 33 12 22 13 11 2.2 2.5 2.8 2.6 2.9 3.2 2.5 2.8 3.1 1.9 3.1 2.3 2.2 3.4 D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid 18 Perfluorooctane sulfonic acid (M) F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 64 35 27 (000001 X) 56 (23 000 19 X 6 848 ×40 ⊆₂₀-⊃ ≻15- ≻₃₂-15 24 10 16 0 0 2.6 2.9 3.2 3.5 2.0 3.8 4.4 2.3 2.6 2.9 3.2 3.5 3.8 4.1 2.3



Report Date: 17-Sep-2016 12:06:19 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d

Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8

Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1

Client ID: FB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8

Injection Vol: 2.0 ul Dil. Factor: 1.0000

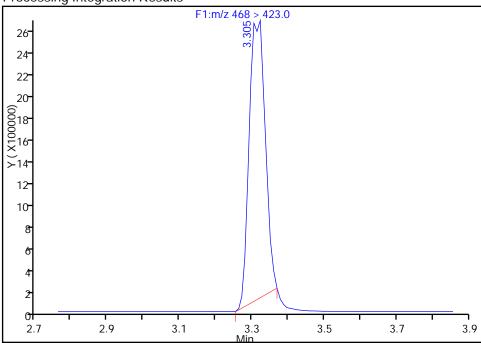
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

D 19 13C5 PFNA, CAS: STL00995

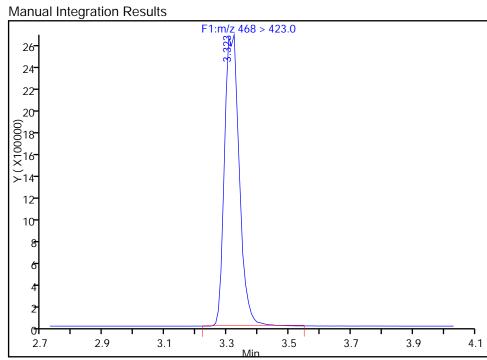
Signal: 1

RT: 3.31
Area: 7827138
Amount: 61.376556
Amount Units: ng/ml

Processing Integration Results



RT: 3.32
Area: 8705976
Amount: 68.267970
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:33:44

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

Page 249 of 657

Report Date: 17-Sep-2016 12:06:19 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d

Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8

Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1

Client ID: FB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8

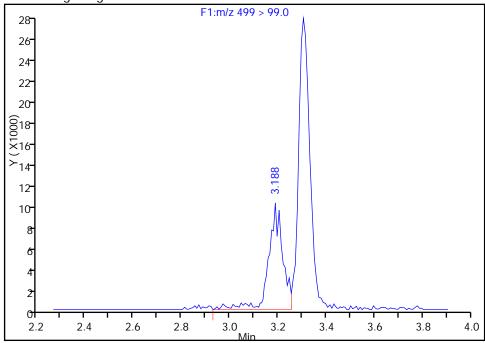
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

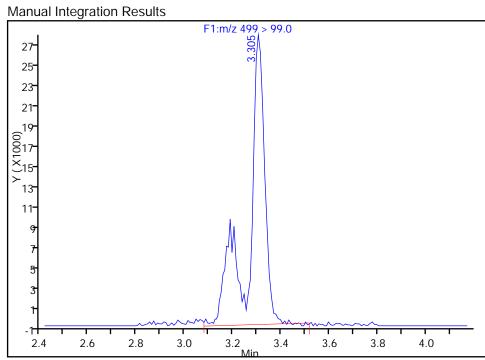
18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

RT: 3.19 Area: 40797 Amount: 1.596707 Amount Units: ng/ml **Processing Integration Results**



RT: 3.31
Area: 124803
Amount: 1.596707
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:33:44

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 250 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_008_p1_e1.d

Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8

Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1

Client ID: FB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8

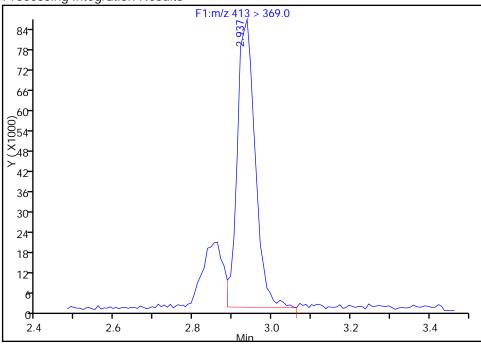
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

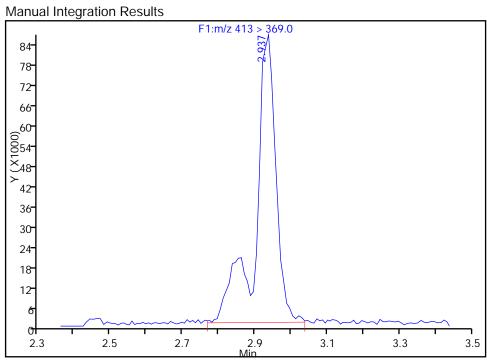
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

RT: 2.94 Area: 267908 Amount: 1.183030 Amount Units: ng/ml Processing Integration Results



RT: 2.94 Area: 336410 Amount: 1.485522 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:33:44

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 251 of 657

TestAmerica Sacramento

Injection Date: 04-Sep-2016 13:31:00 Instrument ID: A8

Lims ID: 320-21044-A-1-A Lab Sample ID: 320-21044-1

Client ID: FB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 8

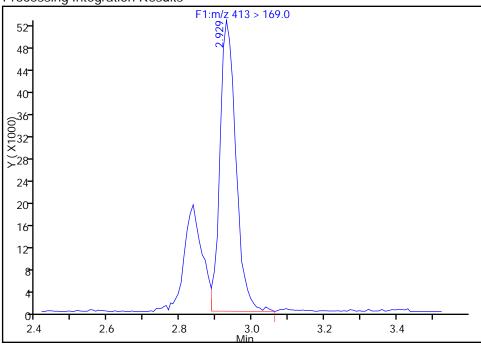
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

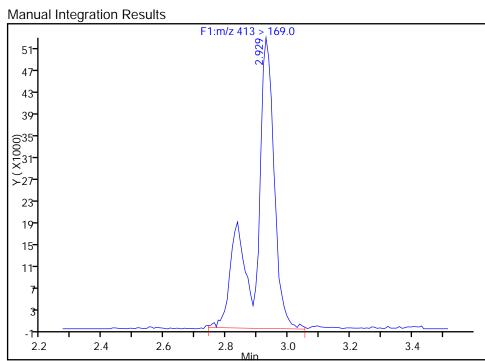
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.93 Area: 160154 Amount: 1.183030 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93 Area: 226161 Amount: 1.485522 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:33:44

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 252 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: EB081716 Lab Sample ID: 320-21044-2

Matrix: Water Lab File ID: 03SEP2016D_009_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 10:23

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 536.9(mL) Date Analyzed: 09/04/2016 13:38

Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.3	1.9	0.85
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	2.3	1.9	0.75
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.9	U	2.3	1.9	0.81
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U M	2.3	1.9	0.61
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.3	JМ	3.7	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	U M	2.3	1.9	0.70

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	134		25-150
STL00990	13C4 PFOA	139		25-150
STL00991	13C4 PFOS	131		25-150
STL01892	13C4-PFHpA	144		25-150
STL00995	13C5 PFNA	134		25-150
STL00994	1802 PFHxS	136		25-150

Report Date: 17-Sep-2016 12:06:30 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_009_p1_e1.d

Lims ID: 320-21044-A-2-A

Client ID: EB081716

Sample Type: Client

Inject. Date: 04-Sep-2016 13:38:00 ALS Bottle#: 0 Worklist Smp#: 9

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 11:35:52

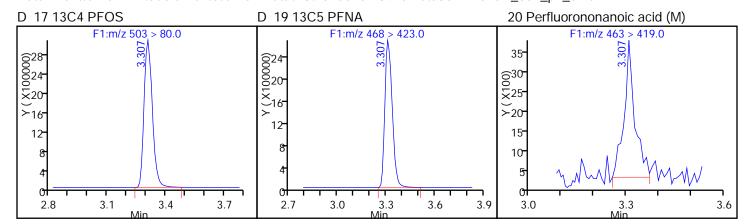
	FIIST Level Revie	wer: barr	neuj			Date:	l	7-Sep-2016 11:35:5				
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
5 Perfluorobutanesulfonic acid												
	298.9 > 80.0	1.950	1.944	0.006	1.000	20789	0.0554					
	298.9 > 99.0	1.950	1.944	0.006	1.000	8861		2.35(0.00-0.00)				
	D 613C2 PFHx	Α										
	315 > 270.0	2.209	2.213	-0.004		9689187	67.1		134	689360		
	D 11 13C4-PFH	рА										
	367 > 322.0	2.559	2.556	0.003		9415096	71.9		144	646127		
	12 Perfluorohe											
	363 > 319.0	2.566	2.556	0.010	1.000	27177	0.1387			367		
	9 Perfluorohex											
	399 > 80.0	2.582	2.571	0.011	1.000	79797	0.3012					
	D 10 1802 PFH:		0.574	0.044		4444074			101	700/50		
	403 > 84.0	2.582	2.571	0.011		11666974	64.6		136	793659		
	15 Perfluorooct			0.010	1 000	72220	0.2405			1000	M	
	413 > 369.0 413 > 169.0	2.933 2.933	2.919 2.919	0.013 0.013	1.000 1.000	73328 41268	0.3485	1.78(0.90-1.10)		1028 2046	M M	
	D 14 13C4 PFO		2.717	0.013	1.000	41200		1.76(0.90-1.10)		2040	IVI	
	417 > 372.0	A 2.933	2.928	0.004		10111170	69.3		139	572194		
	18 Perfluorooct					10111170	07.0		107	072171	M	
	499 > 80.0	3.198	3.195	0.004	1.000	150067	0.6756			3258	IVI	
	499 > 99.0	3.299	3.195	0.105	1.032	45315	0.07.00	3.31(0.90-1.10)		3110	M	
	D 17 13C4 PFO	S										
	503 > 80.0	3.307	3.304	0.003		9034443	62.4		131	334407		
	D 19 13C5 PFN/	Д										
	468 > 423.0	3.307	3.312	-0.005		8569404	67.2		134	447810		
	20 Perfluorono	nanoic a	cid								M	
	463 > 419.0	3.307	3.312	-0.005	1.000	8031	0.0462			348	M	

Report Date: 17-Sep-2016 12:06:30 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Chrom Revision: 2.2 08-Sep-2016 14:45:52 Report Date: 17-Sep-2016 12:06:30 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:38:00 Instrument ID: **A8** Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2 Client ID: EB081716 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 9 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: LC PFC_DOD ICAL PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 35 (0015 X12 X12 0 35-**∑**28 15 21 10 14 1.9 2.2 2.0 1.9 2.2 2.5 1.6 1.7 2.8 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid F1:m/z 399 > 80.0 F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 12 24 Y (X1000) ©20 ×16 15 10 2.7 2.8 2.4 3.0 3.3 2.0 2.3 2.9 1.8 2.1 2.2 1.7 2.6 3.2 3.5 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 F1:m/z 413 > 169.0 40 11 ©35- 18 0015 X 12 Y (X1000) ×25 ≻₂₀ 10 2.5 2.8 2.7 3.0 2.4 2.7 3.0 2.2 3.1 2.4 3.3 3.3 D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid 18 Perfluorooctane sulfonic acid (M) F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 35- 13 28 <u>@</u>30 ©24 ×20 (X1000) <u>6</u>25 ∑₂₀ -16 15 12 10 0 0 2.6 Page 256 of 657 2.6 2.9 3.2 3.5 2.3 3.8 2.5 2.8 3.4 3.7 2.3 3.1



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d

Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8

Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2

Client ID: EB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

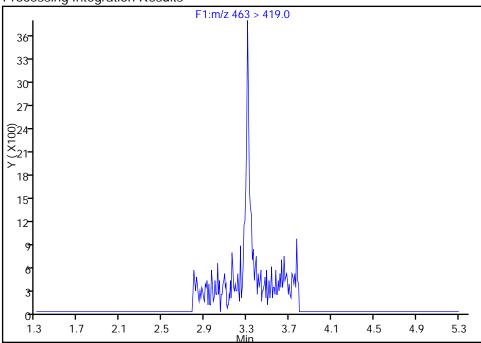
20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

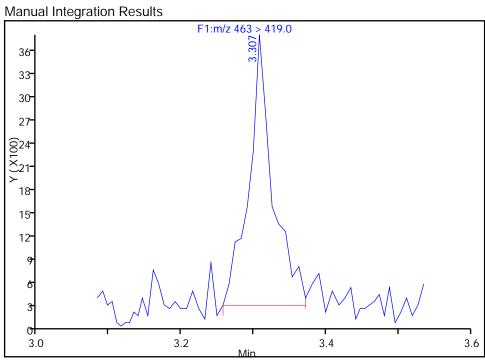
Not Detected

Expected RT: 3.31

Processing Integration Results



RT: 3.31
Area: 8031
Amount: 0.046230
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:35:52

Audit Action: Manually Integrated

Audit Reason: Missed Peak

Page 258 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d

Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8

Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2

Client ID: EB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9

Injection Vol: 2.0 ul Dil. Factor: 1.0000

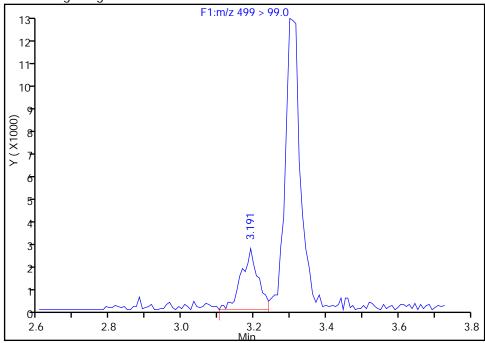
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

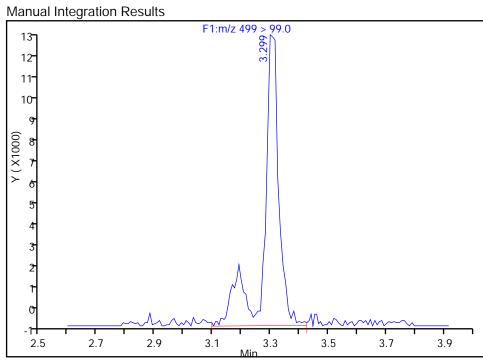
Signal: 2

RT: 3.19
Area: 8409
Amount: 0.675620
Amount Units: ng/ml

Processing Integration Results



RT: 3.30
Area: 45315
Amount: 0.675620
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:35:52

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 259 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d

Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8

Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2

Client ID: EB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9

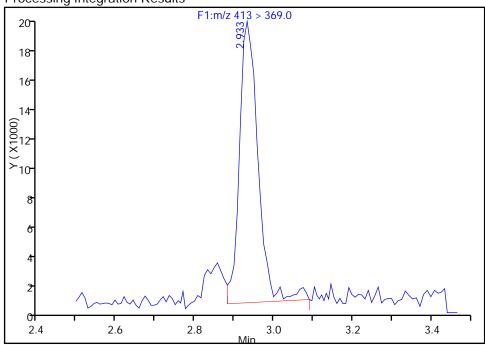
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

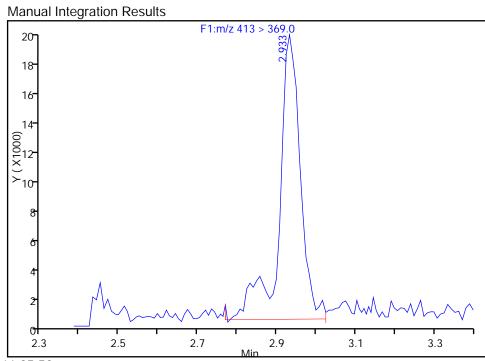
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

RT: 2.93 Area: 63214 Amount: 0.300446 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93
Area: 73328
Amount: 0.348516
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:35:52

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 260 of 657

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_009_p1_e1.d

Injection Date: 04-Sep-2016 13:38:00 Instrument ID: A8

Lims ID: 320-21044-A-2-A Lab Sample ID: 320-21044-2

Client ID: EB081716

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 9

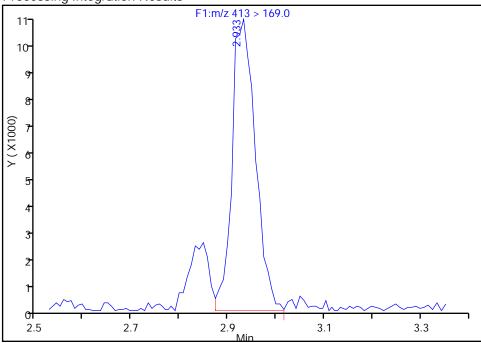
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

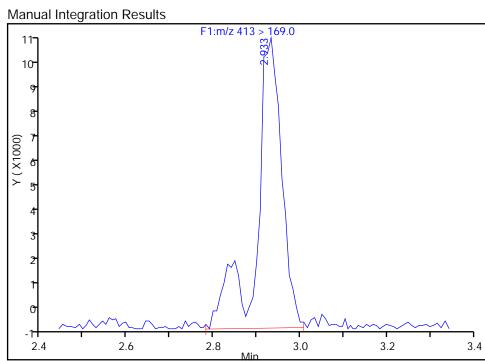
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.93 Area: 34568 Amount: 0.300446 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93
Area: 41268
Amount: 0.348516
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:35:52

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 261 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: MCFSMW-3_0816 Lab Sample ID: 320-21044-3

Matrix: Water Lab File ID: 03SEP2016D_010_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 11:06

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 533.4(mL) Date Analyzed: 09/04/2016 13:46

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31		2.3	1.9	0.86
375-85-9	Perfluoroheptanoic acid (PFHpA)	26		2.3	1.9	0.75
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	710	J	2.3	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	8.7	М	2.3	1.9	0.61
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	650		3.7	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	100	М	2.3	1.9	0.70

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		25-150
STL00990	13C4 PFOA	89		25-150
STL00991	13C4 PFOS	102		25-150
STL01892	13C4-PFHpA	80		25-150
STL00995	13C5 PFNA	62		25-150
STL00994	1802 PFHxS	91		25-150

Report Date: 17-Sep-2016 12:06:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_010_p1_e1.d

Lims ID: 320-21044-A-3-A Client ID: MCFSMW-3_0816

Sample Type: Client

Inject. Date: 04-Sep-2016 13:46:00 ALS Bottle#: 0 Worklist Smp#: 10

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 11:38:55

First Level Reviewer: Darnettj					Date: 1			17-Sep-2016 11:38:55				
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
	5 Perfluorobutanesulfonic acid											
:	298.9 > 80.0	1.944	1.944	0.0	1.000	4197413	16.8					
2	298.9 > 99.0	1.944	1.944	0.0	1.000	1744708		2.41(0.00-0.00)				
	0 6 13C2 PFHx	Α										
;	315 > 270.0	2.214	2.213	0.001		6092677	42.2		84.4	483130		
) 11 13C4-PFH	рA										
;	367 > 322.0	2.555	2.556	-0.001		5228764	40.0		79.9	454723		
	12 Perfluorohe	ptanoic a	acid									
;	363 > 319.0	2.563	2.556	0.007	1.000	1485996	13.7			5971		
	9 Perfluorohex	anesulfo	onic acid								E	
;	399 > 80.0	2.578	2.571	0.007	1.000	66668287	377.3				E	
	0 10 18O2 PFH:											
4	403 > 84.0	2.570	2.571	-0.001		7783335	43.1		91.1	489897		
	15 Perfluorooct										M	
	413 > 369.0	2.935	2.919	0.016	1.000	7572919	56.0	1 (2(0.00.1.10)			M	
	413 > 169.0	2.927	2.919	0.008	0.997	4653644		1.63(0.90-1.10)		183061	IVI	
) 14 13C4 PFO		2.020	0.001		/ 400000	447		00.1	2//71/		
4	417 > 372.0	2.927	2.928			6498890	44.6		89.1	366714		
	18 Perfluorooct 499 > 80.0	tane sulf 3.183	onic acio 3.195	d -0.011	1.000	60608288	348.1			274789		
	499 > 80.0 499 > 99.0	3.183	3.195	0.079	1.000	14195754	348.1	4.27(0.90-1.10)		74642		
) 17 13C4 PFO		3.173	0.077	1.027	14170704		4.27 (0.70 1.10)		74042		
	503 > 80.0	3.307	3.304	0.003		7081914	48.9		102	105156		
) 19 13C5 PFN		0.00	0.000		, , , , , , , , , , , , , , , , , , , ,	,					
	468 > 423.0	3.307	3.312	-0.005		3973840	31.2		62.3	170029		
	20 Perfluorono										М	
4	463 > 419.0			-0.005	1.000	374302	4.65			3066	M	

Report Date: 17-Sep-2016 12:06:42

OC Flag Legend Processing Flags

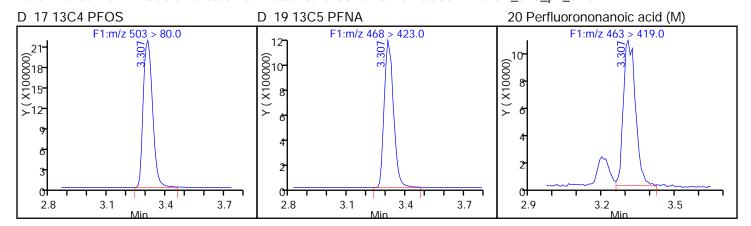
E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

Chrom Revision: 2.2 08-Sep-2016 14:45:52

Report Date: 17-Sep-2016 12:06:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:46:00 Instrument ID: **A8** Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3 Client ID: MCFSMW-3 0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 10 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full LC PFC_DOD ICAL Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 24 (0000015⁻¹) × (9 63⁻ ×45 ×36- 27 18 1.8 2.1 2.4 2.0 2.3 1.9 2.5 1.5 1.4 1.7 2.8 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 399 > 80.049 18-(000001X), 042 042 0435 ∑₂₈-21 2.7 3.0 2.2 2.5 2.8 3.1 2.4 1.6 2.8 4.0 1.9 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 413 > 169.0 F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 (000018 (000018 X) > 12 (X100000) (X100000) (X100000) (000020 ×16 2.3 2.6 2.9 2.5 3.1 3.7 2.5 3.1 2.0 3.7 18 Perfluorooctane sulfonic acid D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 35- 927 (X1000000) 8 8 (21-000018-15-030 0025 20 15 10 0 0 0 2.6 2.9 3.2 3.5 1.9 4.3 2.4 3.0 3.6 4.2 2.3 2.5 Page 266 of 657 1.8



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d

Injection Date: 04-Sep-2016 13:46:00 Instrument ID: A8

Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3

Client ID: MCFSMW-3_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 10

Injection Vol: 2.0 ul Dil. Factor: 1.0000

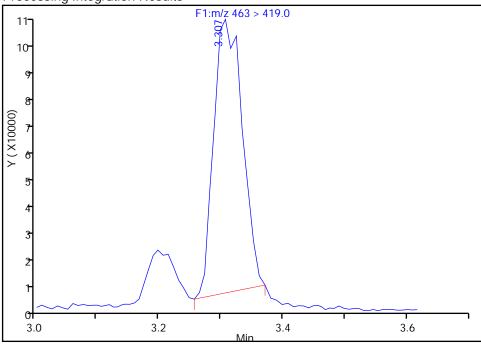
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

20 Perfluorononanoic acid, CAS: 375-95-1

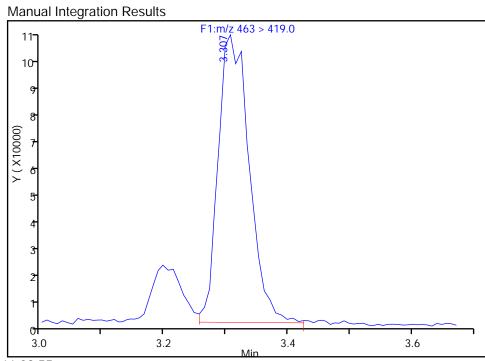
Signal: 1

RT: 3.31
Area: 326810
Amount: 4.056850
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 374302
Amount: 4.646391
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:38:55

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

Page 267 of 657

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_010_p1_e1.d

Injection Date: 04-Sep-2016 13:46:00 Instrument ID: A8

Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3

Client ID: MCFSMW-3_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 10

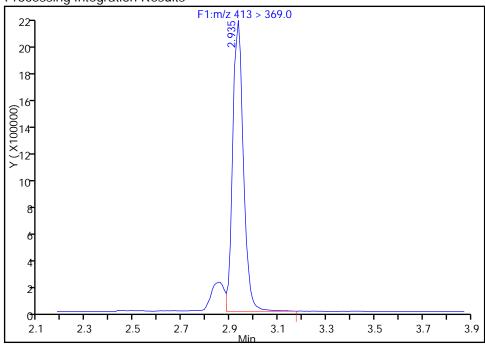
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

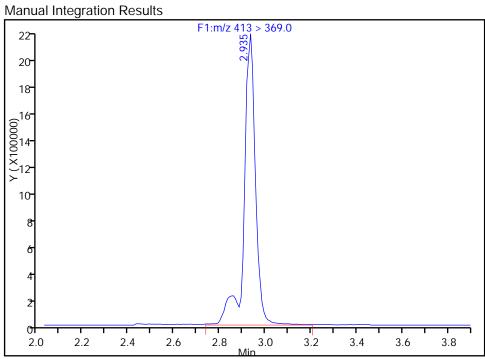
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

RT: 2.93 Area: 6661701 Amount: 49.260644 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93
Area: 7572919
Amount: 55.998741
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:38:55

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 268 of 657

TestAmerica Sacramento

Injection Date: 04-Sep-2016 13:46:00 Instrument ID: A8

Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3

Client ID: MCFSMW-3_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 10

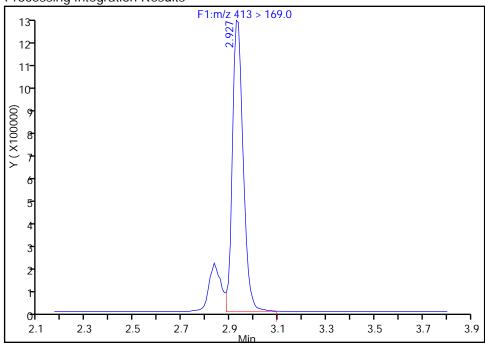
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

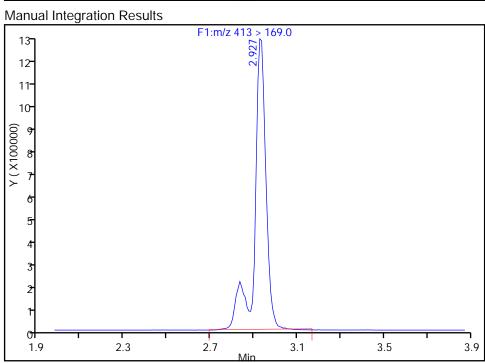
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.93 Area: 4006021 Amount: 49.260644 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93 Area: 4653644 Amount: 55.998741 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:38:55

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 269 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: MCFSMW-3_0816 DL Lab Sample ID: 320-21044-3 DL

Matrix: Water Lab File ID: 19SEP2016B_019_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 11:06

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 533.4(mL) Date Analyzed: 09/19/2016 20:40

Con. Extract Vol.: 1.00(mL) Dilution Factor: 2

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 128009 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	28	D	4.7	3.7	1.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	26	D	4.7	3.7	1.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	790	D	4.7	3.7	1.6
375-95-1	Perfluorononanoic acid (PFNA)	9.3	D M	4.7	3.7	1.2
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	710	D	7.5	5.6	2.4
335-67-1	Perfluorooctanoic acid (PFOA)	100	D	4.7	3.7	1.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		25-150
STL00990	13C4 PFOA	99		25-150
STL00991	13C4 PFOS	113		25-150
STL01892	13C4-PFHpA	91		25-150
STL00995	13C5 PFNA	77		25-150
STL00994	1802 PFHxS	110		25-150

Report Date: 21-Sep-2016 17:20:12 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_019_p1_e1.d

Lims ID: 320-21044-A-3-A Client ID: MCFSMW-3_0816

Sample Type: Client

Inject. Date: 19-Sep-2016 20:40:00 ALS Bottle#: 0 Worklist Smp#: 43

Injection Vol: 2.0 ul Dil. Factor: 2.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 21-Sep-2016 17:20:09 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK048

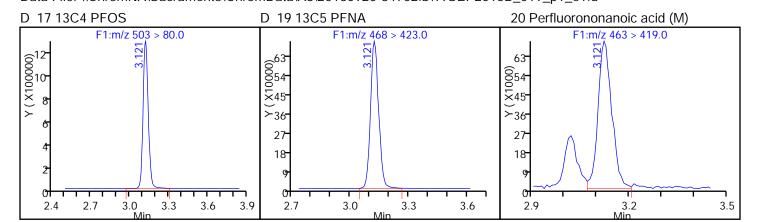
First Level Reviewer: chandrasenas Date: 21-Sep-2016 17:20:09

	First Level Reviewer: chandrasenas				Date:	2	21-Sep-2016 17:20:09				
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid											
	298.9 > 80.0	1.824	1.844	-0.020	1.000	2198721	7.53				
	298.9 > 99.0	1.824	1.844	-0.020	1.000	916924		2.40(0.00-0.00)			
	D 613C2 PFHx	:A									
	315 > 270.0	2.061	2.096	-0.035		3875564	27.4		54.8	374155	
	9 Perfluorohex										
	399 > 80.0	2.407	2.415	-0.008	1.000	41258516	210.1				
	12 Perfluorohe	•									
	363 > 319.0	2.389	2.438	-0.049	1.000	907896	7.03			5948	
	D 11 13C4-PFH										
	367 > 322.0	2.395	2.438	-0.043		3100854	22.8		45.7	288663	
	D 10 18O2 PFH:		0.451	0.044		4520540	27.0		F4.0	220552	
	403 > 84.0	2.407	2.451	-0.044		4520540	26.0		54.9	329553	
	15 Perfluorooct 413 > 369.0	anoic ac 2.754	2.802	-0.048	1.000	3787706	27.9			73329	
	413 > 369.0	2.754	2.802		1.000	2366158	21.9	1.60(0.90-1.10)		144544	
	D 14 13C4 PFO		2.002	0.0.0	1.000	2000100		1.00(0.70 1.10)			
	417 > 372.0	2.754	2.802	-0.048		3239820	24.7		49.5	296905	
	18 Perfluorooct										
	499 > 80.0	3.121		-0.033	1.000	29451370	189.3			117217	7
	499 > 99.0	3.115	3.154	-0.039	0.998	6460323		4.56(0.90-1.10)		0.0	
	D 17 13C4 PFO	S									
	503 > 80.0	3.121	3.177	-0.056		3473468	26.9		56.4	136841	
	D 19 13C5 PFN	A									
	468 > 423.0	3.121	3.179	-0.058		2038522	19.3		38.7	115510	
	20 Perfluorono		cid								M
	463 > 419.0	3.121	3.180	-0.059	1.000	204518	2.47			1861	M

Report Date: 21-Sep-2016 17:20:12 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Report Date: 21-Sep-2016 17:20:12 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_019_p1_e1.d Data File: **Injection Date:** 19-Sep-2016 20:40:00 Instrument ID: **A8** Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3 Client ID: MCFSMW-3 0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 43 Injection Vol: 2.0 ul Dil. Factor: 2.0000 Method: PFC_A8_Full LC PFC_DOD ICAL Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 35 684 6072 030- ×60 <u>></u>20 ≻₄₈-15- 36 10 24 12 1.9 2.2 1.7 2.0 1.4 2.3 1.6 1.4 2.3 1.7 2.6 9 Perfluorohexanesulfonic acid 12 Perfluoroheptanoic acid 11 13C4-PFHpA D F1:m/z 399 > 80.0 F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 12 407 (X1000000) Y (X100000) X 630 60 25 $\stackrel{\cdot}{\succeq}_{20}$ 15 10 2.4 2.2 1.2 3.6 4.8 1.9 2.5 2.8 2.1 2.4 2.7 3.0 0.0 1.8 D 10 1802 PFHxS 15 Perfluorooctanoic acid 15 Perfluorooctanoic acid F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 F1:m/z 413 > 169.0 72 (12 (0000010 8 (0000012 (0000012) (0000012) 663 654 ×45 ≻₃₆-27 18 2.1 2.7 3.0 2.2 2.8 3.4 2.1 3.0 3.9 1.8 1.6 D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid 18 Perfluorooctane sulfonic acid F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 12 (518 000 15 X 12 (X100000) 8 663- ×45 ≻₃₆-27 18 0 0 0 2.0 2.3 2.6 2.9 3.2 3.5 1.5 2.4 Page 27/3 of 657 4.2 0.0 3.0 6.0 

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_019_p1_e1.d

Injection Date: 19-Sep-2016 20:40:00 Instrument ID: A8

Lims ID: 320-21044-A-3-A Lab Sample ID: 320-21044-3

Client ID: MCFSMW-3_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 43

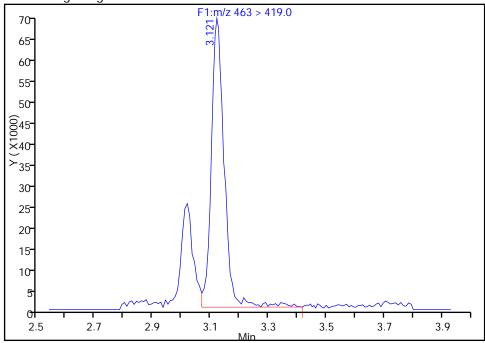
Injection Vol: 2.0 ul Dil. Factor: 2.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

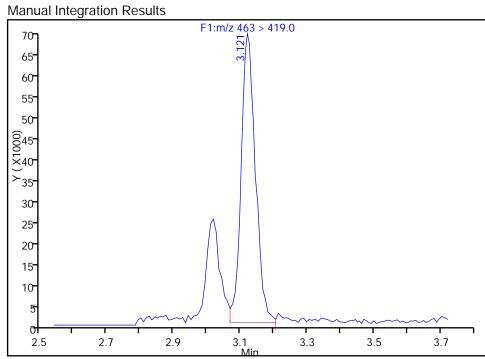
20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

RT: 3.12 Area: 213266 Amount: 2.574657 Amount Units: ng/ml **Processing Integration Results**



RT: 3.12
Area: 204518
Amount: 2.469046
Amount Units: ng/ml



Reviewer: chandrasenas, 21-Sep-2016 17:20:09

Audit Action: Manually Integrated

Audit Reason: Baseline

Page 275 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Matrix: Water Lab File ID: 03SEP2016D_011_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 12:16

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 525.6(mL) Date Analyzed: 09/04/2016 13:54

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	47		2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	18		2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	520		2.4	1.9	0.83
375-95-1	Perfluorononanoic acid (PFNA)	1.0	J	2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1100	J	3.8	2.9	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	82	М	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		25-150
STL00990	13C4 PFOA	91		25-150
STL00991	13C4 PFOS	105		25-150
STL01892	13C4-PFHpA	89		25-150
STL00995	13C5 PFNA	58		25-150
STL00994	1802 PFHxS	109		25-150

Report Date: 17-Sep-2016 12:06:51 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_011_p1_e1.d

Lims ID: 320-21044-A-4-A Client ID: 46MW05_0816

Sample Type: Client

Inject. Date: 04-Sep-2016 13:54:00 ALS Bottle#: 0 Worklist Smp#: 11

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 11:41:04

First Level Reviewer: barriettj					Date: I			17-Sep-2016 11:41:04				
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
5 Perfluorobutanesulfonic acid												
	298.9 > 80.0	1.953	1.944	0.009	1.000	7304715	24.5					
	298.9 > 99.0	1.944	1.944	0.0	0.996	2979525		2.45(0.00-0.00)				
	D 613C2 PFHx	Α										
	315 > 270.0	2.213	2.213	0.0		6911535	47.9		95.8	802838		
	D 11 13C4-PFH _I	pΑ										
	367 > 322.0	2.557	2.556	0.001		5852552	44.7		89.4	693831		
	12 Perfluorohe											
	363 > 319.0	2.557	2.556	0.001	1.000	1151374	9.45			7623		
	9 Perfluorohex											
	399 > 80.0	2.572	2.571	0.001	1.000	57558857	273.2					
	D 10 1802 PFH:		0.574	0.004		0077004	54.0		400	(05010		
	403 > 84.0	2.572	2.571	0.001		9277831	51.3		109	605213		
	15 Perfluorooct			0.010	1 000	F0F227F	40.0			70575	M	
	413 > 369.0 413 > 169.0	2.937 2.929	2.919 2.919	0.018 0.010	1.000 0.997	5953375 4002144	42.9	1.49(0.90-1.10)		79575 203554	M	
	D 14 13C4 PFO		2.717	0.010	0.777	4002144		1.49(0.90-1.10)		203334	IVI	
	417 > 372.0	A 2.937	2.928	0.009		6661282	45.7		91.4	426362		
	18 Perfluorooct					0001202	43.7		71.4	420302	E	
	499 > 80.0	3.134	3.195	ر -0.060	1.000	106251658	593.7			51812		
	499 > 99.0	3.200	3.195	0.006	1.021	23125858	070.7	4.59(0.90-1.10)		171505		
	D 17 13C4 PFO	S										
	503 > 80.0	3.309	3.304	0.005		7279733	50.3		105	162164		
	D 19 13C5 PFN/	Д										
	468 > 423.0	3.317	3.312	0.005		3704422	29.0		58.1	216023		
	20 Perfluorono	nanoic a	cid									
	463 > 419.0	3.309	3.312	-0.003	1.000	39664	0.5282			568		

Report Date: 17-Sep-2016 12:06:51

OC Flag Legend Processing Flags

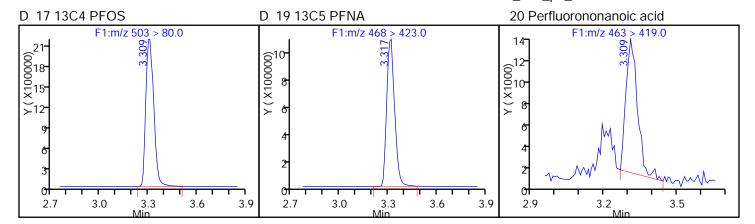
E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

Chrom Revision: 2.2 08-Sep-2016 14:45:52

Report Date: 17-Sep-2016 12:06:51 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_011_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:54:00 Instrument ID: **A8** Lims ID: 320-21044-A-4-A Lab Sample ID: 320-21044-4 Client ID: 46MW05_0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 11 Injection Vol: Dil. Factor: 1.0000 2.0 ul Method: LC PFC_DOD ICAL PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 12 28 24 Y (X100000) (00024-20-20-12 1.8 2.1 2.0 2.3 2.3 2.9 1.5 2.4 1.4 1.7 1.7 2.0 2.6 D 11 13C4-PFHpA 9 Perfluorohexanesulfonic acid 12 Perfluoroheptanoic acid F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 F1:m/z 367 > 322.0 21-557 (X1000000) X (X10000000) X (X10000000) 635- ×25 **≻20**-15- 10 2.9 2.9 2.3 2.6 3.2 2.3 2.6 1.5 2.4 3.3 4.2 1.7 2.0 2.0 0.6 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 413 > 169.0 F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 11-(0000012 × 9 028 0024 ×20 (X100000) 12 2.2 2.5 2.4 2.7 3.0 2.3 2.6 2.9 1.9 2.8 3.1 3.3 3.2 3.5 2.1 18 Perfluorooctane sulfonic acid D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 (X1000000) (X1000000) (8 (42 0036 ×30 **≻**24 18 12 0 2.6 2.9 3.2 3.5 2.2 2.5 2.8 2.5 3.7 4.3 2.3 1.9 3.1



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_011_p1_e1.d

Injection Date: 04-Sep-2016 13:54:00 Instrument ID: A8

Lims ID: 320-21044-A-4-A Lab Sample ID: 320-21044-4

Client ID: 46MW05_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 11

Injection Vol: 2.0 ul Dil. Factor: 1.0000

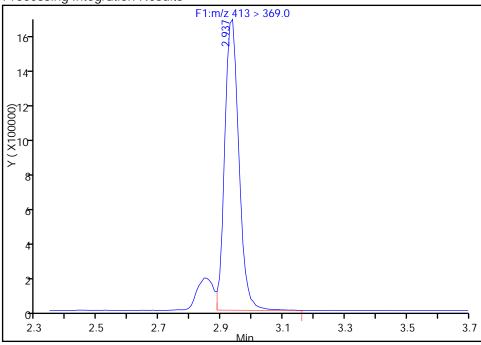
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

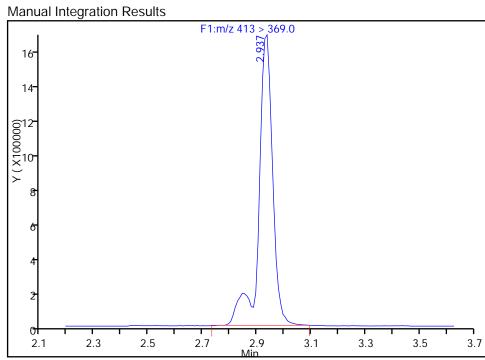
Signal: 1

RT: 2.94
Area: 5316304
Amount: 38.353599
Amount Units: ng/ml

Processing Integration Results



RT: 2.94
Area: 5953375
Amount: 42.949643
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:41:04

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 281 of 657

TestAmerica Sacramento

Injection Date: 04-Sep-2016 13:54:00 Instrument ID: A8

Lims ID: 320-21044-A-4-A Lab Sample ID: 320-21044-4

Client ID: 46MW05_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 11

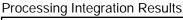
Injection Vol: 2.0 ul Dil. Factor: 1.0000

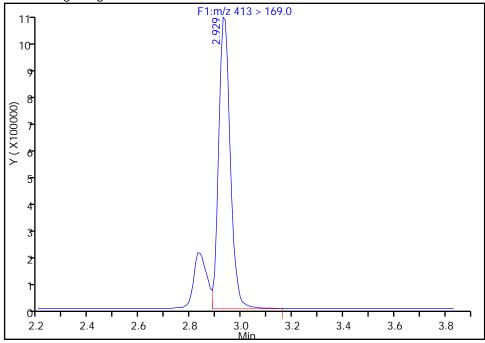
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

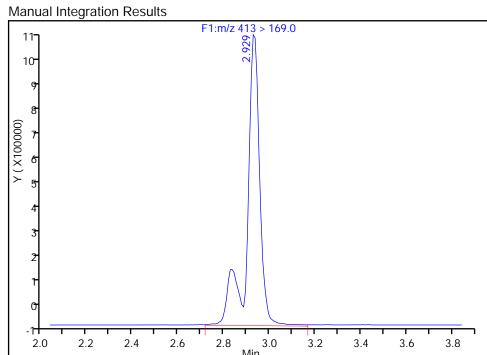
Signal: 2

RT: 2.93 Area: 3222425 Amount: 38.353599 Amount Units: ng/ml





RT: 2.93 Area: 4002144 Amount: 42.949643 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:41:04

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 282 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: 46MW05_0816 DL Lab Sample ID: 320-21044-4 DL

Matrix: Water Lab File ID: 19SEP2016B_020_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 12:16

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 525.6(mL) Date Analyzed: 09/19/2016 20:48

Con. Extract Vol.: 1.00 (mL) Dilution Factor: 5

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 128009 Units: ng/L

CAS NO.	CAS NO. COMPOUND NAME		Q	LOQ	LOD	DL	
375-73-5	Perfluorobutanesulfonic acid (PFBS)	40	D	12	9.5	4.4	
375-85-9	Perfluoroheptanoic acid (PFHpA)	19	D	12	9.5	3.8	
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	660	D	12	9.5	4.1	
375-95-1	Perfluorononanoic acid (PFNA)	9.5	U	12	9.5	3.1	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1300	D	19	14	6.1	
335-67-1	Perfluorooctanoic acid (PFOA)	84	D	12	9.5	3.6	

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	123		25-150
STL00990	13C4 PFOA	117		25-150
STL00991	13C4 PFOS	133		25-150
STL01892	13C4-PFHpA	114		25-150
STL00995	13C5 PFNA	91		25-150
STL00994	1802 PFHxS	138		25-150

Report Date: 21-Sep-2016 17:20:47 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_020_p1_e1.d

Lims ID: 320-21044-A-4-A Client ID: 46MW05_0816

Sample Type: Client

Inject. Date: 19-Sep-2016 20:48:00 ALS Bottle#: 0 Worklist Smp#: 44

Injection Vol: 2.0 ul Dil. Factor: 5.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 21-Sep-2016 17:20:09 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

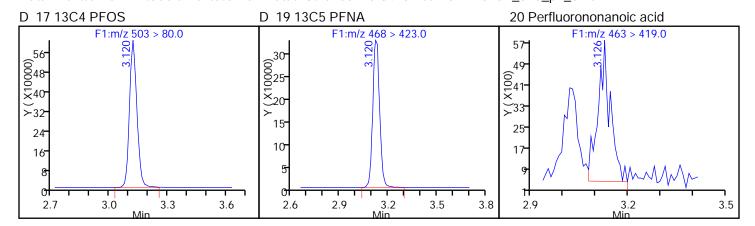
Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK048

First Level Reviewer: chandrasenas Date: 21-Sep-2016 12:34:12

	First Level Reviewer: Chandrasenas					Date: 21-5ep-2016 12:34:1					
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid											
	298.9 > 80.0	1.824	1.844	-0.020	1.000	1537683	4.18				
	298.9 > 99.0	1.824	1.844	-0.020	1.000	652489		2.36(0.00-0.00)			
D 613C2 PFHxA											
	315 > 270.0	2.061	2.096	-0.035		1740773	12.3		24.6	174826	
	9 Perfluorohexanesulfonic acid										
	399 > 80.0	2.413	2.415	-0.002	1.000	17102468	69.1				
	12 Perfluorohe	-									
	363 > 319.0	2.400	2.438	-0.038	1.000	320636	2.00			3861	
	D 11 13C4-PFH										
	367 > 322.0	2.400	2.438	-0.038		1542654	11.4		22.7	285853	
	D 10 18O2 PFH:										
	403 > 84.0	2.406	2.451	-0.045		2278079	13.1		27.7	201024	
	15 Perfluorooct			0.040	4 000	4.444.077	0.70			40004	
	413 > 369.0 413 > 169.0	2.759 2.759	2.802	-0.043 -0.043	1.000 1.000	1411876 899724	8.78	1.57(0.90-1.10)		48334 1690	
			2.002	-0.043	1.000	099724		1.57(0.90-1.10)		1090	
	D 14 13C4 PFO 417 > 372.0		2.802	0.040		1536857	11.7		23.5	294993	
	18 Perfluorooct					1330037	11.7		23.5	274773	
	499 > 80.0	3.120		ىر -0.034	1.000	25614750	139.8			609876	
	499 > 99.0	3.120		-0.034	1.000	4651437	137.0	5.51(0.90-1.10)		0.0	
D 17 13C4 PFOS											
	503 > 80.0	3.120	3.177	-0.057		1636382	12.7		26.6	101572	
D 19 13C5 PFNA											
	468 > 423.0	3.120	3.179	-0.059		955986	9.07		18.1	106888	
	20 Perfluorono	nanoic a	cid								
	463 > 419.0	3.126	3.180	-0.054	1.000	14211	0.1463			282	

Report Date: 21-Sep-2016 17:20:47 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_020_p1_e1.d Data File: **Injection Date:** 19-Sep-2016 20:48:00 Instrument ID: 8A Lims ID: 320-21044-A-4-A Lab Sample ID: 320-21044-4 Client ID: 46MW05 0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 44 Injection Vol: 2.0 ul Dil. Factor: 5.0000 Method: LC PFC_DOD ICAL PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 28 63 0024-0020-0020-0054-10000 145-×45 ∑36- ∑16- > 36 27 12 27 18 18 1.7 2.0 1.7 2.0 1.9 2.2 1.4 1.6 2.5 9 Perfluorohexanesulfonic acid 12 Perfluoroheptanoic acid D 11 13C4-PFHpA F1:m/z 399 > 80.0 F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 12 (X) X (X) (X) (X) X (56 (042 000 36 0648- 0648- 0640-0640-×30 <u></u>32 24 18 16 12 2.7 1.3 2.5 3.7 2.4 2.1 2.7 3.0 1.8 2.4 2.1 D 10 1802 PFHxS 15 Perfluorooctanoic acid 15 Perfluorooctanoic acid F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 F1:m/z 413 > 169.0 80-42 0020 0020 <u>@</u>70 X10000 30-860 ∑₁₆-×50 >₄₀ 18 30 12 20 10 2.2 2.5 2.1 3.3 3.9 1.8 2.8 3.0 4.2 18 Perfluorooctane sulfonic acid D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid F1:m/z 499 > 80.0 F1:m/z 417 > 372.0 F1:m/z 499 > 99.0 12 42 56 (X100000) 8 X1000030 0048 0048 X40 <u>~</u>24 18 24 12 16 00 0 1.9 2.2 2.5 2.8 3.1 3.7 2.3 Page 285 of 657 0.6 3.6 3.4 1.4 4.1 Min



FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Matrix: Water Lab File ID: 03SEP2016D_012_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 13:31

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 527.5(mL) Date Analyzed: 09/04/2016 14:01

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.4	М	2.4	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.1	М	3.8	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	U M	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		25-150
STL00990	13C4 PFOA	104		25-150
STL00991	13C4 PFOS	132		25-150
STL01892	13C4-PFHpA	109		25-150
STL00995	13C5 PFNA	83		25-150
STL00994	1802 PFHxS	126		25-150

Report Date: 17-Sep-2016 12:07:06 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_012_p1_e1.d

Lims ID: 320-21044-A-5-A Client ID: 46MW03_0816

Sample Type: Client

Inject. Date: 04-Sep-2016 14:01:00 ALS Bottle#: 0 Worklist Smp#: 12

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 11:43:07

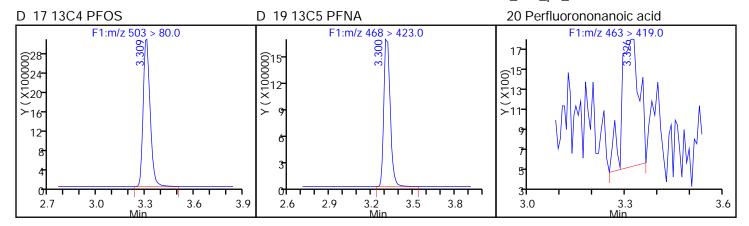
	113t LCVCI IXCVIC	wci. bai	nettj			Date.		7-3cp-2010 11.43.0	,,		
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
	5 Perfluorobuta	anesulfo	nic acid								
	298.9 > 80.0	1.952	1.944	0.008	1.000	60843	0.1752				
:	298.9 > 99.0	1.944	1.944	0.0	0.996	25649		2.37(0.00-0.00)			
	0 6 13C2 PFHx	Α									
;	315 > 270.0	2.213	2.213	0.0		7213631	50.0		100.0	380186	
) 11 13C4-PFH _I	pΑ									
;	367 > 322.0	2.561	2.556	0.005		7112568	54.4		109	415776	
	9 Perfluorohex	anesulfo	nic acid	l							M
;	399 > 80.0	2.568	2.571	-0.003	1.000	441507	1.80				M
	0 10 18O2 PFH:	xS									
	403 > 84.0	2.576	2.571	0.005		10792518	59.7		126	539498	
	15 Perfluorooct	anoic ac	id								M
	413 > 369.0	2.933	2.919	0.014	1.000	38681	0.2441			635	M
	413 > 169.0	2.933	2.919	0.014	1.000	25405		1.52(0.90-1.10)		1684	M
) 14 13C4 PFO										
4	417 > 372.0	2.933	2.928	0.005		7614694	52.2		104	404752	
	18 Perfluorooct										M
	499 > 80.0	3.200	3.195	0.006	1.000	717624	3.20	. = . /		11854	
	499 > 99.0	3.309	3.195	0.115	1.034	150632		4.76(0.90-1.10)		4468	M
	0 17 13C4 PFO										
	503 > 80.0	3.309	3.304	0.005		9120794	63.0		132	276805	
) 19 13C5 PFN										
4	468 > 423.0	3.300	3.312	-0.012		5312496	41.7		83.3	408914	
	20 Perfluoronoi										
4	463 > 419.0	3.326	3.312	0.014	1.000	4596	0.0427			66.7	

Report Date: 17-Sep-2016 12:07:06 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Report Date: 17-Sep-2016 12:07:06 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 14:01:00 Instrument ID: **A8** Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5 Client ID: 46MW03_0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 12 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: LC PFC_DOD ICAL PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298,9 > 99.0 F1:m/z 315 > 270.0 24 10 ©24 00 020 Y (X1000) 1.9 2.2 1.9 2.2 2.3 1.6 1.6 1.7 2.0 2.6 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid (ND) 9 Perfluorohexanesulfonic acid (M) F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 24 561 (00001 ×16 X (X10000) (00012 (00010 (00010 (00010) (2.7 3.3 2.3 2.9 2.2 2.5 2.8 3.1 2.1 1.9 1.5 2.0 2.6 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 F1:m/z 413 > 169.0 (35-00030-X25-63 (0001x) × 654**-**×45**-**⁻20 >36 15 27 18 10 ol 2.3 2.6 2.9 2.7 3.0 2.6 2.9 3.2 2.0 3.2 2.3 D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid 18 Perfluorooctane sulfonic acid (M) F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 12 (X) (X) (X) (X) 35 (000001X) (00001X) 630 25-× <u></u> ∠20 12 15 10 0 0 0 2.6 2.9 3.2 3.5 4.2 2.7 3.0 3.3 3.9 2.3 1.8 2.4 3.6 2.4 Page 2.90 of 657



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d

Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8

Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5

Client ID: 46MW03_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12

Injection Vol: 2.0 ul Dil. Factor: 1.0000

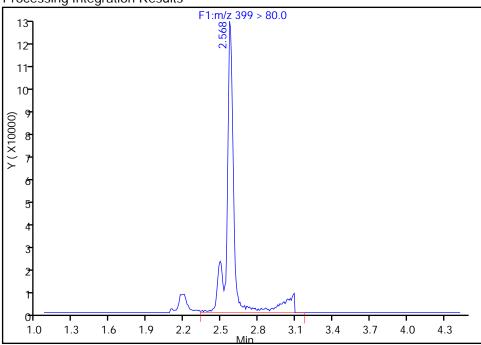
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

9 Perfluorohexanesulfonic acid, CAS: 355-46-4

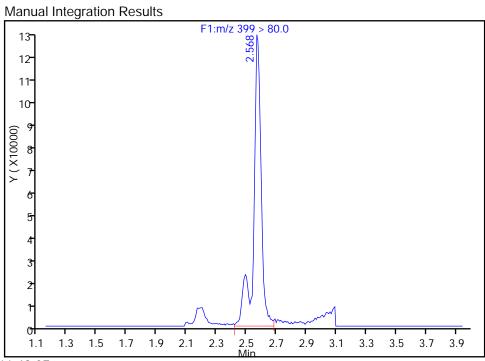
Signal: 1

RT: 2.57
Area: 517688
Amount: 2.112634
Amount Units: ng/ml

Processing Integration Results



RT: 2.57
Area: 441507
Amount: 1.801747
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated/Assigned Compound IDAudit Reason: Baseline

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d

Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8

Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5

Client ID: 46MW03_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12

Injection Vol: 2.0 ul Dil. Factor: 1.0000

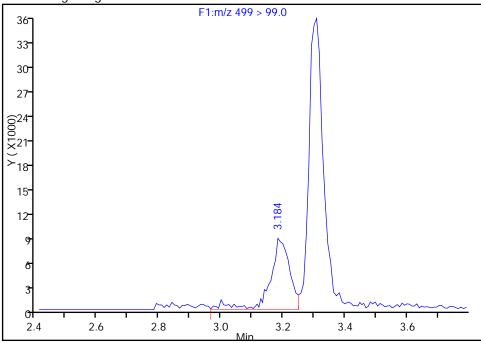
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

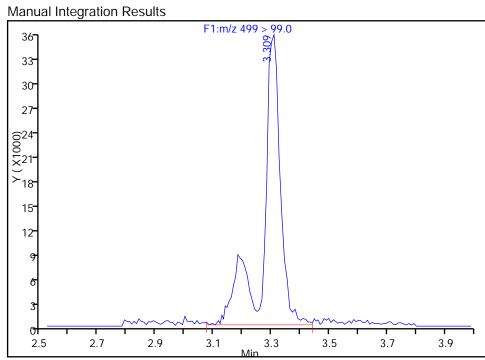
Signal: 2

RT: 3.18
Area: 39010
Amount: 3.200242
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 150632
Amount: 3.200242
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 293 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d

Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8

Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5

Client ID: 46MW03_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12

Injection Vol: 2.0 ul Dil. Factor: 1.0000

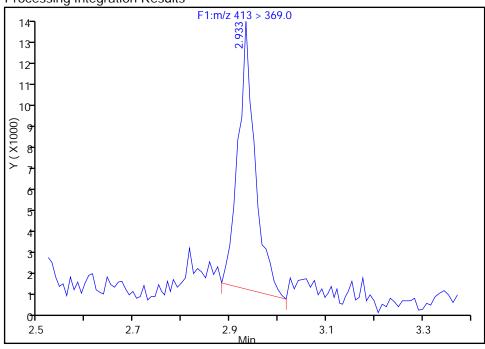
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

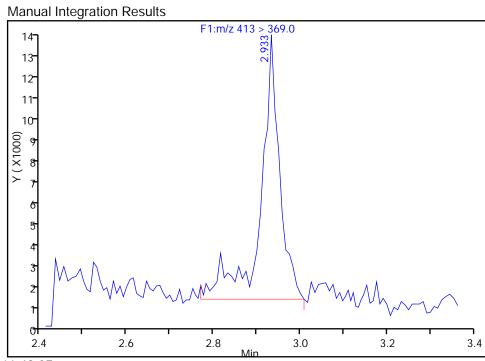
Signal: 1

RT: 2.93
Area: 30135
Amount: 0.190184
Amount Units: ng/ml

Processing Integration Results



RT: 2.93
Area: 38681
Amount: 0.244118
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 294 of 657

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_012_p1_e1.d

Injection Date: 04-Sep-2016 14:01:00 Instrument ID: A8

Lims ID: 320-21044-A-5-A Lab Sample ID: 320-21044-5

Client ID: 46MW03_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 12

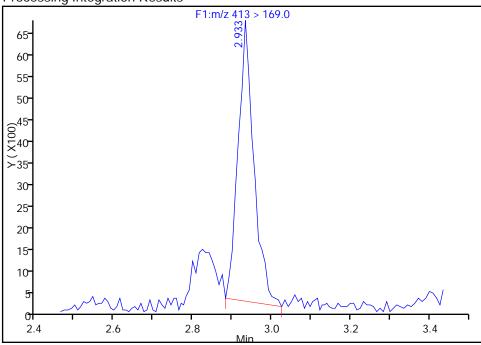
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

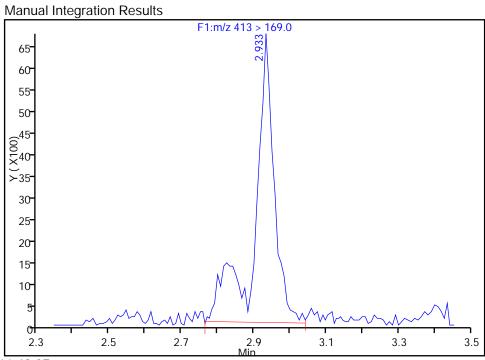
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.93 Area: 18161 Amount: 0.190184 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93
Area: 25405
Amount: 0.244118
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:43:07

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 295 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: MCFSMW-14_0816 Lab Sample ID: 320-21044-6

Matrix: Water Lab File ID: 03SEP2016D_013_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 09:51

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 530.3(mL) Date Analyzed: 09/04/2016 14:08

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.0		2.4	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.5	JМ	3.8	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	1.1	JМ	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		25-150
STL00990	13C4 PFOA	102		25-150
STL00991	13C4 PFOS	128		25-150
STL01892	13C4-PFHpA	109		25-150
STL00995	13C5 PFNA	92		25-150
STL00994	1802 PFHxS	126		25-150

Report Date: 17-Sep-2016 12:07:15 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_013_p1_e1.d

Lims ID: 320-21044-A-6-A Client ID: MCFSMW-14_0816

Sample Type: Client

Inject. Date: 04-Sep-2016 14:08:00 ALS Bottle#: 0 Worklist Smp#: 13

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 11:45:19

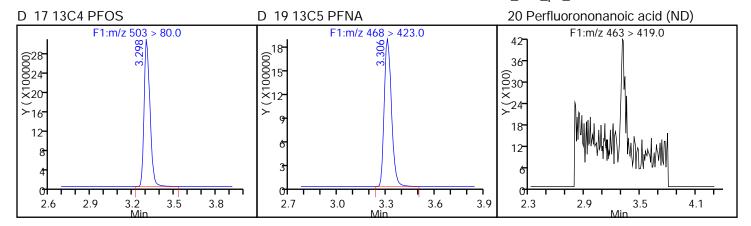
I II St Level Kevi	ewei. bai	Hettj			Date.	l	7-3ep-2010 11.43.1	1 7		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobu	ıtanesulfo	nic acid								
298.9 > 80.0	1.941	1.944	-0.003	1.000	79791	0.2310				
298.9 > 99.0	1.941	1.944		1.000	35301	0.20.0	2.26(0.00-0.00)			
D 613C2 PFH	хA									
315 > 270.0	2.208	2.213	-0.005		7275875	50.4		101	382024	
D 11 13C4-PFF	AqH									
367 > 322.0	2.559	2.556	0.003		7124867	54.4		109	491846	
12 Perfluorohe	eptanoic a	acid								
363 > 319.0	2.559	2.556	0.003	1.000	32284	0.2177			295	
9 Perfluorohe	xanesulfo	onic acio	l							
399 > 80.0	2.574	2.571	0.003	1.000	644431	2.64				
D 10 18O2 PFH	HxS									
403 > 84.0	2.574	2.571	0.003		10737961	59.4		126	485297	
15 Perfluorood	ctanoic ac	cid								M
413 > 369.0	2.923	2.919	0.004	1.000	86443	0.5574			1010	M
413 > 169.0	2.931	2.919	0.012	1.003	57725		1.50(0.90-1.10)		2570	M
D 14 13C4 PFC	DΑ									
417 > 372.0	2.931	2.928	0.003		7452526	51.1		102	299420	
18 Perfluorood	ctane sulf	onic aci	d							M
499 > 80.0	3.306	3.195	0.112	1.000	288556	1.32			5042	
499 > 99.0	3.298	3.195	0.104	0.997	59547		4.85(0.90-1.10)		1557	
D 17 13C4 PFC)S									
503 > 80.0	3.298	3.304	-0.006		8879406	61.4		128	251266	
D 19 13C5 PFN	ΙA									
468 > 423.0	3.306	3.312	-0.006		5897176	46.2		92.5	312556	

Report Date: 17-Sep-2016 12:07:15 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Report Date: 17-Sep-2016 12:07:15 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 14:08:00 Instrument ID: **A8** Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6 Client ID: MCFSMW-14 0816 Operator ID: ALS Bottle#: 0 Worklist Smp#: 13 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full LC PFC_DOD ICAL Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 ©24 00 020 30 0 0 25 15 10 1.9 2.2 2.2 2.0 2.3 1.6 1.6 1.7 2.6 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 (X10000) 18 24 15- (00001 ×16 (00013-X) X) 5 2.8 2.1 2.2 2.5 2.8 3.1 2.2 2.7 3.3 1.9 1.5 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 F1:m/z 413 > 169.0 28 635 635 630 14 624 00 20 × (X1000) × ×25 _ ≻16• **≻**20 12 15 10 2.2 2.5 2.8 3.1 2.7 3.0 3.3 2.3 2.6 2.9 3.2 3.5 D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid (M) 18 Perfluorooctane sulfonic acid (M) F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 24 12 021-0218-36- <u>6</u>30 ∑₁₅-18 12 0 0 02.7 3.0 3.3 2.1 2.7 Page 299 of 657 3.9 2.3 2.6 2.9 3.2 3.5 3.8 4.1 2.4



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d

Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8

Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6

Client ID: MCFSMW-14_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

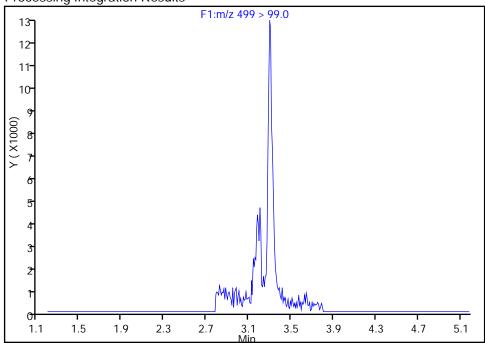
18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

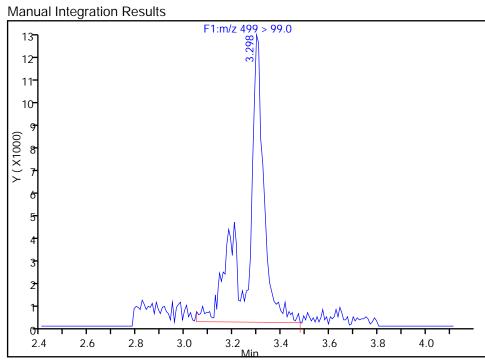
Not Detected

Expected RT: 3.19

Processing Integration Results



RT: 3.30
Area: 59547
Amount: 1.321797
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:45:19

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 301 of 657

TestAmerica Sacramento

Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8

Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6

Client ID: MCFSMW-14_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13

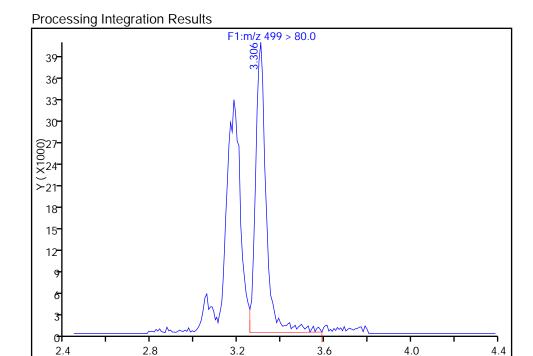
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

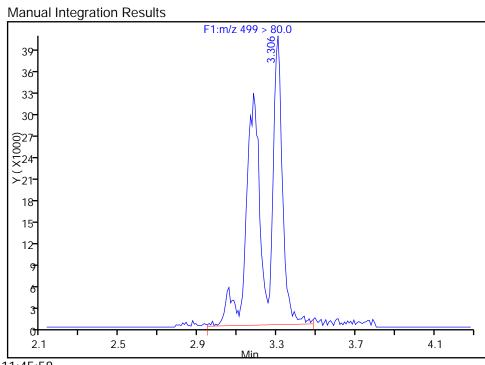
18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

RT: 3.31
Area: 137336
Amount: 0.629099
Amount Units: ng/ml



RT: 3.31
Area: 288556
Amount: 1.321797
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:45:58

Audit Action: Manually Integrated/Assigned Compound IDAudit Reason:
Page 302 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d

Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8

Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6

Client ID: MCFSMW-14_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13

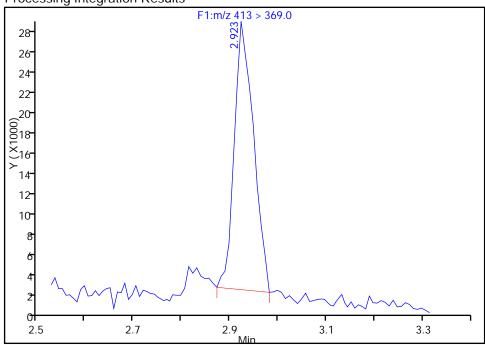
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

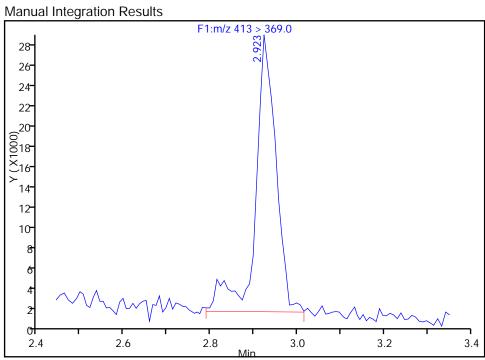
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

RT: 2.92 Area: 70382 Amount: 0.453850 Amount Units: ng/ml **Processing Integration Results**



RT: 2.92 Area: 86443 Amount: 0.557417 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:45:19

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 303 of 657

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_013_p1_e1.d

Injection Date: 04-Sep-2016 14:08:00 Instrument ID: A8

Lims ID: 320-21044-A-6-A Lab Sample ID: 320-21044-6

Client ID: MCFSMW-14_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 13

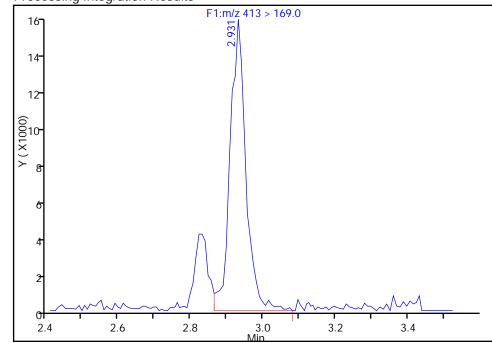
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

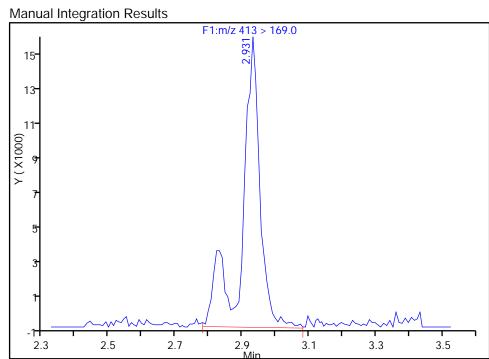
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.93 Area: 46795 Amount: 0.453850 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93 Area: 57725 Amount: 0.557417 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:45:19

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 304 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: MCFSMW-4_0816 Lab Sample ID: 320-21044-7

Matrix: Water Lab File ID: 03SEP2016D_014_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 11:31

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 528.1(mL) Date Analyzed: 09/04/2016 14:16

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	26		2.4	1.9	0.87
375-85-9	Perfluoroheptanoic acid (PFHpA)	77		2.4	1.9	0.76
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	200		2.4	1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	21		2.4	1.9	0.62
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	69	М	3.8	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	160	М	2.4	1.9	0.71

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		25-150
STL00990	13C4 PFOA	89		25-150
STL00991	13C4 PFOS	117		25-150
STL01892	13C4-PFHpA	88		25-150
STL00995	13C5 PFNA	86		25-150
STL00994	1802 PFHxS	104		25-150

Report Date: 17-Sep-2016 12:07:23 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_014_p1_e1.d

Lims ID: 320-21044-A-7-A Client ID: MCFSMW-4_0816

Sample Type: Client

Inject. Date: 04-Sep-2016 14:16:00 ALS Bottle#: 0 Worklist Smp#: 14

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 12:02:12

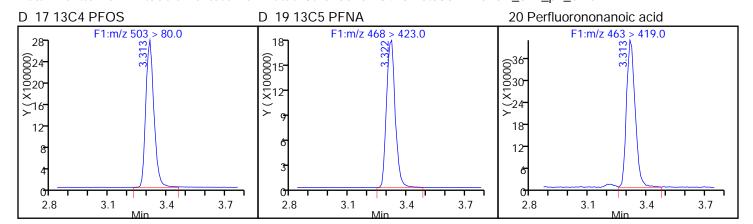
First Level Reviewer: Darnettj					Date: I			17-Sep-2016 12:02:12			
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
	5 Perfluorobuta	anesulfo	nic acid								
	298.9 > 80.0	1.944	1.944	0.0	1.000	3971549	13.8				
	298.9 > 99.0	1.952	1.944	0.008	1.004	1521402		2.61(0.00-0.00)			
	D 613C2 PFHx	:A									
	315 > 270.0	2.213	2.213	0.0		5603589	38.8		77.7	333329	
	D 11 13C4-PFH _I	•									
	367 > 322.0	2.560	2.556	0.004		5746560	43.9		87.8	280552	
	12 Perfluorohe	-			4 000	4050444	40.7			47070	
	363 > 319.0	2.560	2.556	0.004	1.000	4852464	40.6			17373	
	9 Perfluorohex				1 000	210/50/1	104.0				
	399 > 80.0	2.576	2.571	0.005	1.000	21065941	104.0				
	D 10 18O2 PFH: 403 > 84.0	xS 2.576	2.571	0.005		8918885	49.4		104	352521	
	15 Perfluorooct			0.003		0710003	47.4		104	332321	M
	413 > 369.0	2.933	.iu 2.919	0.014	1.000	11533280	85.0			65395	M
	413 > 169.0	2.933	2.919	0.014	1.000	7554069	00.0	1.53(0.90-1.10)		197131	
	D 14 13C4 PFO	A						,			
	417 > 372.0	2.933	2.928	0.005		6517704	44.7		89.4	326818	
	18 Perfluorooct	tane sulf	onic acio	t							M
	499 > 80.0	3.313	3.195	0.119	1.000	7236669	36.2			37961	M
	499 > 99.0	3.279	3.195	0.085	0.990	1605991		4.51(0.90-1.10)		17173	
	D 17 13C4 PFO										
	503 > 80.0	3.313	3.304	0.009		8125996	56.1		117	58626	
	D 19 13C5 PFN/										
	468 > 423.0	3.322	3.312	0.010		5476169	42.9		85.9	248995	
	20 Perfluoronoi			0.001	1 000	1044000	44.0			10007	
	463 > 419.0	3.313	3.312	0.001	1.000	1244980	11.2			12836	

Report Date: 17-Sep-2016 12:07:23 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Report Date: 17-Sep-2016 12:07:23 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 14:16:00 Instrument ID: **A8** Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7 Client ID: MCFSMW-4 0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 14 Injection Vol: Dil. Factor: 1.0000 2.0 ul Method: LC PFC_DOD ICAL PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 315 > 270.0 21 56- 0014-00012-0048 140 140 ×10--32 24 16 1.8 2.1 2.4 2.0 2.3 1.9 2.2 2.5 1.5 1.4 1.7 1.6 2.8 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 399 > 80.018 56- (000015-X)12-(0000015⁻ X) > 9 049 042 ×35 ≻₂₈ 21 2.9 2.7 3.0 1.7 2.6 2.3 2.6 2.4 2.0 8.0 3.5 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 413 > 169.0 F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 32 31 20 ©28-0024-©27-©23-(00017 ×)11 ×19-×20 ≻₁₆-≻₁₅-2.2 2.5 2.8 2.4 2.7 3.0 2.3 2.6 2.9 3.2 3.5 1.9 3.1 3.3 2.0 2.1 18 Perfluorooctane sulfonic acid D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid (M) F1:m/z 417 > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 40 14 (21-000018-15-(0000010 X) 635<u>-</u> 630<u>-</u> ×25 ≻₂₀-15 10 0 ol i 2.3 2.6 2.9 3.2 3.5 2.2 2.5 2.8 3.7 1.9 2.5 3.7 4.3 3.1



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d

Injection Date: 04-Sep-2016 14:16:00 Instrument ID: A8

Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7

Client ID: MCFSMW-4_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14

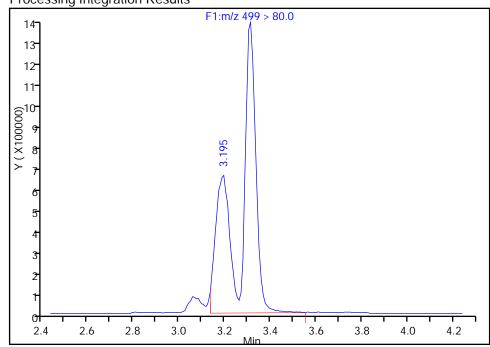
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

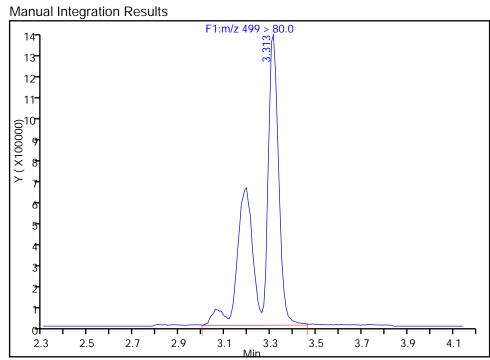
18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

RT: 3.20 Area: 6913368 Amount: 34.604424 Amount Units: ng/ml **Processing Integration Results**



RT: 3.31
Area: 7236669
Amount: 36.222687
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 12:04:36

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 310 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d

Injection Date: 04-Sep-2016 14:16:00 Instrument ID: A8

Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7

Client ID: MCFSMW-4_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14

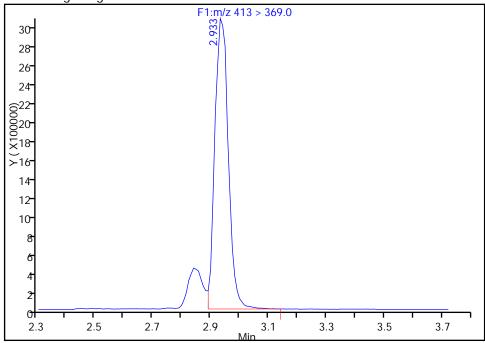
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

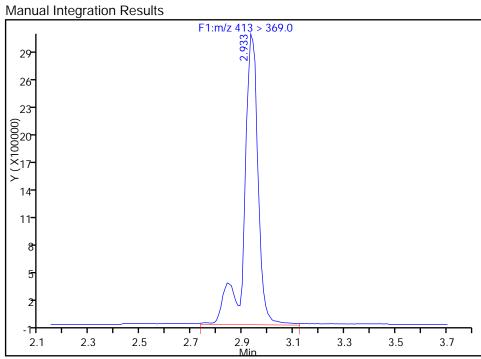
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

RT: 2.93 Area: 9744527 Amount: 71.848924 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93
Area: 11533280
Amount: 85.037864
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 12:04:36

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 311 of 657

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_014_p1_e1.d

Injection Date: 04-Sep-2016 14:16:00 Instrument ID: A8

Lims ID: 320-21044-A-7-A Lab Sample ID: 320-21044-7

Client ID: MCFSMW-4_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14

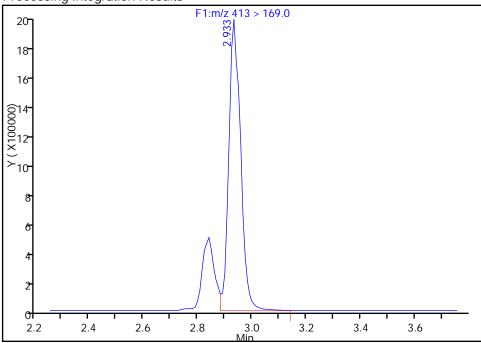
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

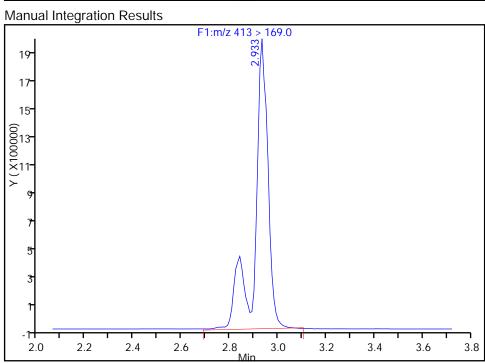
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.93 Area: 6003964 Amount: 71.848924 Amount Units: ng/ml **Processing Integration Results**



RT: 2.93 Area: 7554069 Amount: 85.037864 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 12:04:36

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 312 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Client Sample ID: MCFSMW-5_0816 Lab Sample ID: 320-21044-8

Matrix: Water Lab File ID: 03SEP2016D_019_p1_e1.d

Analysis Method: 537 (Modified) Date Collected: 08/17/2016 13:16

Extraction Method: 3535 Date Extracted: 08/22/2016 13:34

Sample wt/vol: 533.8(mL) Date Analyzed: 09/04/2016 14:54

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	12		2.3	1.9	0.86
375-85-9	Perfluoroheptanoic acid (PFHpA)	13		2.3	1.9	0.75
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	45		2.3	1.9	0.81
375-95-1	Perfluorononanoic acid (PFNA)	0.92	J	2.3	1.9	0.61
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	М	3.7	2.8	1.2
335-67-1	Perfluorooctanoic acid (PFOA)	27	М	2.3	1.9	0.70

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		25-150
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	117		25-150
STL01892	13C4-PFHpA	100		25-150
STL00995	13C5 PFNA	75		25-150
STL00994	1802 PFHxS	119		25-150

Report Date: 17-Sep-2016 12:50:34 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_019_p1_e1.d

Lims ID: 320-21044-A-8-A Client ID: MCFSMW-5_0816

Sample Type: Client

Inject. Date: 04-Sep-2016 14:54:00 ALS Bottle#: 0 Worklist Smp#: 19

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:48:40 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 12:04:55

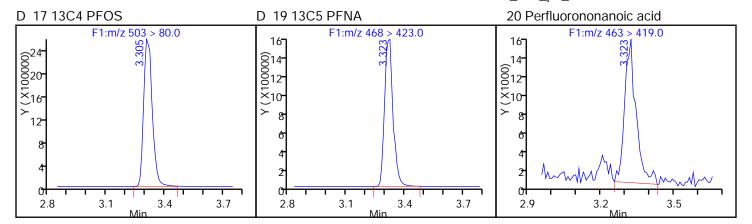
	I II St Level Kevie	wei. baii	nettj			Date.	Į.	7-3ep-2010 12.04.3	13		
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid											
		1.942	1.944	-0.002	1.000	2185950	6.67				
	298.9 > 99.0	1.951	1.944	0.007	1.004	905095		2.42(0.00-0.00)			
	D 613C2 PFHx	Α									
	315 > 270.0	2.220	2.213	0.007		6512167	45.1		90.2	581546	
	D 11 13C4-PFH _I										
	367 > 322.0	2.564	2.556	0.008		6558198	50.1		100	548582	
	12 Perfluorohe										
	363 > 319.0	2.564		0.008	1.000	957378	7.01			6214	
	9 Perfluorohex										
	399 > 80.0	2.549	2.571	-0.022	1.000	5509717	23.8				
	D 10 18O2 PFH:		0.574	0.000		40400700	E / 4		440	00705/	
	403 > 84.0	2.579		0.008		10193792	56.4		119	397256	
	15 Perfluorooct			0.017	1 000	2000204	115			0011	M
	413 > 369.0 413 > 169.0	2.936 2.936	2.919 2.919	0.017 0.017	1.000 1.000	2088304 1398490	14.5	1.49(0.90-1.10)		9011 6962	M M
	D 14 13C4 PFO		2.717	0.017	1.000	1370470		1.47(0.70-1.10)		0702	IVI
	417 > 372.0		2.928	0.008		6940588	47.6		95.2	580834	
	18 Perfluorooct					0710000	17.0		70.2	000001	M
	499 > 80.0	3.314	3.195	0.120	1.000	2303855	11.6			22474	M
	499 > 99.0	3.196	3.195	0.002	0.965	627102		3.67(0.90-1.10)		10257	
	D 17 13C4 PFO	S									
	503 > 80.0	3.305	3.304	0.001		8094304	55.9		117	108306	
	D 19 13C5 PFN/	4									
	468 > 423.0	3.323	3.312	0.011		4774635	37.4		74.9	195425	
	20 Perfluorono	nanoic a	cid								
	463 > 419.0	3.323	3.312	0.011	1.000	47406	0.4898			651	

Report Date: 17-Sep-2016 12:50:34 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Chrom Revision: 2.2 08-Sep-2016 14:45:52 Report Date: 17-Sep-2016 12:50:35 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 14:54:00 Instrument ID: **A8** Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8 Client ID: MCFSMW-5 0816 Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 19 Injection Vol: Dil. Factor: 1.0000 2.0 ul LC PFC_DOD ICAL Method: PFC_A8_Full Limit Group: 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid D 613C2 PFHxA F1:m/z 298.9 > 99.0 F1:m/z 298.9 > 80.0 F1:m/z 315 > 270.0 35 ©21**-**©18 677-866-030-025-025- Σ_{55} <u>></u>20 15- 33 10 22 2.0 2.3 2.3 1.9 2.2 2.5 1.7 1.4 1.7 2.0 1.6 2.8 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid F1:m/z 399 > 80.0 F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 35 18 21-(000001X) (00005 X12 2 3 4 9 630 625 15 10 2.8 2.2 2.5 2.8 3.1 2.5 2.1 2.7 3.3 1.9 2.2 1.5 D 10 1802 PFHxS 15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) F1:m/z 413 > 169.0 F1:m/z 403 > 84.0 F1:m/z 413 > 369.0 35 34 830 656 648 0029 24 24 ≥25-× × >20-×40-≻₃₂-15 24 10 16 2.7 3.0 2.8 3.1 2.3 2.6 2.9 2.4 2.2 2.5 3.4 2.0 3.2 3.5 2.1 18 Perfluorooctane sulfonic acid D 14 13C4 PFOA 18 Perfluorooctane sulfonic acid (M) F1:m/z 417, > 372.0 F1:m/z 499 > 80.0 F1:m/z 499 > 99.0 24 16- 48 021-0218-(00012 X10 00041- 0001×34- ∑₁₅-<u>_</u>27 20 13 0 0 2.6 2.9 3.2 3.5 Page 3//6 of 657 2.9 2.7 3.0 3.3 2.3 3.8 2.4 3.0 3.6 4.2 2.4 1.8



TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d

Injection Date: 04-Sep-2016 14:54:00 Instrument ID: A8

Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8

Client ID: MCFSMW-5_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 19

Injection Vol: 2.0 ul Dil. Factor: 1.0000

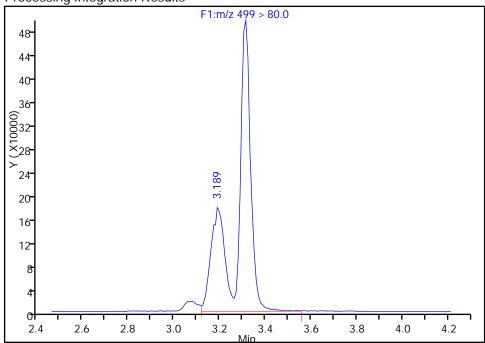
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

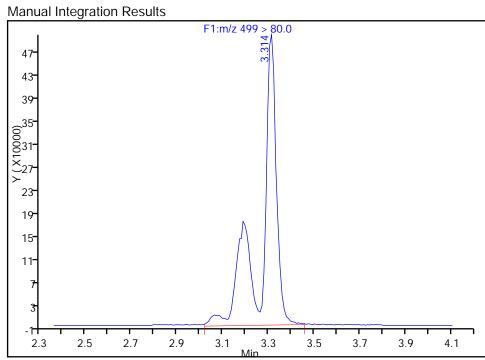
Signal: 1

RT: 3.19
Area: 2227502
Amount: 11.193274
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 2303855
Amount: 11.576951
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 12:04:55

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 318 of 657

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_019_p1_e1.d

Injection Date: 04-Sep-2016 14:54:00 Instrument ID: A8

Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8

Client ID: MCFSMW-5_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 19

Injection Vol: 2.0 ul Dil. Factor: 1.0000

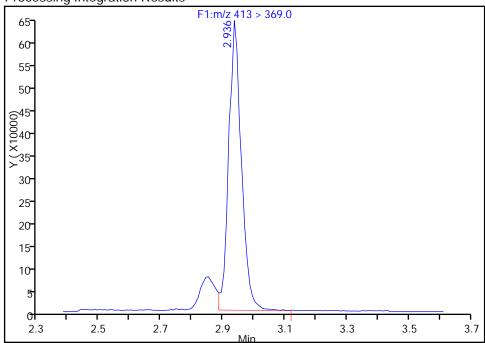
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

15 Perfluorooctanoic acid, CAS: 335-67-1

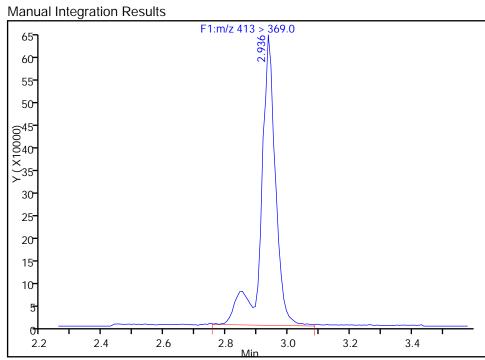
Signal: 1

RT: 2.94
Area: 1812128
Amount: 12.547198
Amount Units: ng/ml

Processing Integration Results



RT: 2.94
Area: 2088304
Amount: 14.459444
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 12:04:55

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 319 of 657

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_019_p1_e1.d

Injection Date: 04-Sep-2016 14:54:00 Instrument ID: A8

Lims ID: 320-21044-A-8-A Lab Sample ID: 320-21044-8

Client ID: MCFSMW-5_0816

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 19

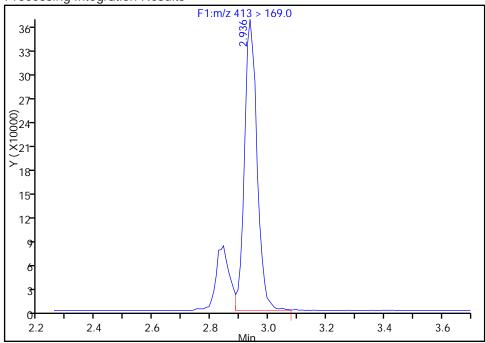
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

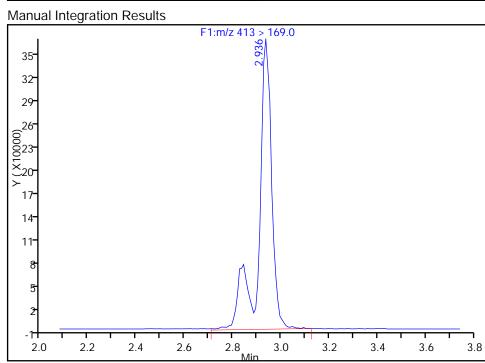
15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

RT: 2.94 Area: 1115804 Amount: 12.547198 Amount Units: ng/ml Processing Integration Results



RT: 2.94 Area: 1398490 Amount: 14.459444 Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 12:04:55

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 320 of 657

FORM VI

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Files:

LEVEL:		IAD CAMPIE ID.	IAD BILL ID.
		LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-125915/4	03SEP2016A_004_p1_e1.d
Level	2	IC 320-125915/14	03SEP2016A 014 p1 e1.d
Level	3	IC 320-125915/5	03SEP2016A 005 p1 e1.d
Level	4	IC 320-125915/15	03SEP2016A 015 p1 e1.d
Level	5	IC 320-125915/6	03SEP2016A_006_p1_e1.d
Level	6	IC 320-125915/16	03SEP2016A_016_p1_e1.d
Level	7	IC 320-125915/7	03SEP2016A_007_p1_e1.d
Level	8	IC 320-125915/17	03SEP2016A_017_p1_e1.d
Level	9	IC 320-125915/8	03SEP2016A 008 pl el.d
Level	10	IC 320-125915/18	03SEP2016A 018 pl el.d
Level	11	IC 320-125915/9	03SEP2016A 009 pl el.d
Level	12	IC 320-125915/19	03SEP2016A 019 p1 e1.d
Level	13	IC 320-125915/10	03SEP2016A 010 p1 e1.d
Level	14	IC 320-125915/20	03SEP2016A_020_p1_e1.d

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.657 1.643		1.651		1.623		1.658		1.650		1.395 - 1.895	1.647
Perfluoropentanoic acid (PFPeA)	1.955 1.933		1.936		1.927		1.953		1.950		1.690 - 2.190	1.942
Perfluorobutanesulfonic acid (PFBS)	1.998 1.967		1.970		1.961		1.986		1.983		1.796 - 2.156	1.978
Perfluorohexanoic acid (PFHxA)	2.282 2.240		2.245		2.245		2.262		2.257		2.003 - 2.503	2.255
Perfluorohexanesulfonic acid (PFHxS)	+++++ 2.617		2.525 2.614		2.539		2.558		2.623		2.341 - 2.841	2.579
Perfluoroheptanoic acid (PFHpA)	2.643 2.602		2.602		2.616		2.627		2.615		2.364 - 2.864	2.618
6:2FTS		+++++ 2.933		2.941		2.933		2.933		2.933	2.685 - 3.185	2.935
Perfluorooctanoic acid (PFOA)	+++++ 2.977		2.974 2.973		3.004		3.013		2.991		2.746 - 3.246	2.989
Perfluoroheptanesulfonic Acid (PFHpS)	3.038 2.985		2.974		3.012		3.013		2.991		2.749 - 3.249	3.002
Perfluorooctanesulfonic acid (PFOS)	+++++ 3.239		3.233 3.327		3.275		3.273		3.264		3.021 - 3.521	3.269
Perfluorononanoic acid (PFNA)	3.416 3.361		3.363		3.400		3.398		3.370		3.131 - 3.631	3.385
Perfluorooctane Sulfonamide (FOSA)	3.706 3.665		3.643		3.684		3.692		3.671		3.424 - 3.924	3.677
8:2FTS		3.699 3.688		3.699		3.708		3.700		3.692	3.447 - 3.947	3.698

FORM VI

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorodecanoic acid (PFDA)	3.787 3.722		3.724		3.762		3.753		3.739		3.494 - 3.994	3.748
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		3.874 3.864		3.867 3.865		3.875		3.867		3.867	3.619 - 4.119	3.868
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		4.053 4.031		4.045 4.032		4.045		4.036		4.036	3.789 - 4.289	4.040
Perfluorodecanesulfonic acid (PFDS)	4.100 4.031		4.035 4.033		4.069		4.069		4.052		3.805 - 4.305	4.05
Perfluoroundecanoic acid (PFUnA)	4.129 4.058		4.053 ++++		4.088		4.099		4.071		3.828 - 4.328	4.083
MeFOSA		4.141 4.146		4.142 4.137		4.152		4.152		4.142	3.895 - 4.395	4.145
N-EtFOSA-M		4.331 4.332		4.332 4.324		4.342		4.332		4.334	4.083 - 4.583	4.332
Perfluorododecanoic acid (PFDoA)	4.421 4.354		4.352		4.390		4.382		4.369		4.124 - 4.624	4.378
Perfluorotridecanoic Acid (PFTriA)	4.689 4.619		4.619		4.650		4.651		4.637		4.389 - 4.889	4.644
Perfluorotetradecanoic acid (PFTeA) Perfluoro-n-hexadecanoic acid (PFHxDA)	4.924 4.860 5.367		4.866 4.860 5.288		4.899 5.324		4.899 5.318		4.876 5.297		4.633 - 5.133 5.059 - 5.559	4.883 5.314
Perfluoro-n-nexadecanoic acid (PFHXDA) Perfluoro-n-octadecanoic acid (PFODA)	5.289		5.288		5.711		5.707		5.680		5.442 - 5.942	5.698
13C4 PFBA	5.663		1.644		1.623		1.651		1.643		1.392 - 1.892	1.642
13C5-PFPeA	1.643		1.636		1.927		1.953		1.941		1.688 - 2.188	1.941
13C2 PFH×A	1.933		+++++ 2.245		2.245		2.270		2.257		2.004 - 2.504	2.25
13C4-PFHpA	2.240		+++++ 2.594		2.616		2.627		2.608		2.361 - 2.861	2.611
1802 PFHxS	2.602		2.587		2.623		2.642		2.623		2.376 - 2.876	2.620
M2-6:2FTS	2.610	2.933	2.614	2.941		2.941		2.933		2.933	2.683 - 3.183	2.93
13C4 PFOA	3.038	2.925	2.974 2.973	2.933	3.004		3.013		2.983		2.744 - 3.244	2.99
L3C4 PFOS	3.416 3.352		3.354 3.355		3.391		3.389		3.370		3.125 - 3.625	3.37
13C5 PFNA	3.424 3.361		3.354		3.391		3.398		3.370		3.130 - 3.630	3.38
13C8 FOSA	3.706 3.665		3.643		3.684		3.692		3.671		3.424 - 3.924	3.67

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
	LVL 11	LVL 12	LVL 13	LVL 14								
M2-8:2FTS		3.699		3.699		3.708		3.700		3.700	3.447 - 3.947	3.698
		3.688		3.689								
13C2 PFDA	3.787		3.724		3.762		3.753		3.739		3.494 - 3.994	3.748
	3.722		+++++									
d3-NMeFOSAA		3.866		3.867		3.875		3.867		3.860	3.616 - 4.116	3.865
		3.864		3.857								
d5-NEtFOSAA		4.035		4.036		4.036		4.036		4.027	3.782 - 4.282	4.032
		4.031		4.023								
13C2 PFUnA	4.119		4.053		4.098		4.099		4.071		3.831 - 4.331	4.085
	4.067		+++++									
d-N-MeFOSA-M		4.141		4.142		4.152		4.142		4.142	3.893 - 4.393	4.143
		4.146		4.137								
d-N-EtFOSA-M		4.322		4.323		4.333		4.323		4.325	4.076 - 4.576	4.325
		4.322		4.324								
13C2 PFDoA	4.421		4.352		4.390		4.382		4.369		4.124 - 4.624	4.374
	4.354		4.351									
13C2-PFTeDA	4.924		4.866		4.899		4.890		4.876		4.632 - 5.132	4.882
	4.860		4.860									
13C2-PFHxDA	5.359		5.288		5.315		5.318		5.286		5.055 - 5.555	5.305
	5.289		5.280									

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Files:

LEVEL:		LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-125915/4	03SEP2016A 004 p1 e1.d
Level	2	IC 320-125915/14	03SEP2016A 014 p1 e1.d
Level	3	IC 320-125915/5	03SEP2016A 005 p1 e1.d
Level	4	IC 320-125915/15	03SEP2016A 015 p1 e1.d
Level	5	IC 320-125915/6	03SEP2016A 006 pl el.d
Level	6	IC 320-125915/16	03SEP2016A 016 p1 e1.d
Level	7	IC 320-125915/7	03SEP2016A 007 p1 e1.d
Level	8	IC 320-125915/17	03SEP2016A 017 pl el.d
Level	9	IC 320-125915/8	03SEP2016A 008 pl el.d
Level	10	IC 320-125915/18	03SEP2016A 018 p1 e1.d
Level	11	IC 320-125915/9	03SEP2016A 009 p1 e1.d
Level	12	IC 320-125915/19	03SEP2016A 019 pl el.d
Level	13	IC 320-125915/10	03SEP2016A 010 p1 e1.d
Level	14	IC 320-125915/20	03SEP2016A_020_p1_e1.d

ANALYTE		CF		CURVE		COEFFICIENT	#	MIN CF	%RSD	# MAX	R^2	# MIN R^2
	LVL 1 LVL LVL 5 LVL LVL 9 LVL 1 LVL 13 LVL	6 LVL 7 .0 LVL 11	LVL 4 LVL 8 LVL 12	TYPE	В	M1	M2			%RSD	OR COD	OR COD
13C4 PFBA	211295 204300 201200 170299	225399 211953 188965		Ave		201915.589			8.8	50.0		
13C5-PFPeA	160652 160448 156240 +++++	173028 159250 140737		Ave		158392.537			6.6	50.0		
13C2 PFHxA	150556 146735 138294 +++++	157806 144007 128542		Ave		144323.430			7.0	50.0		
13C4-PFHpA	148554 140445 129583 96280	148443 138648 114088		Ave		130862.771			14.8	50.0		
1802 PFHxS	189759 187052 185699 145005	198692 188286 170555		Ave		180721.000			9.9	50.0		

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE		CI	E		CURVE		COEFFICIENT	#	MIN CF	%RSD		IAX			N R^2
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12	TYPE -	В	M1	M2			76	RSD	OR COD	OF	R COD
M2-6:2FTS		72766 73283 79957 90861		73794 75796 81120	Ave		78225.0376			8.3	5	0.0			
13C4 PFOA	162075 159189 151003 99070		170947 153998 124500		Ave		145825.911			17.3	5	0.0			
13C4 PFOS	149748 151776 146442 119599		155018 151243 139253		Ave		144725.502			8.4	5	0.0			
13C5 PFNA	131896 133731 124284 +++++		140104 131280 103865		Ave		127526.510			9.9	5	0.0			
13C8 FOSA	273826 265940 267370 +++++		277180 270954 242855		Ave		266354.170			4.6	5	0.0			
M2-8:2FTS		75421 79820 86552 102328		77363 81004 86722	Ave		84172.8691			10.8	5	0.0			
13C2 PFDA	122847 122015 121540 +++++		128108 123055 107791		Ave		120892.677			5.7	5	0.0			
d3-NMeFOSAA		46907 49442 53799 47819		49495 52324 51177			50137.6771			4.9	5	0.0			
d5-NEtFOSAA		52236 56910 58822 53492		54797 61257 54955	Ave		56066.9000			5.6	5	0.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE		Cl	F		CURVE TYPE		COEFFICIENT		#	MIN CF	%RSD	#	MAX R^2	# MIN R^2
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12	TIPE	В	M1	M2					%RSD OR COD	OR COD
13C2 PFUnA	98422 98434 93655 +++++		104877 95702 80733		Ave		95303.5367				8.5		50.0	
d-N-MeFOSA-M		63922 68789 73116 68877		66917 70563 70686	Ave		68981.6000				4.3		50.0	
d-N-EtFOSA-M		59535 61473 66510 65671		61271 64899 67446			63829.1686				4.8		50.0	
13C2 PFDoA	92380 92712 88665 72830		96800 93486 82434		Ave		88472.4429				9.3		50.0	
13C2-PFTeDA	173412 180160 176961 141281		182677 179502 159128		Ave		170445.737				8.8		50.0	
13C2-PFH×DA	110511 112997 112089 94266		111953 114879 105293		Ave		108855.329				6.5		50.0	

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE			RRF			CURVE		COEFFICIEN	NT	# MIN RRF	' %RSD	#	MAX	R^2	#	MIN R^2
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	TYPE	В	M1	M2	+			%RSD	OR COD		OR COD
	LVL 6	LVL Z	LVL 8	LVL 4			В	MI	M∠							
				-	LVL 10											
	LVL 11	LVL 12	-	LVL 14												
Perfluorobutanoic acid (PFBA)	189608		194481		181106	AveID		0.8766			4.1		35.0			
		190304		182152												
	153057		+++++													
Perfluoropentanoic acid (PFPeA)	197376		183410		166298	AveID		1.0495			9.8		35.0			
		165007		160367												
	128014		+++++													
Perfluorobutanesulfonic acid (PFBS)	297590		302923		285731	AveID		1.5217			7.5		50.0			
		305066		295194												
	221686		+++++													
Perfluorohexanoic acid (PFHxA)	176430		152002		144205	AveID		1.0075			8.7		35.0			
		147103		136737												
	117858		+++++													
Perfluorohexanesulfonic acid (PFHxS)	+++++		250612		207534	AveID		1.0739			9.7		35.0			
		201040		191855												
	170423		141053		4 4 0 5 0 0			1 0100			0.6		0.5.0			
Perfluoroheptanoic acid (PFHpA)	164102		156657		143729	AveID		1.0408			3.6		35.0			
	110455	143669		133596												
6.0777	113457	+++++	+++++	64006				0.8178			100		25.0			
6:2FTS	F 2 1 0 0	+++++		64806		AveID		0.81/8			10.0		35.0			
	53198	61356	69837	+++++	64528											
De Claración de la CDEOZA	++++		184391		170040	AveID		1.0404					35.0			
Perfluorooctanoic acid (PFOA)	+++++	164695		156413	1/8248	AvelD		1.0404			6.0		35.0			
	122937	164693	94266													
Perfluoroheptanesulfonic Acid (PFHpS)	180994		176887		171130	Arro T D		1.1513			3.9		50.0			
Periluoroneptanesullonic Acid (Prhps)	100994	177488		172118	1/1130	Aveid		1.1313			3.9		30.0			
	150604	1//400	+++++	1/2110												
Perfluorooctanesulfonic acid (PFOS)	++++		193734		200236	AveID		1.1752			9.9		35.0			
refillation to the same same same same same same same sam	77777	172358		157929	209236	Aveid		1.1/52			9.9		33.0			
	152281	1/2000	132900	13/329												
Perfluorononanoic acid (PFNA)	139592		137373		129600	AveID		1.0136			3.4	+	35.0			
	133332	132578		129679	12,000	17ACID		1.0100			7.4		33.0			
	105975	132370	+++++	12,0079												
Perfluorooctane Sulfonamide (FOSA)	258092		255689	-	257894	AveID		0.9229			7.2	+	35.0			
Terrasione barronamiae (rosa)	230032	261535		253085	237004	110010		0.5225			' • 2		33.0			
	192093	201000	+++++	255055												

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE			RRF			CURVE		COEFFICIE	NT	# MIN RRF	%RSD	 MAX %RSD	R^2 OR COD	# 1	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	TYPE	В	M1	M2			*KSD	OR COD		OR COD
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10										
	LVL 11	LVL 12	LVL 13	LVL 14											
8:2FTS		65056		63287		AveID		0.8122			7.9	35.0			
	58268		73509		67244										
Perfluorodecanoic acid (PFDA)	127214	67490	124232	+++++	119580	ATTO T D		0.9788			3.0	35.0			
refiliuofodecanoic acid (FFDA)	12/214	119168	124232	116998	119300	Aveid		0.9788			3.0	33.0			
	103096	113100	+++++	110330											
N-methyl perfluorooctane		42964		39036		AveID		0.8654			10.4	35.0			
sulfonamidoacetic acid (NMeFOSAA)	36294	45.55.6	46298		44756										
N-ethyl perfluorooctane		45656 39230		48299 39793		AveID		0.7603			9.7	35.0			
sulfonamidoacetic acid (NEtFOSAA)	35956	39230	47734	39193	44143			0.7603			9.7	33.0			
Carronamiacaccis acia (NZCrobini)	33330	44889	_	46341	11110										
Perfluorodecanesulfonic acid (PFDS)	96680		92147		93235	AveID		0.6392			4.1	50.0			
		99386		97497											
D. Cl	91645 126954		76451 115201		00041	AveID		1.0765			10.0	35.0			
Perfluoroundecanoic acid (PFUnA)	126954	99698		95786		AvelD		1.0765			10.3	35.0			
	80582	33030	+++++	33700											
MeFOSA		50876		52546		AveID		0.8097			9.1	35.0			
	45926		59628		59310										
N. EL ECC. M		61334 47796		61671 49985		3 - TD		0.0464			0 0	25.0			
N-EtFOSA-M	45233	4//96	57713	49985	56105	AveID		0.8464			8.0	35.0			
	10233	61001	37713	61285	30103										
Perfluorododecanoic acid (PFDoA)	92986		90993		89030	AveID		0.9694			2.3	35.0			
		90063		87038											
D 61 (DDD 12)	79487		+++++		00415			1 0010			4 0	F0 0			
Perfluorotridecanoic Acid (PFTriA)	99930	92692	91651	91352	9041/	AveID		1.0013			4.8	50.0			
	80952	22022	+++++	71332											
Perfluorotetradecanoic acid (PFTeA)	195730		172556		166022	AveID		1.7930			10.6	50.0			
		170126		164765											
	140124		107863		44065		0 5053						1 0000		
Perfluoro-n-hexadecanoic acid (PFHxDA)	207536	107463	151618	105000	110651	Llid	0.5079	1.1343					1.0000		0.9900
	93077	10/403	+++++	103000											
Perfluoro-n-octadecanoic acid (PFODA)	92614		87858		89652	AveID		0.9803			4.4	50.0			
,		90372		89966											
	84358		+++++												

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Files:

LEVEL:		LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-125915/4	03SEP2016A 004 pl el.d
Level	2	IC 320-125915/14	03SEP2016A 014 p1 e1.d
Level	3	IC 320-125915/5	03SEP2016A 005 pl el.d
Level	4	IC 320-125915/15	03SEP2016A 015 pl el.d
Level	5	IC 320-125915/6	03SEP2016A 006 pl el.d
Level	6	IC 320-125915/16	03SEP2016A 016 pl el.d
Level	7	IC 320-125915/7	03SEP2016A 007 pl el.d
Level	8	IC 320-125915/17	03SEP2016A 017 pl el.d
Level	9	IC 320-125915/8	03SEP2016A 008 pl el.d
Level	10	IC 320-125915/18	03SEP2016A 018 pl el.d
Level	11	IC 320-125915/9	03SEP2016A 009 pl el.d
Level	12	IC 320-125915/19	03SEP2016A 019 p1 e1.d
Level	13	IC 320-125915/10	03SEP2016A 010 p1 e1.d
Level	14	IC 320-125915/20	03SEP2016A 020 pl el.d

ANALYTE	CURVE			RESPONSE				CONCE	NTRATION (1	NG/ML)	
	TYPE	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
13C4 PFBA	Ave	10564753 9448230	10597639	11269933 8514926	10059992	10214983	50.0	50.0	50.0 50.0	50.0	50.0
13C5-PFPeA	Ave	8032597 7036843	7962509	8651414	7811976	8022422	50.0	50.0	50.0	50.0	50.0
13C2 PFHxA	Ave	7527780 6427112	7200359	7890315	6914706	7336757	50.0	50.0	50.0	50.0	50.0
13C4-PFHpA	Ave	7427688 5704395	6932384	7422156 4813978	6479138	7022231	50.0	50.0	50.0 50.0	50.0	50.0
1802 PFHxS	Ave	8975602 8067246	8905918	9398124	8783547	8847569	47.3	47.3	47.3	47.3	47.3
M2-6:2FTS	Ave	3480930	3456373 3853202	3600290	3505211 4315874	3797945	47.5	47.5 47.5	47.5	47.5 47.5	47.5
13C4 PFOA	Ave	8103757 6224994	7699889	8547338 4953489	7550162	7959440	50.0	50.0	50.0 50.0	50.0	50.0

FORM VI LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE	CURVE			RESPONSE				CONCE	NTRATION (N	G/ML)	
	TYPE -	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
13C4 PFOS	Ave	7157954 6656316	7229395	7409872 5716815	6999925	7254876	47.8 47.8	47.8	47.8 47.8	47.8	47.8
13C5 PFNA	Ave	6594775 5193244	6564022	7005194	6214189	6686529	50.0	50.0	50.0	50.0	50.0
13C8 FOSA	Ave	13691300	13547695	13858976	13368523	13296996	50.0	50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	3823389	3612646 4153988	3880074	3705704 4901505	4145857	47.9	47.9 47.9	47.9	47.9 47.9	47.9
13C2 PFDA	Ave	6142366 5389574	6152729	6405384	6077012	6100738	50.0	50.0	50.0	50.0	50.0
d3-NMeFOSAA	Ave	2472121	2345360 2558846	2616200	2474737 2390955	2689968	50.0	50.0	50.0	50.0	50.0
d5-NEtFOSAA	Ave	2845482	2611814 2747749	3062834	2739854 2674584	2941098	50.0	50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	4921076	4785082	5243840	4682751	4921680	50.0	50.0	50.0	50.0	50.0
d-N-MeFOSA-M	Ave	4036632 3439446	3196091 3534315	3528172	3345874 3443873	3655789	50.0	50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	3073658	2976733	3244967	3063548	3325487	50.0	50.0	50.0	50.0	50.0
13C2 PFDoA	Ave	4619008 4121681	4674298	4839992 3641523	4433243	4635610	50.0	50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	8670614 7956388	8975109	9133846	8848037	9007978	50.0	50.0	50.0	50.0	50.0
13C2-PFH×DA	Ave	5525528 5264655	5743935	5597674 4713289	5604455	5649829	50.0	50.0	50.0	50.0	50.0

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RESPONSE AND CONCENTRATION

Job No.: 320-21044-1	Analy Batch No.: 125915	
GC Column: Acquity ID: 2.1(mm)	Heated Purge: (Y/N) N	
Calibration End Date: 09/03/2016 17:38	Calibration ID: 24991	
	GC Column: Acquity ID: 2.1(mm)	GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Curve Type Legend:
Ave = Average

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Files:

LEVEL:		LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-125915/4	03SEP2016A 004 p1 e1.d
Level	2	IC 320-125915/14	03SEP2016A 014 p1 e1.d
Level	3	IC 320-125915/5	03SEP2016A 005 p1 e1.d
Level	4	IC 320-125915/15	03SEP2016A 015 p1 e1.d
Level	5	IC 320-125915/6	03SEP2016A 006 p1 e1.d
Level	6	IC 320-125915/16	03SEP2016A 016 p1 e1.d
Level	7	IC 320-125915/7	03SEP2016A 007 pl el.d
Level	8	IC 320-125915/17	03SEP2016A 017 pl el.d
Level	9	IC 320-125915/8	03SEP2016A 008 pl el.d
Level	10	IC 320-125915/18	03SEP2016A 018 pl el.d
Level	11	IC 320-125915/9	03SEP2016A 009 pl el.d
Level	12	IC 320-125915/19	03SEP2016A 019 pl el.d
Level	13	IC 320-125915/10	03SEP2016A_010_p1_e1.d
Level	14	IC 320-125915/20	03SEP2016A_020_p1_e1.d

ANALYTE	IS	CURVE			RESPONSE				CONCE	NTRATION (1	NG/ML)	
	REF	TYPE	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
Perfluorobutanoic acid (PFBA)		AveID	94804	3806071	194481	9107590	905532	0.500	20.0	1.00	50.0	5.00
Perfluoropentanoic acid (PFPeA)		AveID	98688 25602733	3300147	183410	8018325	831490	0.500	20.0	1.00	50.0	5.00
Perfluorobutanesulfonic acid (PFBS)		AveID	131535 39194012	5393562	267784	13047591	1262929	0.442	17.7	0.884	44.2	4.42
Perfluorohexanoic acid (PFHxA)		AveID	88215 23571653	2942051	152002	6836853	721026	0.500	20.0	1.00	50.0	5.00
Perfluorohexanesulfonic acid (PFHxS)		AveID	+++++ 31017014	3658925	228057 51343246	8729401	944278	+++++ 182	18.2	0.910	45.5	4.55
Perfluoroheptanoic acid (PFHpA)		AveID	82051 22691495	2873384	156657	6679813	718644	0.500	20.0	1.00	50.0	5.00
6:2FTS		AveID	252159	+++++ 11633026	1324103	61436	3058623	4.74	+++++ 190	19.0	0.948	47.4

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: $\underline{A8}$ GC Column: $\underline{Acquity}$ ID: $\underline{2.1 (mm)}$ Heated Purge: (Y/N) N

Calibration Start Date: 09/03/2016 15:38 Calibration End Date: 09/03/2016 17:38 Calibration ID: 24991

ANALYTE	IS	CURVE			RESPONSE				CONCE	NTRATION (N	G/ML)	
	REF	TYPE	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
Perfluorooctanoic acid (PFOA)		AveID	+++++		184391		891238	++++		1.00		5.00
			24587367	3293903	37706543	7820671		200	20.0	400	50.0	
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	86153	3379364	168396	8192805	814579	0.476	19.0	0.952	47.6	4.76
Perfluorooctanesulfonic acid (PFOS)		AveID	28674968	01.000.55	+++++ 179785	5005010	970855	190	10.6	++++ 0.928		4.64
			28263326	3198967	49332494	7327912		186	18.6	371	46.4	
Perfluorononanoic acid (PFNA)		AveID	69796	2651561	137373	6483970	648001	0.500	20.0	1.00	50.0	5.00
D. (1)		3 - TD	21195062		+++++		1000400	200		++++		F 00
Perfluorooctane Sulfonamide (FOSA)		AveID	129046	5230694	255689	12654264	1289420	0.500	20.0	1.00	50.0	5.00
8:2FTS		AveID	38418532	31162	+++++	60629		200	0.479	++++	0.958	
0:2115		Aveid	279103	12931010	1408431	+++++	3220979	4.79	192	19.2	+++++	47.9
Perfluorodecanoic acid (PFDA)		AveID	63607	12931010	124232	++++	597900	0.500	192	1.00	+++++	5.00
		111.012	20619156	2383354	+++++	5849904	037300	200	20.0	+++++	50.0	0.00
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	181469	21482	925966	39036	2237819	5.00	0.500	20.0	1.00	50.0
				9131219		19319449			200		400	
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	179781	19615	954675	39793	2207162	5.00	0.500	20.0	1.00	50.0
Perfluorodecanesulfonic acid (PFDS)		AveTD	46600	8977868	88830	18536217	449395	0.482	200	0.964	400	4.82
refilitionodecanesulfonic actu (FFDS)		Aveid	17669187	1916161	29479384	4699344	449393	193	19.3	386	48.2	4.02
Perfluoroundecanoic acid (PFUnA)		AveID	63477		115201		496205	0.500		1.00		5.00
			16116354	1993953	+++++	4789301		200	20.0	+++++	50.0	
MeFOSA		AveID		25438		52546	0065510		0.500		1.00	F.O. 0
			229630	12266767	1192551	24668475	2965510	5.00	200	20.0	400	50.0
N-EtFOSA-M		AveID	20515	23898	4454055	49985	00050:5		0.500	0.0	1.00	
			226164	12200197	1154250	24514043	2805243	5.00	200	20.0	400	50.0

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 125915

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE	IS	CURVE			RESPONSE		CONCENTRATION (NG/ML)					
	REF	TYPE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12	LVL 13	LVL 14		LVL 11	LVL 12	LVL 13	LVL 14	
Perfluorododecanoic acid (PFDoA)		AveID	46493		90993		445151	0.500		1.00		5.00
				1801266		4351878			20.0		50.0	
			15897471		+++++			200		+++++		
Perfluorotridecanoic Acid (PFTriA)		AveID	49965		91651		452087	0.500		1.00		5.00
				1853833		4567596			20.0		50.0	
			16190491		+++++			200		+++++		
Perfluorotetradecanoic acid (PFTeA)		AveID	97865		172556		830110	0.500		1.00		5.00
				3402523		8238270			20.0		50.0	
			28024778		43145369			200		400		
Perfluoro-n-hexadecanoic acid		L1ID	103768		151618		553254	0.500		1.00		5.00
(PFHxDA)				2149259		5250014			20.0		50.0	
			18615408		+++++			200		+++++		
Perfluoro-n-octadecanoic acid		AveID	46307		87858		448259	0.500		1.00		5.00
(PFODA)				1807447		4498275			20.0		50.0	
			16871624		+++++			200		+++++		

Curve Type Legend:

AveID = Average isotope dilution

L1ID = Linear 1/conc IsoDil

Report Date: 14-Sep-2016 14:35:35 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_004_p1_e1.d

Lims ID: IC L1

Client ID:

Sample Type: IC Calib Level: 1

Inject. Date: 03-Sep-2016 15:38:00 ALS Bottle#: 0 Worklist Smp#: 4

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:35:33 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Level Reviewer: phomsophat Date: 06-Sep-2016 16:13:50

wer: pho	msopha	t		Date:	C	6-Sep-2016 16:13:5	0		
RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
1.657	1.642	0.015		10564753	52.3		105	755106	
yric acid									
•	1.645	0.012	1.000	94804	0.5118		102	841	
eΑ									
1.955	1.938	0.017		8032597	50.7		101	951175	
ntanoic a	cid								
1.955	1.940	0.015	1.000	98688	0.5853		117	1461	
anesulfo	nic acid								
1.998	1.976	0.022	1.000	131535	0.4555		103		
		0.030	1.004	56032		2.35(0.00-0.00)	103		
	2.253	0.029	1.000	88215	0.5816		116	4263	
		0.028		7527780	52.2		104	131556	5
		0.010	1 000	4.40077	0.7050		4.0		
	2.591	0.068	1.000	149977	0.7359		162		
•	0 (11	0.000		7407/00	F/ 0		111	(20724	
		0.032		7427688	56.8		114	638/31	
-		0.000	4 000	00054	0.5007		40/	0000	
	2.614	0.029	1.000	82051	0.5307		106	2280	
	2 (2)	0.022		0075/00	40.7		105	F0724F	
	2.626	0.033		8975602	49.7		105	59/345	
	2.004	0.044		0100757	FF /		111	(72402	
		0.044		8103/5/	0.00		111	0/3403	
		0.040	1 000	122/22	0.7221		1 4 7	2707	
					U./331	1 82(0 90-1 10)			
5.050	2.770	0.042	1.000		\	1.02(0.70-1.10)	14/	4044	
	1.657 yric acid 1.657 eA 1.955 atanoic a 1.955 anesulfo 1.998 2.006 anoic ac 2.282 eA 2.282 canesulfc 2.659 pA 2.643 ptanoic ac 2.643 xS 2.659 A 3.038	1.657 1.642 yric acid 1.657 1.645 A 1.955 1.938 atanoic acid 1.955 1.940 anesulfonic acid 1.998 1.976 2.006 1.976 canoic acid 2.282 2.253 A 2.282 2.254 canesulfonic acid 2.659 2.591 pA 2.643 2.611 ptanoic acid 2.643 2.614 xS 2.659 2.626 A 3.038 2.994 tanoic acid 3.038 2.996	1.657 1.642 0.015 yric acid 1.657 1.645 0.012 A 1.955 1.938 0.017 anaesulfonic acid 1.976 0.022 2.006 1.976 0.030 anoic acid 2.282 2.253 0.029 A 2.282 2.254 0.028 anesulfonic acid 2.659 2.591 0.068 pA 2.643 2.611 0.032 ptanoic acid 2.643 2.614 0.029 xS 2.659 2.626 0.033 A 3.038 2.994 0.044 tanoic acid 3.038 2.996 0.042	RT RT RT RT RT RT 1.657 1.642 0.015 Pric acid 1.657 1.645 0.012 1.000 PA 1.955 1.938 0.017 Patanoic acid 1.955 1.940 0.015 1.000 Panesulfonic acid 1.998 1.976 0.022 1.000 2.006 1.976 0.030 1.004 Panesulfonic acid 2.282 2.253 0.029 1.000 PA 2.282 2.254 0.028 Panesulfonic acid 2.659 2.591 0.068 1.000 PA 2.643 2.611 0.032 Patanoic acid 2.643 2.614 0.029 1.000 PA 2.659 2.626 0.033 PA 3.038 2.994 0.044 Panoic acid 3.038 2.996 0.042 1.000	RT RT RT RT REL RESPONSE 1.657	RT RT RT RT REL REsponse Amount ng/ml 1.657	RT RT RT RT RT RT REL Response Amount ng/ml Ratio(Limits) 1.657 1.642 0.015 10564753 52.3 yric acid 1.657 1.645 0.012 1.000 94804 0.5118 2.4 1.955 1.938 0.017 8032597 50.7 atanoic acid 1.955 1.940 0.015 1.000 98688 0.5853 anesulfonic acid 1.998 1.976 0.022 1.000 131535 0.4555 2.35(0.00-0.00) atanoic acid 2.282 2.253 0.029 1.000 88215 0.5816 A 2.282 2.254 0.028 7527780 52.2 atanesulfonic acid 2.659 2.591 0.068 1.000 149977 0.7359 pA 2.643 2.611 0.032 7427688 56.8 ptanoic acid 2.659 2.626 0.033 8975602 49.7 A 3.038 2.994 0.044 8103757 55.6 atanoic acid 3.038 2.996 0.042 1.000 123622 0.7331 3.038 2.996 0.042 1.000 67771 1.82(0.90-1.10)	RT	RT RT RT RT RT RT REL Response ng/ml Ratio(Limits) %Rec S/N 1.657 1.642 0.015 10564753 52.3 105 755106 yric acid 1.657 1.645 0.012 1.000 94804 0.5118 102 841 1.955 1.938 0.017 8032597 50.7 101 951175 flanoic acid 1.955 1.940 0.015 1.000 98688 0.5853 117 1461 anesulfonic acid 1.998 1.976 0.022 1.000 131535 0.4555 2.35(0.00-0.00) 103 tanoic acid 2.282 2.253 0.029 1.000 88215 0.5816 116 4263 A 2.282 2.254 0.028 7527780 52.2 104 131556 tanesulfonic acid 2.659 2.591 0.068 1.000 149977 0.7359 162 pA 2.643 2.611 0.032 7427688 56.8 114 638731 planoic acid 2.643 2.614 0.029 1.000 82051 0.5307 106 2280 AS 3.038 2.994 0.044 8103757 55.6 111 673403 tanoic acid 3.038 2.994 0.042 1.000 123622 0.7331 1.82(0.90-1.10) 147 4644

Report Date: 14-Sep-2016 14:35:35 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_004_p1_e1.d

Data File:	\\Chr	omNA\Sa	acramen	to\Chrom	Data\A8\20160	906-34220.k	0\03SEP2016A_004	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanosul	Ifonic Ac	id							
449 > 80.0	3.038		0.039	1.000	86153	0.4997		105		
18 Perfluorooc				1.000	00.00	0.1777				
499 > 80.0	3.289	3.271	0.018	1.000	145964	0.8294		179	3773	
499 > 99.0	3.388	3.271	0.117	1.030	36715	0.0271	3.98(0.90-1.10)	179	917	
D 17 13C4 PFO										
503 > 80.0	3.416	3.375	0.041		7157954	49.5		103	499990	
D 19 13C5 PFN										
468 > 423.0	3.424	3.380	0.044		6594775	51.7		103	528837	
20 Perfluorono			0.0		007.770	0			020007	
463 > 419.0	3.416	3.381	0.035	1.000	69796	0.5221		104	2383	
D 21 13C8 FOS		0.001	0.000	1.000	07770	0.0221			2000	
506 > 78.0	3.706	3.674	0.032		13691300	51.4		103	738021	
22 Perfluorooc					13071300	51.4		100	730021	
498 > 78.0		3.674	0.032	1.000	129046	0.5106		102	9376	
			0.032	1.000	127040	0.5100		102	7370	
24 Perfluorode 513 > 469.0	3.787	3.744	0.043	1.000	63607	0.5290		106	4354	
		3.744	0.043	1.000	03007	0.3290		100	4354	
D 23 13C2 PFD. 515 > 470.0		2744	0.042		6142366	50.8		102	321387	
	3.787	3.744	0.043		0142300	50.8		102	321367	
26 Perfluorode				1 000	4//00	0.4070		101		
599 > 80.0		4.055	0.045	1.000	46600	0.4868		101		
28 Perfluoroun			0.054	1 000		0.5004		100	00.40	
563 > 519.0	4.129	4.078	0.051	1.000	63477	0.5991		120	2348	
D 27 13C2 PFU										
565 > 520.0	4.119		0.038		4921076	51.6		103	333267	
29 Perfluorodo										
613 > 569.0	4.421	4.374	0.047	1.000	46493	0.5192		104	208	
D 30 13C2 PFD	οΑ									
615 > 570.0	4.421	4.374	0.047		4619008	52.2		104	261249	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.689	4.639	0.050	1.000	49965	0.5402		108	171	
D 32 13C2-PFT	eDA									
715 > 670.0	4.924	4.882	0.042		8670614	50.9		102	998500	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.924	4.883	0.041	1.000	97865	0.5908		118	164	
713 > 169.0	4.924	4.883	0.041	1.000	16095		6.08(0.00-0.00)	118	5760	
D 34 13C2-PFH	xDA									
815 > 770.0	5.359	5.305	0.054		5525528	50.8		102	464148	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.367		0.058	1.000	103768	0.5425		109	301	
36 Perfluorooc										
913 > 869.0		5.692	0.054	1.000	46307	0.5113		102	207	
Reagents:	J., 10	0.0, <u>L</u>	0.001			5.5110		.02	,	
LCPFC-L1_0002	1		^	Amount A	dded: 1.00	Units	·· ml			
LOI 1 O-L 1_0002	. 1		-	anount A	uucu. 1.00	Office	7. IIIL			

Report Date: 14-Sep-2016 14:35:35 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 15:38:00 Instrument ID: **A8** Lims ID: IC L1 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 4 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 28 657 35- (00030 X25 00024 0000 20 X 630- 825-<u>></u>20 ∑16⁻ ≻20 15- 12 15 10 10 1.9 1.0 1.3 1.6 2.2 1.2 1.5 1.8 1.5 1.8 2.1 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 21 49 37 (00015- ×)12 642 ×35) ≻28 21 14 12 2.2 1.9 2.2 1.9 1.9 2.2 1.6 1.6 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 42 28 024 020 020 ×30-©24-×20-∑₁₆-18 12 12 2.0 2.3 2.6 1.8 2.1 2.4 3.0 2.0 2.3 2.9 3.2 1.7 2.7 1.7 2.6 3.5 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 403 > 84.0 00024 000024 20 (24⁻ 00020-28 <u>8</u>24 ∑₁₆ ×20 ≻16- 12 12 12 0 0 1.9 2.2 2.5 2.8 3.1 2.2 Page 387 of 657 2.8 1.9 2.2 2.5 2.8 3.1

Page 338 of 657

18

12

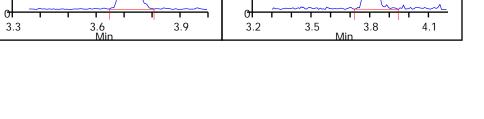
12

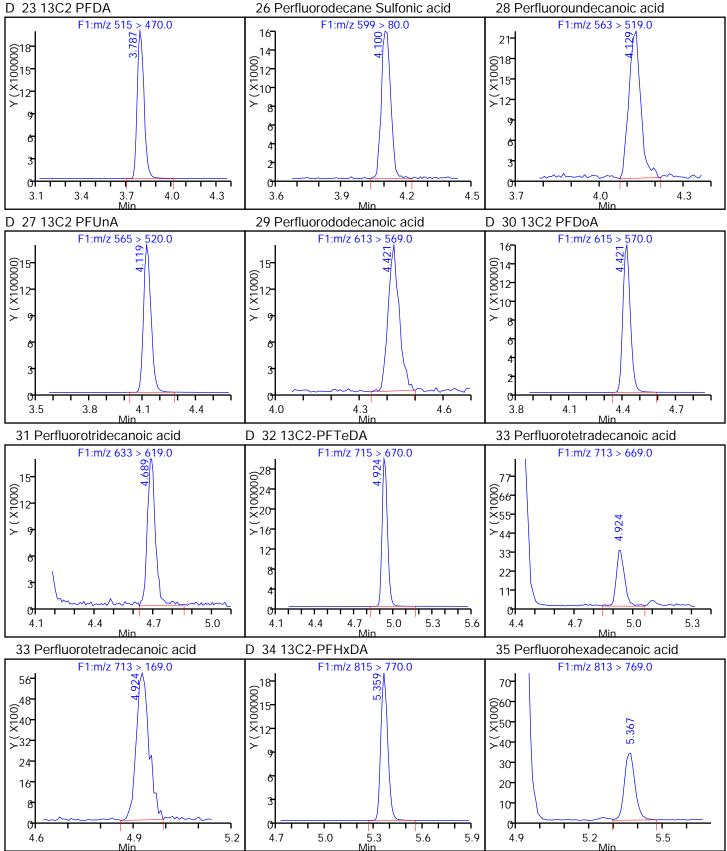
3.0

3.3

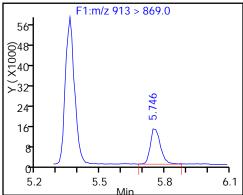
3.6 Min 3.9

4.2





36 Perfluorooctadecanoic acid



Report Date: 14-Sep-2016 14:35:49 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_005_p1_e1.d

Lims ID: IC L2

Client ID:

Sample Type: IC Calib Level: 2

Inject. Date: 03-Sep-2016 15:46:00 ALS Bottle#: 0 Worklist Smp#: 5

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:35:46 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Level Reviewer: phomsophat Date: 06-Sep-2016 16:16:48

First Level R	eviewer: pho	omsopha	at		Date:	C	06-Sep-2016 16:16:4	18		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 213C4P	FBA									
217 > 172.0	1.644	1.642	0.002		11269933	55.8		112	513997	
1 Perfluoro	obutyric acid									
212.9 > 169.	-	1.645	0.006	1.000	194481	0.9842		98.4	1646	
D 413C5-P	FPeA									
267.9 > 223.	.0 1.936	1.938	-0.002		8651414	54.6		109	160127	4
3 Perfluoro	opentanoic a	cid								
262.9 > 219.	.0 1.936	1.940	-0.004	1.000	183410	1.01		101	2511	
5 Perfluoro	obutanesulfo	nic acid								
298.9 > 80.0		1.976		1.000	267784	0.8857		100		
298.9 > 99.0		1.976	-0.006	1.000	111087		2.41(0.00-0.00)	100		
	ohexanoic ad									
313 > 269.0		2.253	-0.008	1.000	152002	0.9561		95.6	7599	
D 613C2P										
315 > 270.0	2.245		-0.009		7890315	54.7		109	149607	6
	ohexanesulfo									
399 > 80.0	2.525	2.591	-0.066	1.000	228057	1.07		117		
D 11 13C4-F	•	0 / 1 1	0.017		7400457	E / 3		440		
367 > 322.0		2.611	-0.017		7422156	56.7		113	656737	
	oheptanoic a									
363 > 319.0		2.614	-0.012	1.000	156657	1.01		101	2660	
D 10 18O2 F		0.404	0.017		0000101	50.0		440		
403 > 84.0	2.609	2.626	-0.017		9398124	52.0		110	656196	
D 14 13C4 F					05.47000	50 /		447	7.400.47	
417 > 372.0	2.974	2.994	-0.020		8547338	58.6		117	740847	
	ooctanoic ac		0.000	4.000	404004	4 0 4		40.	00.17	
413 > 369.0			-0.022	1.000	184391	1.04	1 57/0 00 1 10\	104	3847	
413 > 169.0	2.974	2.996	-0.022	1.000	117624		1.57(0.90-1.10)	104	8392	
					Dogo 244 of (257				

Report Date: 14-Sep-2016 14:35:49 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_005_p1_e1.d

Data File:	\\Chr	omNA\S	acramen	to\Chrom	Data\A8\20160	906-34220.k	0\03SEP2016A_005	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanosul	fonic Ac	id							
449 > 80.0	2.974		-0.025	1.000	168396	0.9436		99.1		
18 Perfluorooc				1.000	100070	0.7.100		,,,,		
499 > 80.0	3.233		-0.038	1.000	179785	0.9869		106	6111	
499 > 99.0	3.241		-0.030	1.003	44054	0.7007	4.08(0.90-1.10)	106	812	
D 17 13C4 PFO							,			
503 > 80.0	3.354	3.375	-0.021		7409872	51.2		107	486011	
D 19 13C5 PFN										
468 > 423.0	3.354	3.380	-0.026		7005194	54.9		110	543316	
20 Perfluorono			0.020		7000.7.	0 /			0.00.0	
463 > 419.0	3.363		-0.018	1.000	137373	0.9674		96.7	5657	
D 21 13C8 FOS		0.001	0.010	1.000	107070	0.7071		, 0.,	0007	
506 > 78.0		3.674	-0.031		13858976	52.0		104	388250	
22 Perfluorooc					13030770	32.0		104	300230	
498 > 78.0		3.674		1.000	255689	1.00		100.0	17223	
			-0.031	1.000	233007	1.00		100.0	17225	
24 Perfluorode 513 > 469.0	3.724		-0.020	1.000	124232	0.99		99.1	6201	
		3.744	-0.020	1.000	124232	0.99		99.1	0201	
D 23 13C2 PFD. 515 > 470.0		2 744	0.020		4.40E204	53.0		104	349701	
	3.724		-0.020		6405384	53.0		106	349701	
26 Perfluorode				1 000	00000	0.0074		02.0		
599 > 80.0		4.055	-0.020	1.000	88830	0.8964		93.0		
28 Perfluoroun				4 000	445004	4.00		400		
563 > 519.0	4.053	4.078	-0.025	1.000	115201	1.02		102	6102	
D 27 13C2 PFU										
565 > 520.0	4.053	4.081	-0.028		5243840	55.0		110	458105	
29 Perfluorodo										
613 > 569.0	4.352	4.374	-0.022	1.000	90993	0.9697		97.0	2084	
D 30 13C2 PFD	οA									
615 > 570.0	4.352	4.374	-0.022		4839992	54.7		109	340385	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.619	4.639	-0.020	1.000	91651	0.9456		94.6	372	
D 32 13C2-PFT	eDA									
715 > 670.0	4.866	4.882	-0.016		9133846	53.6		107	450425	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.866	4.883	-0.017	1.000	172556	0.99		99.4	243	
713 > 169.0	4.857	4.883	-0.026	0.998	27478		6.28(0.00-0.00)	99.4	5031	
D 34 13C2-PFH	xDA									
815 > 770.0	5.288	5.305	-0.017		5597674	51.4		103	378152	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0		5.309	-0.021	1.000	151618	0.9331		93.3	467	
36 Perfluorooc										
913 > 869.0			-0.014	1.000	87858	0.9259		92.6	404	
Reagents:	-	- · - · -			2.300	2.7.20.				
LCPFC-L2_0002	2		٨	mount A	dded: 1.00	Units	·· ml			
LOI 1 O-LZ_000Z	. ∠		P	anount A	uucu. 1.00	Office), III∟			

Page 342 of 657

Report Date: 14-Sep-2016 14:35:49 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: Injection Date: 03-Sep-2016 15:46:00 Instrument ID: **A8** Lims ID: IC L2 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 5 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 42 72 00036 0030 0030 0030 0030 .63 603 854 ×₄₅-36- 18 27 10 12 18 1.7 2.0 1.8 1.9 1.1 1.2 1.5 1.3 1.6 2.2 Min 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 Y (X10000) 42 65 65 656 6 36 ×30 **≻**24 38 18 29 12 20 1.9 1.8 2.1 1.8 2.1 2.4 2.2 1.5 1.5 1.6 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 399 > 80.0 F1:m/z 315 > 270.0 (000024-120-120-49 63 0642 ×35 0 0 54 ×45 ×16 ≻28 ≻₃₆-21 27 18 1.7 2.0 2.3 1.7 2.0 2.3 2.9 2.1 2.7 3.0 3.3 2.6 2.9 2.6 2.4 1.8 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 630 00 025 49 024-0020-<u>8</u>42 ×35- **≻**28 15 21 10 14 0 0 1.9 2.2 2.5 2.8 3.1 2.2 Page 346hof 657 2.8 2.0 2.3 2.6 2.9 3.2

3.8

4.1

3.5

22- 11-

3.2

12

3.1

3.4

3.7

4.0

12

3.3

3.6

3.9

4.2

5.2

5.5

5.8

4.4

4.7

5.0

5.3

4.6

4.9

20-

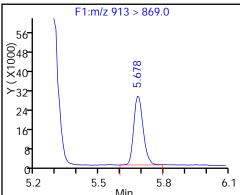
4.8

5.1

5.4

5.7

36 Perfluorooctadecanoic acid



Report Date: 14-Sep-2016 14:36:02 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_006_p1_e1.d

Lims ID: IC L3

Client ID:

Sample Type: IC Calib Level: 3

Inject. Date: 03-Sep-2016 15:53:00 ALS Bottle#: 0 Worklist Smp#: 6

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:35:59 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Level Reviewer: phomsophat Date: 06-Sep-2016 16:18:0

First Level Revie	wer: pho	msopha	at		Date:	C	06-Sep-2016 16:18:0) 1		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	1									
217 > 172.0	1.623	1.642	-0.019		10214983	50.6		101	396575	
1 Perfluorobut										
212.9 > 169.0	-	1.645	-0.022	1.000	905532	5.06		101	7160	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.927	1.938	-0.011		8022422	50.6		101	141383	9
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.927	1.940	-0.013	1.000	831490	4.94		98.8	17018	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.961		-0.015	1.000	1262929	4.44		100		
298.9 > 99.0	1.961	1.976	-0.015	1.000	520180		2.43(0.00-0.00)	100		
7 Perfluorohex										
313 > 269.0	2.245	2.253	-0.008	1.000	721026	4.88		97.5	35118	
D 6 13C2 PFH										
315 > 270.0	2.245	2.254	-0.009		7336757	50.8		102	684201	
9 Perfluorohex										
399 > 80.0	2.539	2.591	-0.052	1.000	944278	4.70		103		
D 11 13C4-PFH	•									
367 > 322.0	2.616	2.611	0.005		7022231	53.7		107	463404	
12 Perfluorohe	•									
363 > 319.0		2.614	0.002	1.000	718644	4.92		98.3	18708	
D 10 18O2 PFH										
403 > 84.0	2.623	2.626	-0.003		8847569	49.0		104	589088	
D 14 13C4 PFO										
417 > 372.0	3.004	2.994	0.010		7959440	54.6		109	416822	
15 Perfluorooc										
413 > 369.0	3.004	2.996	0.008	1.000	891238	5.38	4 (0(0.00.4.43)	108	16677	
413 > 169.0	3.004	2.996	0.008	1.000	526454		1.69(0.90-1.10)	108	34110	
					Dogo 247 of (257				

Report Date: 14-Sep-2016 14:36:02 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_006_p1_e1.d

Data File:	\\Chr	omNA\Sa	acramen	to\Chrom	Data\A8\20160	906-34220.k	0\03SEP2016A_006	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanesul	Ifonic Ac	id							
449 > 80.0	3.012	2.999		1.000	814579	4.66		97.9		
18 Perfluorooc				1.000	011077	1.00		,,,,		
499 > 80.0	3.275	3.271	0.004	1.000	970855	5.44		117	13141	
499 > 99.0	3.283	3.271	0.012	1.003	236652	0.11	4.10(0.90-1.10)	117	4465	
D 17 13C4 PFO										
503 > 80.0	3.391	3.375	0.016		7254876	50.1		105	341175	
D 19 13C5 PFN										
468 > 423.0	3.391	3.380	0.011		6686529	52.4		105	421064	
20 Perfluorono			0.0		0000027	02				
463 > 419.0	3.400	3.381	0.019	1.000	648001	4.78		95.6	19601	
D 21 13C8 FOS		0.001	0.017	1.000	0.10001	11.70		70.0	17001	
506 > 78.0	3.684	3.674	0.010		13296996	49.9		99.8	485188	
22 Perfluorooc					13270770	77.7		77.0	400100	
498 > 78.0		3.674	0.010	1.000	1289420	5.25		105	107284	
			0.010	1.000	1207420	5.25		103	107204	
24 Perfluorode 513 > 469.0	3.762	3.744	0.018	1.000	597900	5.01		100	33429	
		3.744	0.010	1.000	377700	5.01		100	33427	
D 23 13C2 PFD. 515 > 470.0		2711	0.010		4100720	50.5		101	221570	
	3.762	3.744	0.018		6100738	50.5		101	331578	
26 Perfluorode				1 000	4.40205	4.70		0/ 1		
599 > 80.0		4.055	0.014	1.000	449395	4.63		96.1		
28 Perfluoroun			0.010	4 000	40/005			00.7	00004	
563 > 519.0	4.088	4.078	0.010	1.000	496205	4.68		93.7	22894	
D 27 13C2 PFU										
565 > 520.0	4.098	4.081	0.017		4921680	51.6		103	269103	
29 Perfluorodo										
613 > 569.0	4.390	4.374	0.016	1.000	445151	4.95		99.1	6421	
D 30 13C2 PFD	οΑ									
615 > 570.0	4.390	4.374	0.016		4635610	52.4		105	252415	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.650	4.639	0.011	1.000	452087	4.87		97.4	1462	
D 32 13C2-PFT	eDA									
715 > 670.0	4.899	4.882	0.017		9007978	52.8		106	629709	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.899	4.883	0.016	1.000	830110	4.99		99.9	1360	
713 > 169.0	4.890	4.883	0.007	0.998	133267		6.23(0.00-0.00)	99.9	22527	
D 34 13C2-PFH	xDA									
815 > 770.0	5.315	5.305	0.010		5649829	51.9		104	378287	
35 Perfluorohe		oic acid								
813 > 769.0		5.309	0.015	1.000	553254	4.81		96.3	1686	
36 Perfluorooc										
913 > 869.0	5.711		0.019	1.000	448259	4.93		98.6	2053	
Reagents:								. 3.0		
LCPFC-L3_0001	Q		٨	mount A	dded: 1.00	Units	·· ml			
LOI 1 C-L3_0001	,		P	anount A	uucu. 1.00	UTIILS	. IIIL			

Page 348 of 657

Report Date: 14-Sep-2016 14:36:02 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 15:53:00 Instrument ID: **A8** Lims ID: IC L3 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 6 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212,9 > 169.0 F1:m/z 267.9 > 223.0 35 28 30⁻ (000001X) 00024-00024-20-×₂₀ ∑16- 15 15 12 10 10 1.3 1.9 2.2 1.6 1.4 1.7 2.0 1.3 1.6 1.9 2.2 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 48 21 6⁴² (00015-X)12-**∑**20 ×30-≻₂₄· 12 18 12 1.9 1.9 2.2 2.5 2.8 1.8 2.1 2.4 2.2 1.3 1.6 1.5 1.6 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 28 28 824- (024-000020-×)16-0020 ×16 <u>8</u>20-∑₁₆-12 539 1.8 2.1 2.4 2.7 1.9 2.2 2.5 2.8 1.9 2.2 3.0 1.6 2.8 3.1 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 403 > 84.0 24 24 00024 000024 20 021-0218-0020-×16-∑₁₅-12 0 0 2.4 2.7 3.0 2.0 3.2 1.9 2.2 2.5 2.8 3.1 3.4 2.1 2.3 Page 349 of 657

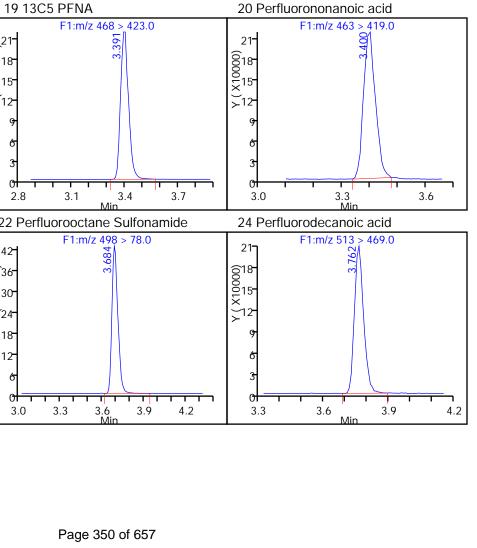
3.7 Min

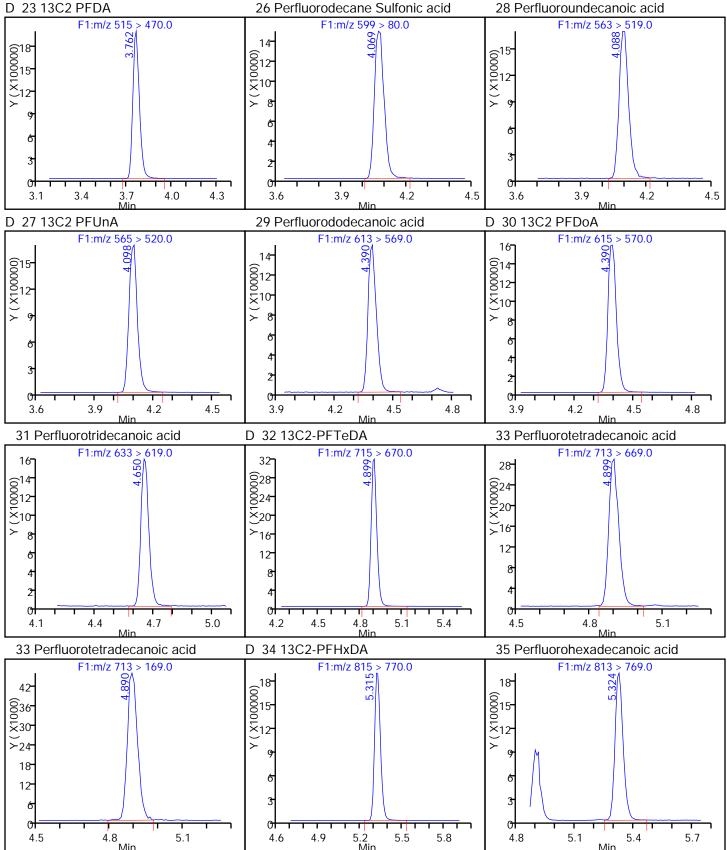
4.0

4.3

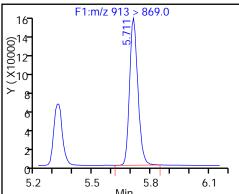
3.4

3.1





36 Perfluorooctadecanoic acid



Report Date: 14-Sep-2016 14:36:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_007_p1_e1.d

Lims ID: IC L4

Client ID:

Sample Type: IC Calib Level: 4

Inject. Date: 03-Sep-2016 16:01:00 ALS Bottle#: 0 Worklist Smp#: 7

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:36:11 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Level Reviewer: phomsophat Date: 06-Sep-2016 16:06:37

First Level Revie	ewer: pho	omsopha	ıt		Date:	C	06-Sep-2016 16:06:0	37		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	Δ									
217 > 172.0	1.651	1.642	0.009		10597639	52.5		105	448370	
1 Perfluorobut										
212.9 > 169.0	1.658	1.645	0.013	1.000	3806071	20.5		102	32137	
D 4 13C5-PFP	eΑ									
267.9 > 223.0	1.953	1.938	0.015		7962509	50.3		101	142901	6
3 Perfluoropei	ntanoic a	cid								
262.9 > 219.0	1.953	1.940	0.013	1.000	3300147	19.7		98.7	55522	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.986	1.976	0.010	1.000	5393562	18.8		106		
298.9 > 99.0	1.986	1.976	0.010	1.000	2262406		2.38(0.00-0.00)	106		
7 Perfluorohe										
313 > 269.0	2.262	2.253	0.009	1.000	2942051	20.3		101	168535	
D 6 13C2 PFH										
315 > 270.0	2.270	2.254	0.016		7200359	49.9		99.8	608998	
9 Perfluorohe										
399 > 80.0	2.558	2.591	-0.033	1.000	3658925	18.1		99.4		
D 11 13C4-PFH	•									
367 > 322.0	2.627	2.611	0.016		6932384	53.0		106	800643	
12 Perfluorohe	•									
363 > 319.0	2.627	2.614	0.013	1.000	2873384	19.9		99.6	64184	
D 10 18O2 PFH										
403 > 84.0	2.642	2.626	0.016		8905918	49.3		104	585765	
D 14 13C4 PFO										
417 > 372.0	3.013	2.994	0.019		7699889	52.8		106	597811	
15 Perfluorooc						_				
413 > 369.0	3.013	2.996	0.017	1.000	3293903	20.6	1 / 1/0 00 1 10	103	61137	
413 > 169.0	3.013	2.996	0.017	1.000	2005923		1.64(0.90-1.10)	103	131910	
					Page 353 of (657				

Report Date: 14-Sep-2016 14:36:13
Data File: \ChromNA\Sacra

Data File:	\\Chr	omNA\Sa	acramen	to\Chrom	Data\A8\20160	906-34220.k	o\03SEP2016A_007	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
12 Darfly analys		lfania Aa	: -1		·	3				
13 Perfluorohe 449 > 80.0	granesu 3.013	2.999		1.000	3379364	19.4		102		
18 Perfluorooc				1.000	3377304	17.4		102		
499 > 80.0	3.273	3.271	0.002	1.000	3198967	18.0		97.0	18551	
499 > 99.0	3.361	3.271	0.090	1.027	737316	10.0	4.34(0.90-1.10)	97.0	24771	
D 17 13C4 PFO							,			
503 > 80.0	3.389	3.375	0.014		7229395	50.0		105	240866	
D 19 13C5 PFN	Α									
468 > 423.0	3.398	3.380	0.018		6564022	51.5		103	557162	
20 Perfluorono	nanoic a	ıcid								
463 > 419.0	3.398	3.381	0.017	1.000	2651561	19.9		99.6	92965	
D 21 13C8 FOS	Α									
506 > 78.0	3.692	3.674	0.018		13547695	50.9		102	485893	
22 Perfluorooc	tane Sul	fonamide	9							
498 > 78.0	3.692	3.674	0.018	1.000	5230694	20.9		105	294740	
24 Perfluorode	canoic a	cid								
513 > 469.0	3.753	3.744	0.009	1.000	2383354	19.8		98.9	111989	
D 23 13C2 PFD	Α									
515 > 470.0	3.753	3.744	0.009		6152729	50.9		102	289949	
26 Perfluorode										
599 > 80.0	4.069	4.055	0.014	1.000	1916161	19.8		103		
28 Perfluoroun										
563 > 519.0	4.099	4.078	0.021	1.000	1993953	19.4		96.8	134409	
D 27 13C2 PFUi										
565 > 520.0	4.099	4.081	0.018		4785082	50.2		100	250296	
29 Perfluorodo										
613 > 569.0	4.382		0.008	1.000	1801266	19.9		99.4	32804	
D 30 13C2 PFD			0.000		.00.200			,,	0200.	
615 > 570.0		4.374	0.008		4674298	52.8		106	265342	
31 Perfluorotrio			0.000		107 1270	02.0		100	2000 12	
633 > 619.0	4.651	4.639	0.012	1.000	1853833	19.8		99.0	6131	
D 32 13C2-PFT		1.007	0.012	1.000	1000000	17.0		77.0	0101	
715 > 670.0	4.890	4.882	0.008		8975109	52.7		105	625660	
33 Perfluorotet			0.000		0773107	52.7		100	023000	
713 > 669.0	4.899	4.883	0.016	1.000	3402523	20.3		101	4711	
713 > 169.0	4.890	4.883	0.007	0.998	538546	20.5	6.32(0.00-0.00)	101	47433	
D 34 13C2-PFH			0.007	0.770	0000.0		0.02(0.00 0.00)			
815 > 770.0	5.318	5.305	0.013		5743935	52.8		106	397836	
35 Perfluorohe			0.0.0		37.13700	02.0		.00	37,000	
813 > 769.0	5.318	5.309	0.009	1.000	2149259	19.8		99.1	6665	
			0.007	1.000	£17/£U/	17.0		, , . 1	0000	
36 Perfluorooci 913 > 869.0		5.692	0.015	1.000	1807447	19.7		98.6	6895	
Reagents:	5.707	5.072	0.013	1.000	100/44/	17.7		70.0	0075	
LCPFC-L4 0002	2		^	Amount A	dded: 1.00	Unite	∵ ml			

Amount Added: 1.00 Units: mL LCPFC-L4_00022

Report Date: 14-Sep-2016 14:36:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: 03-Sep-2016 16:01:00 Injection Date: Instrument ID: **A8** Lims ID: IC L4 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 7 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 35 28 000001 25-(0000012° X (X10000012° 00024 0000 20 X <u>≻</u>16 15- 12 10 1.7 2.0 1.2 1.8 1.1 2.3 0.9 1.5 2.1 1.3 1.6 1.9 2.2 Min 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 21 (X) X (X100000) X (X) X (000015 X) X (77- 22 11 1.5 2.1 2.4 2.7 1.8 2.1 2.4 1.8 2.1 1.8 1.5 2.4 1.5 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 24 Y (X100000) Y (X100000) (000001 X16 12 2.0 2.3 1.8 2.1 2.4 3.0 1.9 2.2 2.5 1.7 2.6 2.9 2.7 2.8 3.1 1.5 1.6 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 403 > 84.0 96 00024 000024 20 (000001X) (00001X) 684**-**672-×60-≻₄₈-12 36- 24 12 0 0 1.9 2.2 2.5 2.8 3.1 1.9 3.1 2.3 2.9 3.2 2.0 2.6

3.7

4.0

4.2

3.1

3.4

3.9

20 10

3.2

3.5

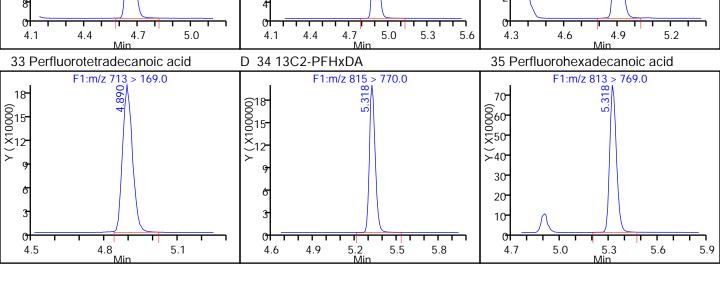
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4.1

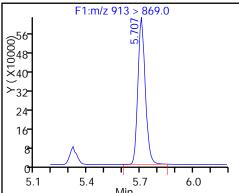
12

3.0

3.3



36 Perfluorooctadecanoic acid



Report Date: 14-Sep-2016 14:36:24 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

 $\verb|\ChromNA| Sacramento| ChromData | A8 | 20160906-34220.b | 03SEP2016A_008_p1_e1.d | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 |$ Data File:

Lims ID: IC L5

Client ID:

Sample Type: IC Calib Level: 5

Inject. Date: 03-Sep-2016 16:08:00 ALS Bottle#: 0 Worklist Smp#: 8

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: **8**A Instrument ID: **A8**

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\\Sacramento\\ChromData\\A8\\20160906-34220.b\\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:36:22 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: **Initial Calibration**

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Loyal Daviowor voctondorfo 14 Cap 2014 14:24:00

First Level Reviewer: westendorfc Date: 14-Sep-2016 14:34:00)0			
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.643	1.642	0.001		10059992	49.8		99.6	359378	
1 Perfluorobut										
	1.650	1.645	0.005	1.000	9107590	51.6		103	150252	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.941	1.938	0.003		7811976	49.3		98.6	586647	
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.950	1.940	0.010	1.000	8018325	48.9		97.8	130209	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.983	1.976	0.007	1.000	13047591	46.2		104		
298.9 > 99.0	1.983	1.976	0.007	1.000	5710230		2.28(0.00-0.00)	104		
7 Perfluorohex										
313 > 269.0	2.257	2.253	0.004	1.000	6836853	49.1		98.1	382919	
D 6 13C2 PFHx	κA									
315 > 270.0	2.257	2.254	0.003		6914706	47.9		95.8	622070	
9 Perfluorohex										
399 > 80.0	2.623	2.591	0.032	1.000	8729401	43.8		96.2		
D 11 13C4-PFH	рА									
367 > 322.0	2.608	2.611	-0.003		6479138	49.5		99.0	692456	
12 Perfluorohe	ptanoic a	acid								
363 > 319.0	2.615	2.614	0.001	1.000	6679813	49.5		99.1	80918	
D 10 18O2 PFH	xS									
403 > 84.0	2.623	2.626	-0.003		8783547	48.6		103	511047	
D 14 13C4 PFO	Α									
417 > 372.0	2.983	2.994	-0.011		7550162	51.8		104	574715	
15 Perfluorooc	tanoic ad	cid								
413 > 369.0	2.991	2.996	-0.005	1.000	7820671	49.8		99.6	144542	
413 > 169.0	2.991	2.996	-0.005	1.000	4776836		1.64(0.90-1.10)	99.6	192842	
					Page 359 of 6	657				

Report Date: 14-Sep-2016 14:36:24 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_008_p1_e1.d

Data File:	\\Cnrc	JIIINA\5	acramen	lovenion	IDala\A8\20160	906-34220.1	0.03SEP2016A_008	_pr_er.	u	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
12 Davida analas										
13 Perfluorohe 449 > 80.0	ptanesui 2.991	2.999		1.000	8192805	48.6		102		
				1.000	0172003	40.0		102		
18 Perfluorooci 499 > 80.0	3.264		ג -0.007	1.000	7327912	42.6		91.8	16729	
499 > 99.0	3.255		-0.016	0.997	1735978	42.0	4.22(0.90-1.10)	91.8	28626	
D 17 13C4 PFO		0.27	0.0.0	0.777	.,,,,,,		(0.700)	,		
503 > 80.0	3.370	3.375	-0.005		6999925	48.4		101	183016	
D 19 13C5 PFN					0					
468 > 423.0	3.370	3.380	-0.010		6214189	48.7		97.5	309473	
20 Perfluorono										
463 > 419.0		3.381	-0.011	1.000	6483970	51.5		103	149680	
D 21 13C8 FOS										
506 > 78.0		3.674	-0.003		13368523	50.2		100	456851	
22 Perfluorooc										
498 > 78.0	3.671		-0.003	1.000	12654264	51.3		103	423760	
24 Perfluorode										
513 > 469.0		3.744	-0.005	1.000	5849904	49.2		98.3	208835	
D 23 13C2 PFD										
515 > 470.0		3.744	-0.005		6077012	50.3		101	376560	
26 Perfluorode										
599 > 80.0		4.055		1.000	4699344	50.2		104		
28 Perfluoroun										
563 > 519.0	4.071		-0.007	1.000	4789301	47.5		95.0	214887	
D 27 13C2 PFU	nA									
565 > 520.0	4.071	4.081	-0.010		4682751	49.1		98.3	258038	
29 Perfluorodo	decanoio	c acid								
613 > 569.0	4.369		-0.005	1.000	4351878	50.6		101	92211	
D 30 13C2 PFD	οΑ									
	4.369	4.374	-0.005		4433243	50.1		100	239298	
31 Perfluorotrio										
633 > 619.0		4.639	-0.002	1.000	4567596	51.4		103	15297	
D 32 13C2-PFT	eDA									
715 > 670.0		4.882	-0.006		8848037	51.9		104	505407	
33 Perfluorotet	radecan	oic acid								
713 > 669.0		4.883	-0.007	1.000	8238270	51.8		104	12561	
713 > 169.0	4.867	4.883	-0.016	0.998	1326537		6.21(0.00-0.00)	104	150655	
D 34 13C2-PFH	xDA									
815 > 770.0	5.286	5.305	-0.019		5604455	51.5		103	299088	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.297		-0.012	1.000	5250014	51.8		104	14052	
36 Perfluorooc	tadecand	oic acid								
913 > 869.0	5.680		-0.012	1.000	4498275	51.8		104	16439	
Reagents:										
LCPFC-L5_0002	20		А	mount A	dded: 1.00	Units	:: mL			

LCPFC-L5_00020 Amount Added: 1.00 Units: m

Report Date: 14-Sep-2016 14:36:24 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: 03-Sep-2016 16:08:00 **Injection Date:** Instrument ID: **A8** Lims ID: IC L5 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 8 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 212.9 > 169.0 F1:m/z 217 > 172.0 F1:m/z 267.9 > 223.0 ,46 6 (30° (30° (25° ∑20 ≻16- **≻**16 12 10 1.2 1.5 1.8 0.9 1.2 1.8 1.9 2.2 2.1 2.4 1.5 2.1 1.3 1.6 2.5 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 48 28 (21° (21° (218° (218° (215°) (00001 20-20-042 0036 ×30-∑16⁻ ≻₂₄-18 12 2.0 2.3 1.8 1.9 2.2 2.5 1.7 2.6 1.5 2.1 2.4 1.3 1.6 2.8 1.4 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 24 (21-000018-X15-(24⁻ 00020 ×16⁻ (000001 X16 12 12 2.6 Min 1.8 2.4 3.0 2.0 2.3 1.7 1.2 1.7 2.6 8.0 3.5 4.4 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 367 > 322.0 F1:m/z 363 > 319.0 F1:m/z 403 > 84.0 21 (000018 (000018 (15 628 6024 6024 ×20 -12 ≻16- 12 0 0 2.0 2.3 2.6 2.9 3.2 2.0 2.3 Page 36 In of 657 3.2 2.1 2.4 2.7 3.0

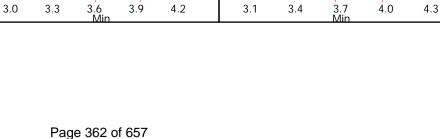
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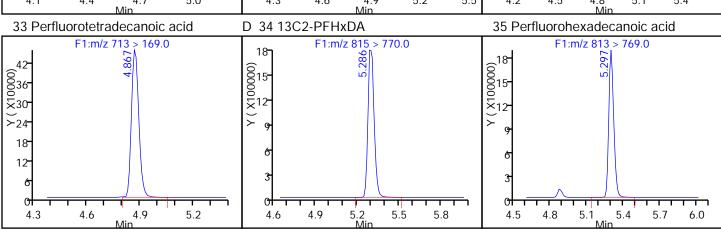
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12

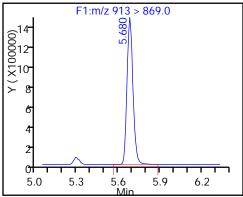
3.0

3.3





36 Perfluorooctadecanoic acid



Report Date: 14-Sep-2016 14:36:37 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_009_p1_e1.d

Lims ID: IC L6

Client ID:

Sample Type: IC Calib Level: 6

Inject. Date: 03-Sep-2016 16:16:00 ALS Bottle#: 0 Worklist Smp#: 9

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:36:34 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Level Reviewer: phomsophat Date: 06-Sep-2016 16:20:11

First Level Reviewer: phomsophat Date:					(06-Sep-2016 16:20:1	11			
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.643	1.642	0.001		9448230	46.8		93.6	348463	
1 Perfluorobut	yric acid									
212.9 > 169.0	1.643	1.645	-0.002	1.000	30611454	184.8		92.4	556886	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.933	1.938	-0.005		7036843	44.4		88.9	851046	
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.933	1.940	-0.007	1.000	25602733	173.3		86.7	415320	
5 Perfluorobut	anesulfo									
298.9 > 80.0	1.967	1.976		1.000	39194012	151.0		85.4		
298.9 > 99.0		1.976	-0.009	1.000	19923484		1.97(0.00-0.00)	85.4		
7 Perfluorohex										
313 > 269.0		2.253	-0.013	1.000	23571653	182.0		91.0	143557	9
D 6 13C2 PFH										_
315 > 270.0		2.254			6427112	44.5		89.1	105421	5
9 Perfluorohex				1 000	04047044	4/00		00.0		
399 > 80.0	2.617	2.591	0.026	1.000	31017014	169.3		93.0		
D 11 13C4-PFH	•	0 (44	0.000		5704005	40.7		07.0	050404	
367 > 322.0		2.611	-0.009		5704395	43.6		87.2	352134	
12 Perfluorohe	•		0.010	1 000	00/04/05	404.4		05.5	000004	
363 > 319.0		2.614	-0.012	1.000	22691495	191.1		95.5	229921	
D 10 1802 PFH		0 (0)	0.047		00/704/	44.7		04.4	(47 405	
403 > 84.0	2.610	2.626	-0.016		8067246	44.6		94.4	647495	
D 14 13C4 PFO		0.004	0.017		(22,400.4	40.7		05.4	207505	
417 > 372.0		2.994	-0.01/		6224994	42.7		85.4	387595	
15 Perfluorooc			0.010	1 000	0.4507047	100.0		04.0	445077	
413 > 369.0 413 > 169.0	2.977 2.977	2.996	-0.019 -0.019	1.000 1.000	24587367 15473682	189.8	1.59(0.90-1.10)	94.9 94.9	415376 347888	
413 > 109.0	2.911	2.990	-0.019	1.000			1.39(0.90-1.10)	94.9	34/000	
					Page 365 of (357				

Page 365 of 657

Report Date: 14-Sep-2016 14:36:37 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_009_p1_e1.d

Data File:	\\Chr	omNA\S	acramen	to\Chrom	Data\A8\20160	906-34220.k	0\03SEP2016A_009	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanosul	Ifonic Ac	id						-	
449 > 80.0	2.985		-0.014	1.000	28674968	178.9		93.9		
18 Perfluorooct				1.000	2007 1700	170.7		70.7		
499 > 80.0	3.239		-0.032	1.000	28263326	172.7		93.1	20229	
499 > 99.0	3.324	3.271	0.053	1.026	6580583	172.7	4.29(0.90-1.10)	93.1	69228	
D 17 13C4 PFO							,			
503 > 80.0	3.352	3.375	-0.023		6656316	46.0		96.2	101191	
D 19 13C5 PFN										
468 > 423.0	3.361	3.380	-0.019		5193244	40.7		81.4	302908	
20 Perfluorono										
463 > 419.0	3.361		-0.020	1.000	21195062	201.3		101	362600	
D 21 13C8 FOS										
506 > 78.0	3.665	3.674	-0 009		12142761	45.6		91.2	345820	
22 Perfluorooct					12112701	10.0		,	0.0020	
498 > 78.0		3.674		1.000	38418532	171.4		85.7	347877	
24 Perfluorode			0.007	1.000	00110002	17 1.1		00.7	017077	
513 > 469.0		3.744	-0.022	1.000	20619156	195.4		97.7	691485	
D 23 13C2 PFD		3.744	0.022	1.000	20017100	175.4		77.7	071400	
515 > 470.0		3.744	-∩ ∩22		5389574	44.6		89.2	338063	
26 Perfluorode					3307374	44.0		07.2	330003	
599 > 80.0		4.055		1.000	17669187	198.5		103		
			-0.024	1.000	17007107	170.5		103		
28 Perfluoroun 563 > 519.0		4.078	0.020	1.000	16116354	185.4		92.7	805986	
		4.070	-0.020	1.000	10110334	105.4		72.1	003700	
D 27 13C2 PFU ₁ 565 > 520.0		4.081	0.014		4036632	42.4		84.7	242552	
			-0.014		4030032	42.4		04.7	242332	
29 Perfluorodo 613 > 569.0		2 acid 4.374	0.020	1.000	15897471	198.9		99.5	323061	
		4.374	-0.020	1.000	13097471	190.9		99.5	323001	
D 30 13C2 PFD		4 274	0.000		4121/01	47.7		02.2	274001	
615 > 570.0		4.374	-0.020		4121681	46.6		93.2	274091	
31 Perfluorotrio			0.000	1 000	1/100/01	10/ 0		00.1	70007	
633 > 619.0	4.619	4.639	-0.020	1.000	16190491	196.2		98.1	70297	
D 32 13C2-PFT										
715 > 670.0		4.882	-0.022		7956388	46.7		93.4	443905	
33 Perfluorotet										
713 > 669.0		4.883		1.000	28024778	189.6	F (F(2.22.2.22)	94.8	43942	
713 > 169.0	4.860	4.883	-0.023	1.000	4962959		5.65(0.00-0.00)	94.8	276244	
D 34 13C2-PFH										
815 > 770.0	5.289	5.305	-0.016		5264655	48.4		96.7	277715	
35 Perfluorohe:										
813 > 769.0	5.289	5.309	-0.020	1.000	18615408	198.6		99.3	43107	
36 Perfluorooct	tadecan	oic acid								
913 > 869.0	5.663	5.692	-0.029	1.000	16871624	208.8		104	57601	
Reagents:										
LCPFC-L6_0001	9		Δ	mount A	dded: 1.00	Units	s: mL			

Page 366 of 657

Report Date: 14-Sep-2016 14:36:37 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 16:16:00 Instrument ID: **A8** Lims ID: IC L6 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 9 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 32 60072 00072 00072 ©28-024- $\stackrel{\smile}{\times}_{20}$ -48 36 24 12 1.9 2.3 0.6 1.2 1.8 2.4 1.0 1.3 1.6 1.4 1.7 2.0 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 88 72 (00000010⁻ 8 × 4 196 ©77-0066 063 054 ×55 ×45 >₄₄ ≻₃₆-33 27 22 18 11 2.7 2.1 1.3 1.9 2.2 2.5 2.8 1.8 2.1 2.4 1.6 1.2 1.5 1.5 1.8 2.4 2.7 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 72 72 (000018-X) > 12-063 054 663 654 ×45 ×45 ≻₃₆-≻₃₆-27 27 18 18 2.2 2.8 1.7 2.0 2.3 2.9 1.7 2.6 1.0 1.6 3.4 2.6 8.0 3.5 4.4 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 18 63-000054-145-(24⁻ 00020 -36 12 27 18 0 0 2.0 2.3 2.6 2.9 3.2 2.1 Page 367 of 657 2.0 2.3 2.6 2.9 3.2 1.8

3.9

4.2

4.2

3.0

3.3

3.9

16

2.9

3.2

3.5

3.8

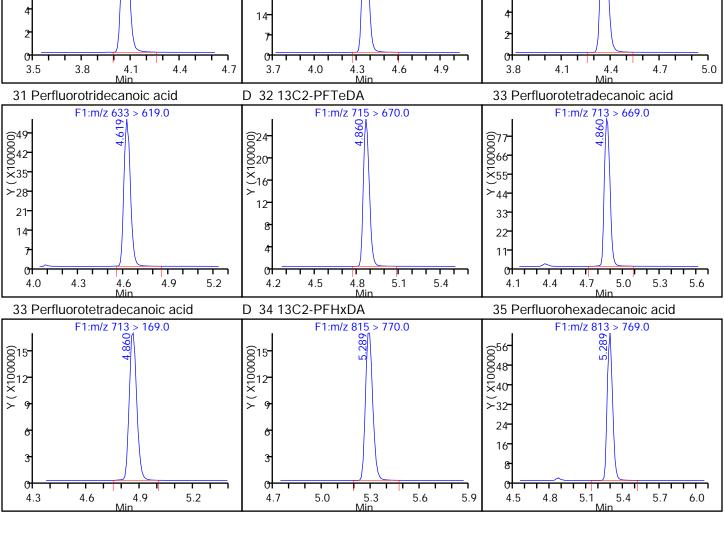
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4.4

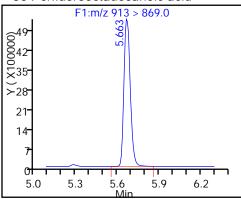
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3.0

3.3



36 Perfluorooctadecanoic acid



Report Date: 14-Sep-2016 14:36:48 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_010_p1_e1.d

Lims ID: IC L7

Client ID:

Sample Type: IC Calib Level: 7

Inject. Date: 03-Sep-2016 16:23:00 ALS Bottle#: 0 Worklist Smp#: 10

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: **8**A Instrument ID: **A8**

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\\Sacramento\\ChromData\\A8\\20160906-34220.b\\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 14-Sep-2016 14:36:46 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: **Initial Calibration**

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK025

First Laval Daviowa 04 Can 2014 14:15:24

First Level Revie	wer: pho	msopha	at		Date:	(06-Sep-2016 16:15:3	36		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.636	1.642	-0.006		8514926	42.2		84.3	332263	
1 Perfluorobut	vric acid									
	1.636		-0.009	1.000	48100959	322.2		80.5	714747	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.925	1.938	-0.013		6176138	39.0		78.0	723286	
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.925	1.940	-0.015	1.000	39246308	302.7		75.7	485041	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.967		-0.009	1.000	56709993	257.0		72.7		
298.9 > 99.0	1.958	1.976	-0.018	0.996	31464803		1.80(0.00-0.00)	72.7		
7 Perfluorohex										
313 > 269.0	2.240	2.253	-0.013	1.000	37700276	328.1		82.0	132647	1
D 6 13C2 PFH										
315 > 270.0	2.240		-0.014		5702806	39.5		79.0	978368	
9 Perfluorohex										
399 > 80.0	2.614	2.591	0.023	1.000	51343246	329.7		90.6		
D 11 13C4-PFH	•									
367 > 322.0	2.587	2.611	-0.024		4813978	36.8		73.6	501564	
12 Perfluorohe	•		0.010	1 000	05054004	252.2		00.0		
363 > 319.0	2.596	2.614	-0.018	1.000	35354804	352.8		88.2	298532	
D 10 18O2 PFH		0.404	0.010		(050747	00.0		00.0	E40E00	
403 > 84.0	2.614	2.626	-0.012		6858717	38.0		80.2	510523	
D 14 13C4 PFO		0.004	0.000		4052400	24.0		(7.0	20/021	
417 > 372.0	2.973	2.994	-0.022		4953489	34.0		67.9	286821	
15 Perfluorooc			0.004	1 000	0770/5/0	0.45.0		04.5		
413 > 369.0 413 > 169.0	2.973 2.973	2.996 2.996	-0.024 -0.024	1.000 1.000	37706543 25189316	365.8	1.50(0.90-1.10)	91.5 91.5	330394 425412	
413 > 109.0	2.713	2.770	-0.024	1.000			1.30(0.70-1.10)	91.5	423412	
					Page 371 of 6	657				

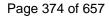
Report Date: 14-Sep-2016 14:36:48 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\\03SEP2016A_010_p1_e1.d

Data File:	NChr	JIIINA/2	acramen	10/Chron	1Data\A8\20160	906-34220.1	0103SEP2016A_010	<u>_pı_eı.</u>	u	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
_						J.	1111			3
13 Perfluorohe 449 > 80.0	pianesui 2.981		-0.018	1.000	44304186	321.8		84.5		
18 Perfluorooc										
499 > 80.0	3.327	3.271	0.056	1.000	49332494	351.0		94.6	20949	
499 > 99.0	3.355	3.271	0.084	1.008	12208132		4.04(0.90-1.10)	94.6	24370	
D 17 13C4 PFO	S									
503 > 80.0	3.355	3.375	-0.020		5716815	39.5		82.6	74434	
D 19 13C5 PFN										
468 > 423.0	3.364	3.380	-0.016		4390174	34.4		68.9	304247	
20 Perfluorono										
463 > 419.0	3.355	3.381	-0.026	1.000	33608056	377.6		94.4	659447	
D 21 13C8 FOS						/				
506 > 78.0					10560337	39.6		79.3	408115	
22 Perfluorooci				1 000	5000000	200.7		75.7	205220	
498 > 78.0	3.659		-0.015	1.000	59003099	302.7		75.7	295288	
24 Perfluorode			0.000	1 000	245/4410	2// 0		01.7	/ 401/5	
513 > 469.0	3.724	3.744	-0.020	1.000	34564419	366.9		91.7	643165	
D 23 13C2 PFD. 515 > 470.0		2 744	0.020		4012024	20.0		70.4	205722	
	3.724	3.744			4812836	39.8		79.6	305723	
26 Perfluorode 599 > 80.0			-0.022	1.000	29479384	385.6		100		
			-0.022	1.000	29479304	363.0		100		
28 Perfluoroun 563 > 519.0	4.051		-0.027	1.000	25948930	372.0		93.0	910425	
D 27 13C2 PFU		4.070	-0.027	1.000	23740730	372.0		73.0	710423	
565 > 520.0	4.061	4.081	-0.020		3240195	34.0		68.0	240903	
29 Perfluorodo			0.020		0210170	01.0		00.0	210700	
613 > 569.0	4.351		-0.024	1.000	26539024	375.9		94.0	402618	
D 30 13C2 PFD			0.02		2000,02.	0.0.7		7	.020.0	
		4.374	-0.024		3641523	41.2		82.3	186531	
31 Perfluorotrio										
633 > 619.0		4.639	-0.027	1.000	27198410	373.0		93.2	145301	
D 32 13C2-PFT										
715 > 670.0		4.882	-0.022		7064036	41.4		82.9	328927	
33 Perfluorotet										
713 > 669.0		4.883	-0.023	1.000	43145369	330.4		82.6	64128	
713 > 169.0	4.851	4.883	-0.032	0.998	9060987		4.76(0.00-0.00)	82.6	419036	
D 34 13C2-PFH	xDA									
815 > 770.0	5.280	5.305	-0.025		4713289	43.3		86.6	385251	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.280	5.309	-0.029	1.000	31893590	385.6		96.4	90889	
36 Perfluorooc	tadecand	oic acid								
913 > 869.0	5.658	5.692	-0.034	1.000	30512560	427.4		107	95225	
Reagents:										
LCPFC-L7_0001	9		Д	Amount A	dded: 1.00	Units	s: mL			

LCPFC-L7_00019 Amount Added: 1.00 Units: mL

Report Date: 14-Sep-2016 14:36:48 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 16:23:00 Instrument ID: **A8** Lims ID: IC L7 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 10 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 (X1000000) X (X1000000) X (X1000000) ©24 00 020 (00018-15-(000018-1.9 2.3 1.1 1.7 2.0 1.0 1.3 1.6 1.4 1.7 2.0 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 16 (X1000000) Y (91- (00078-(55-(0000012- ∑₁₀ ∑52 26 13 2.1 2.0 2.0 2.3 2.6 1.8 2.4 2.7 2.3 1.1 1.4 1.7 1.2 1.5 1.4 1.7 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 Y (X1000000) Y (X1000000) (000015 X)12 2.4 3.0 1.8 2.1 2.4 8.0 1.7 1.2 1.8 2.7 3.0 2.6 3.5 1.5 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 21 16 (91⁻ 00078 0014 0012 ∑₁₀ -65 ~52- 39 26 13 0 0 2.0 2.3 2.6 2.9 3.2 1.9 3.1 1.9 2.2 2.5 2.8 3.1 2.2 Page 37/3h of 657



2.9

3.2

3.5

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4.1

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3.1

3.4

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4.3

36⁻ 24⁻ 12⁻

3.1

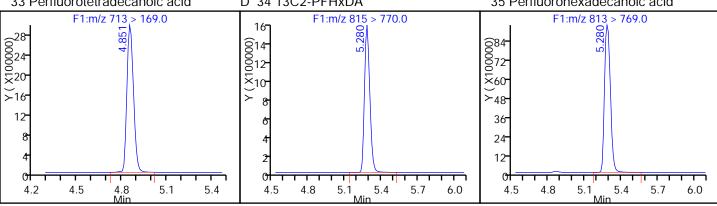
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3.7

4.0

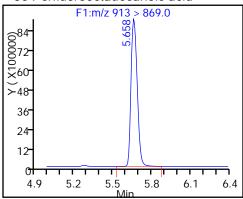
4.3

4.6



Report Date: 14-Sep-2016 14:36:48 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Data File: $\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_010_p1_e1.d$

36 Perfluorooctadecanoic acid



Report Date: 10-Sep-2016 12:38:29 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d

Lims ID: IC L1 Add-on

Client ID:

Sample Type: IC Calib Level: 1

Inject. Date: 03-Sep-2016 16:53:00 ALS Bottle#: 0 Worklist Smp#: 14

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:28 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 14:40:30

					24(6)		, 00p =0.0o.			
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 47 M2-6:2FTS	5									
429 > 409.0	2.933	2.933	0.0		3456373	44.2		93.0		
48 Sodium 1H,		•								
427 > 407.0			0.007		38598	0.6486		137		
43 Sodium 1H,		•			04470	0.5007		10/		
527 > 507.0		3.697	0.002	1.000	31162	0.5087		106		
D 42 M2-8:2FTS		2 (07	0.000		2/12/1/	40.0		00.7		
529 > 509.0	3.699	3.697	0.002		3612646	42.9		89.6		
D 45 d3-NMeFC		2.0//	0.0		2245270	47.0		02.7		
573 > 419.0					2345360	46.8		93.6		
44 N-methyl pe										M
570 > 419.0		3.869	0.005	1.002	21482	0.5292		106		M
D 46 d5-NEtFOS										
589 > 419.0		4.032			2611814	46.6		93.2		
49 N-ethyl perf										M
584 > 419.0	4.053	4.039	0.014	1.004	19615	0.4939		98.8		M
D 52 d-N-MeFO										
515 > 169.0	4.141	4.143	-0.002		3196091	46.3		92.7		
54 MeFOSA										
512 > 169.0	4.141	4.145	-0.004	1.000	25438	0.4915		98.3		
D 51 d-N-EtFOS	SA-M									
531 > 169.0	4.322	4.326	-0.004		2976733	46.6		93.3		
53 N-ethylperfl										
526 > 169.0	4.331	4.333	-0.002	1.000	23898	0.4742		94.8		

Report Date: 10-Sep-2016 12:38:29 Chrom Revision: 2.2 17-Aug-2016 13:17:46

QC Flag Legend Review Flags

M - Manually Integrated

Reagents:

LCPFC2-L1_00002 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:38:29 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 16:53:00 Instrument ID: **A8** Lims ID: IC L1 Add-on Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 14 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 47 M2-6:2FTS 48 Sodium 1H,1H,2H,2H-perfluorooctane43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 429 > 409.0 F1:m/z 427 > 407.0 F1:m/z 527 > 507.0 (12 (0000010 X) X 12 ۲ (X1000) 2.9 3.2 3.1 3.6 3.9 2.6 3.5 2.5 2.8 3.3 D 42 M2-8:2FTS D 45 d3-NMeFOSAA 44 N-methyl perfluorooctane sulfonami (M) F1:m/z 570 > 419.0 F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 12 80 (X100000) X 70- 70 860 ×50 ×50 ≻₄₀-**≻**40 30 30 20 20 10 10 3.9 4.2 3.4 3.7 4.0 3.6 3.8 4.1 4.3 3.3 3.1 3.5 49 N-ethyl perfluorooctane sulfonamid (M)52 d-N-MeFOSA-M D 46 d5-NEtFOSAA F1:m/z 589 > 419.0 F1:m/z 515 > 169.0 88 62 (X100000) (X100000) (X100000) ©77-966-53 60 44 × 35 ×55 26- 33 17 22 3.7 4.0 4.3 3.9 4.2 4.0 4.3 4.6 3.6 3.4 54 MeFOSA D 51 d-N-EtFOSA-M 53 N-ethylperfluoro-1-octanesulfonami F1:m/z 512 > 169.0 F1:m/z 531 > 169.0 F1:m/z 526 > 169.0 12 (X100000) 8 10 10 Y (X1000) (X1000) 0 0 3.8 4.1 4.4 3.8 Page 3**™**9hof 657 4.7 3.9 4.2 4.5 4.8

Report Date: 10-Sep-2016 12:38:29 Chrom Revision: 2.2 17-Aug-2016 13:17:46 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d

Injection Date: 03-Sep-2016 16:53:00 Instrument ID: A8

Lims ID: IC L1 Add-on

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14

Injection Vol: 2.0 ul Dil. Factor: 1.0000

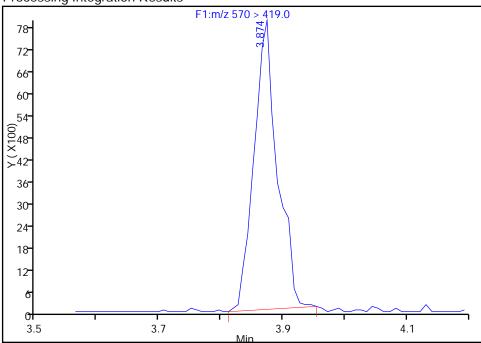
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

44 N-methyl perfluorooctane sulfonamidoacetic a, CAS: 2355-31-9

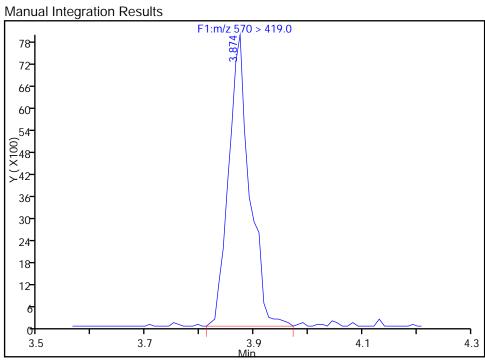
Signal: 1

RT: 3.87
Area: 20772
Amount: 2.360546
Amount Units: ng/ml

Processing Integration Results



RT: 3.87
Area: 21482
Amount: 0.529216
Amount Units: ng/ml



Reviewer: phomsophat, 07-Sep-2016 14:50:04

Audit Action: Manually Integrated

Audit Reason: Baseline

Page 381 of 657

Report Date: 10-Sep-2016 12:38:29 Chrom Revision: 2.2 17-Aug-2016 13:17:46 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_014_p1_e1.d

Injection Date: 03-Sep-2016 16:53:00 Instrument ID: A8

Lims ID: IC L1 Add-on

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 14

Injection Vol: 2.0 ul Dil. Factor: 1.0000

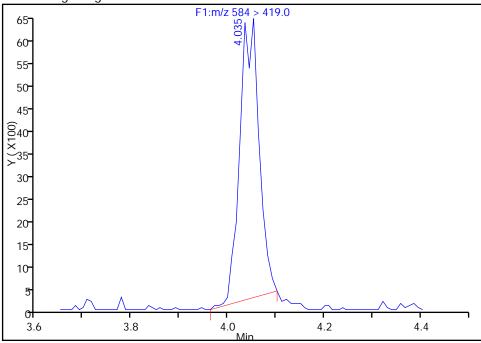
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

49 N-ethyl perfluorooctane sulfonamidoacetic ac, CAS: 2991-50-6

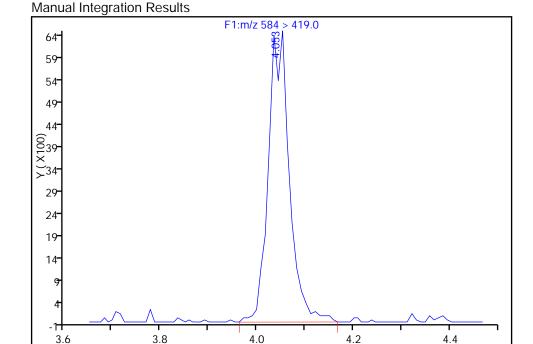
Signal: 1

RT: 4.04 Area: 17248 Amount: 0.362080 Amount Units: ng/ml





RT: 4.05
Area: 19615
Amount: 0.493913
Amount Units: ng/ml



Reviewer: phomsophat, 07-Sep-2016 14:50:04

Audit Action: Manually Integrated

Audit Reason: Baseline

Page 382 of 657

Report Date: 10-Sep-2016 12:38:33 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_015_p1_e1.d

Lims ID: IC L2 Add-on

Client ID:

Sample Type: IC Calib Level: 2

Inject. Date: 03-Sep-2016 17:01:00 ALS Bottle#: 0 Worklist Smp#: 15

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:32 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 14:57:51

T II ST LEVEL INCVIC	wci. piic	ппоорпа	11		Date.	0	77 3CP 2010 14.37.6	<i>,</i> ,		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 47 M2-6:2FTS	6									
429 > 409.0	2.941	2.934	0.007		3505211	44.8		94.3		
48 Sodium 1H,		•								
427 > 407.0		2.936		1.000	61436	1.02		107		
43 Sodium 1H,		•								
527 > 507.0		3.698	0.001	1.000	60629	0.9649		101		
D 42 M2-8:2FTS		2 (00	0.0		2705704	44.0		01.0		
529 > 509.0		3.699	0.0		3705704	44.0		91.9		
D 45 d3-NMeFC		2.070	0.000		0.47.4707	40.4		00.7		
573 > 419.0					2474737	49.4		98.7		
44 N-methyl pe										
570 > 419.0		3.869	-0.002	1.000	39036	0.9114		91.1		
D 46 d5-NEtFOS										
589 > 419.0		4.036			2739854	48.9		97.7		
49 N-ethyl perf										
584 > 419.0		4.041	0.004	1.002	39793	0.9552		95.5		
D 52 d-N-MeFO										
515 > 169.0	4.142	4.145	-0.003		3345874	48.5		97.0		
54 MeFOSA										
512 > 169.0		4.146	-0.004	1.000	52546	0.9698		97.0		
D 51 d-N-EtFOS					00/05/0	40.0		0.4.0		
	4.323				3063548	48.0		96.0		
53 N-ethylperfl				1 000	40005	0.0400		0/.4		
526 > 169.0	4.332	4.334	-0.002	1.000	49985	0.9638		96.4		

Report Date: 10-Sep-2016 12:38:33 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Reagents:

LCPFC2-L2_00002 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:38:33 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento

Data File:

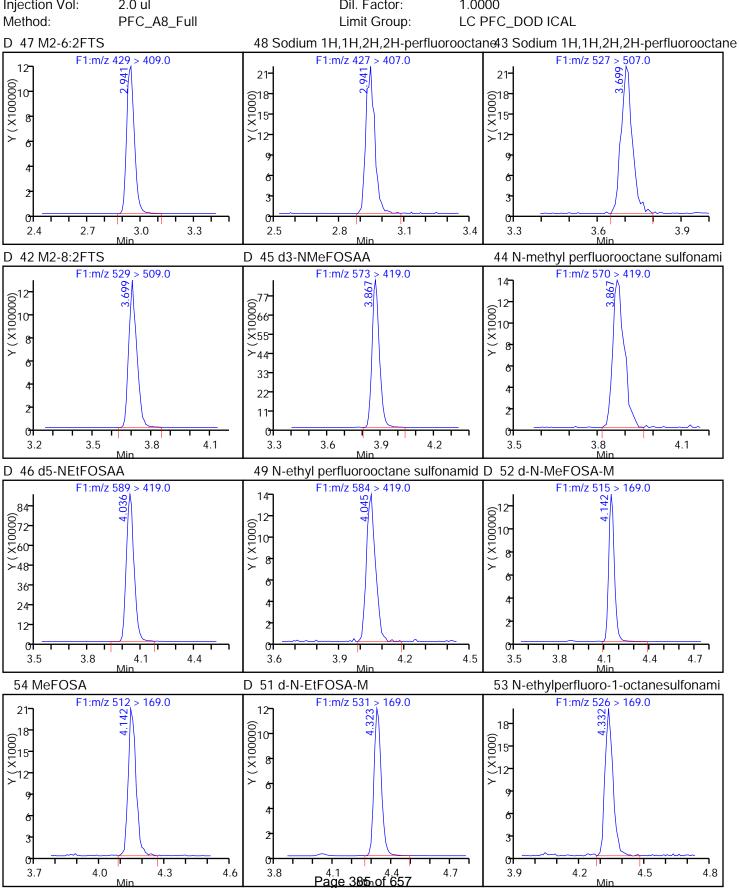
03-Sep-2016 17:01:00 **Injection Date:** Instrument ID: **A8**

Lims ID: IC L2 Add-on

Client ID:

Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 15

Injection Vol: 2.0 ul Dil. Factor: 1.0000



Report Date: 10-Sep-2016 12:38:38 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_016_p1_e1.d

Lims ID: IC L3 Add-on

Client ID:

Sample Type: IC Calib Level: 3

Inject. Date: 03-Sep-2016 17:08:00 ALS Bottle#: 0 Worklist Smp#: 16

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:37 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 14:58:41

I II St Level Nevic	wci. piic	ппоорпа			Date.	0	7 3cp 2010 14.50.4	r i		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 47 M2-6:2FTS	5									
429 > 409.0	2.941	2.934	0.007		3480930	44.5		93.7		
48 Sodium 1H,										
427 > 407.0	2.933	2.936	-0.003	1.000	252159	4.21		88.8		
43 Sodium 1H,		•								
527 > 507.0		3.698	0.010	1.000	279103	4.31		89.9		
D 42 M2-8:2FTS		2 / 00	0.010		2022200	45.4		04.0		
529 > 509.0		3.698	0.010		3823389	45.4		94.8		
D 45 d3-NMeFC 573 > 419.0		3.866	0 000		2472121	49.3		98.6		
44 N-methyl pe					24/2121	47.5		70.0		
570 > 419.0				1.000	181469	4.24		84.8		
D 46 d5-NEtFOS										
589 > 419.0		4.033	0.003		2845482	50.8		102		
49 N-ethyl perf	luoroocta	ane sulfo	namid							
584 > 419.0	4.045	4.040	0.005	1.002	179781	4.16		83.1		
D 52 d-N-MeFO	SA-M									
515 > 169.0	4.152	4.143	0.009		3439446	49.9		99.7		
54 MeFOSA										
512 > 169.0		4.144	0.008	1.000	229630	4.12		82.5		
D 51 d-N-EtFOS		4.005	0.000		2072/50	40.0		0/ 0		
531 > 169.0	4.333		0.008		3073658	48.2		96.3		
53 N-ethylperfl 526 > 169.0		ctanesul 4.333		1.000	226164	4.35		86.9		
520 > 107.0	4.342	4.333	0.009	1.000	220104	4.33		00.7		

Report Date: 10-Sep-2016 12:38:38 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Reagents:

LCPFC2-L3_00002 Amount Added: 1.00 Units: mL

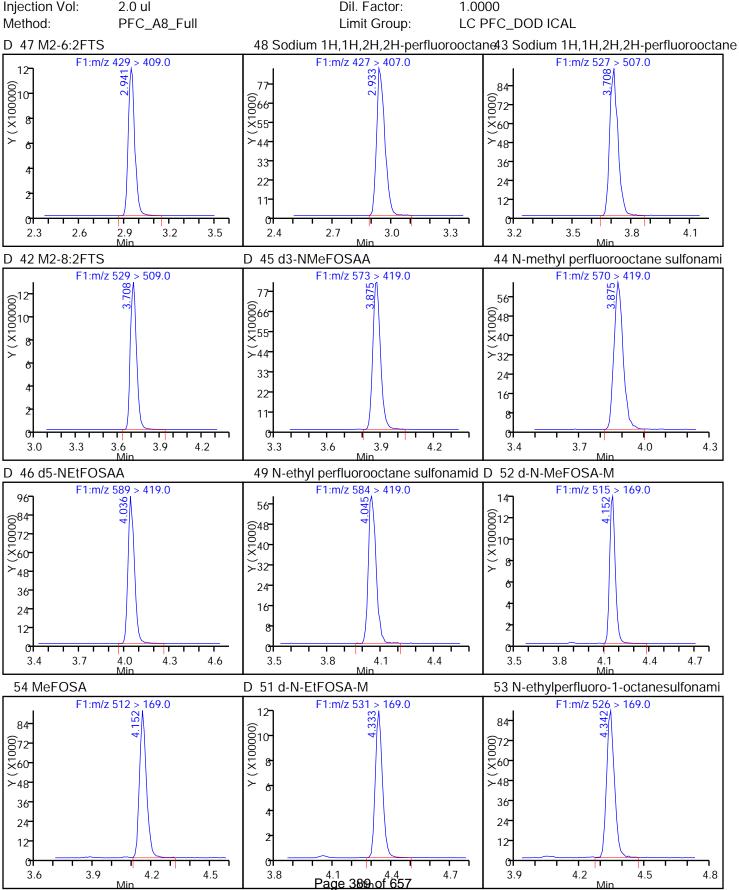
Report Date: 10-Sep-2016 12:38:38 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 17:08:00 Instrument ID: **A8**

Lims ID: IC L3 Add-on

Client ID:

Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 16

Injection Vol: 2.0 ul Dil. Factor: 1.0000



Report Date: 10-Sep-2016 12:38:43 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_017_p1_e1.d

Lims ID: IC L4 Add-on

Client ID:

Sample Type: IC Calib Level: 4

Inject. Date: 03-Sep-2016 17:16:00 ALS Bottle#: 0 Worklist Smp#: 17

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:42 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 14:40:52

THE LEVEL TROVIE	mon pine	moopine	• •		Date		7 00p 2010 1 11 1010	<i>,_</i>		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 47 M2-6:2FTS	5									
429 > 409.0	2.933	2.934	-0.001		3600290	46.0		96.9		
48 Sodium 1H,		•								
427 > 407.0			-0.003		1324103	21.4		113		
43 Sodium 1H,		•	orooctan 0.002		1400421	21.4		112		
527 > 507.0 D 42 M2-8:2FTS		3.098	0.002	1.000	1408431	21.4		112		
529 > 509.0		3.698	0.002		3880074	46.1		96.2		
D 45 d3-NMeFC										
573 > 419.0	3.867	3.869	-0.002		2616200	52.2		104		
44 N-methyl pe	erfluoroo	ctane su	lfonami							
570 > 419.0	3.867	3.869	-0.002	1.000	925966	20.4		102		
D 46 d5-NEtFOS										
589 > 419.0		4.036			3062834	54.6		109		
49 N-ethyl perf				1 000	054/75	20 F		100		
584 > 419.0		4.040	-0.004	1.000	954675	20.5		102		
D 52 d-N-MeFO 515 > 169.0		4.144	-0.002		3528172	51.1		102		
54 MeFOSA	7.172	7.177	0.002		3320172	31.1		102		
512 > 169.0	4.152	4.144	0.008	1.000	1192551	20.9		104		
D 51 d-N-EtFOS	SA-M									
531 > 169.0	4.323	4.325	-0.002		3244967	50.8		102		
53 N-ethylperfl										
526 > 169.0	4.332	4.333	-0.001	1.000	1154250	21.0		105		

Report Date: 10-Sep-2016 12:38:43 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Reagents:

LCPFC2-L4_00002 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:38:43 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_017_p1_e1.d

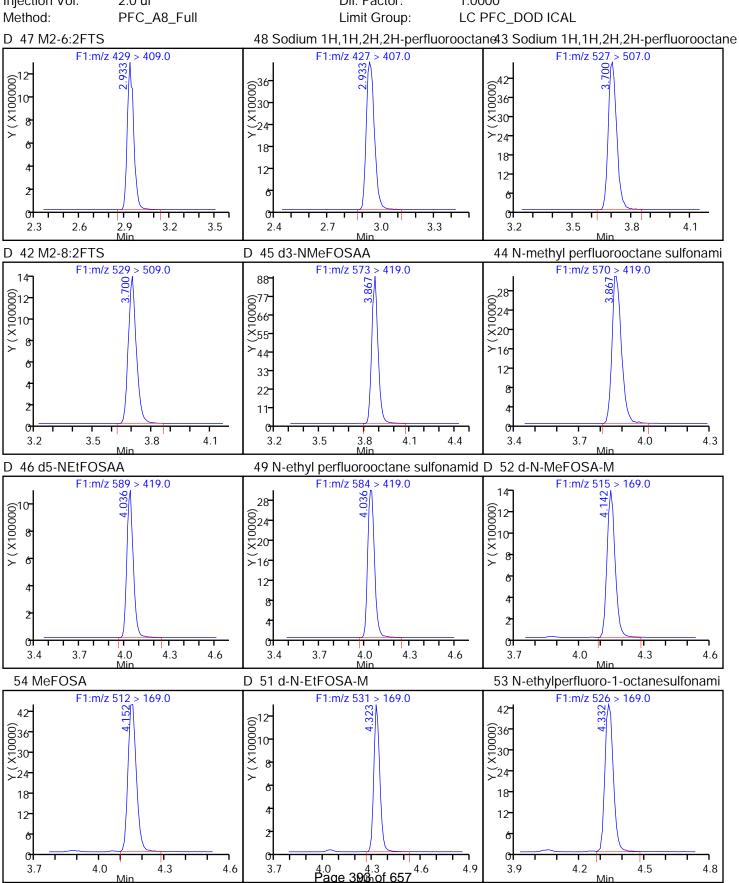
Injection Date: 03-Sep-2016 17:16:00 Instrument ID: A8

Lims ID: IC L4 Add-on

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 17

Injection Vol: 2.0 ul Dil. Factor: 1.0000



Report Date: 10-Sep-2016 12:38:48 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_018_p1_e1.d

Lims ID: IC L5 Add-on

Client ID:

Sample Type: IC Calib Level: 5

Inject. Date: 03-Sep-2016 17:23:00 ALS Bottle#: 0 Worklist Smp#: 18

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:47 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 14:52:45

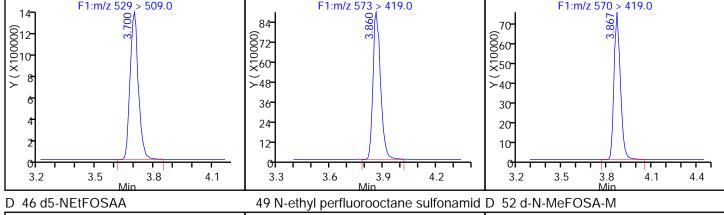
I II St Level Nevie	wei. piio	ппзорпа	i t		Date.	U	7-36p-2010 14.32.4	F.J					
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags			
D 47 M2-6:2FTS	S												
429 > 409.0	2.933	2.934	-0.001		3797945	48.6		102					
48 Sodium 1H,	1H,2H,2	H-perflu	orooctan	е									
427 > 407.0	2.933	2.936	-0.003	1.000	3058623	46.8		98.7					
43 Sodium 1H,		•											
527 > 507.0		3.698	-0.006	0.998	3220979	45.8		95.7					
D 42 M2-8:2FTS		2 (00	0.000		44 45057	40.2		100					
529 > 509.0		3.698	0.002		4145857	49.3		103					
D 45 d3-NMeFC 573 > 419.0		2 967	0.007		2689968	53.7		107					
44 N-methyl pe					2007700	55.7		107					
570 > 419.0				1.002	2237819	48.1		96.1					
D 46 d5-NEtFOS													
589 > 419.0	4.027	4.034	-0.007		2941098	52.5		105					
49 N-ethyl perf	luoroocta	ane sulfo	onamid										
584 > 419.0	4.036	4.040	-0.004	1.002	2207162	49.4		98.7					
D 52 d-N-MeFO	SA-M												
515 > 169.0	4.142	4.144	-0.002		3655789	53.0		106					
54 MeFOSA													
512 > 169.0		4.144	-0.002	1.000	2965510	50.1		100					
D 51 d-N-EtFOS		4.005	0.0		0005407	E0.4		404					
531 > 169.0		4.325			3325487	52.1		104					
53 N-ethylperfl 526 > 169.0	uoro-1-o 4.334			1.000	2805243	49.8		99.7					
520 > 107.0	4.334	4.333	0.001	1.000	2000240	47.0		77.1					

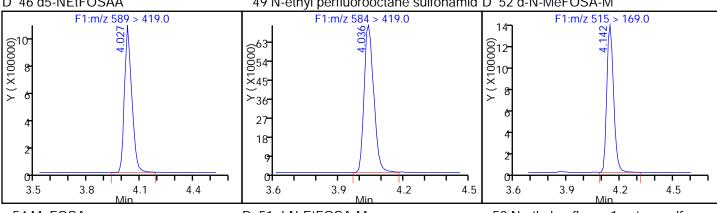
Report Date: 10-Sep-2016 12:38:48 Chrom Revision: 2.2 17-Aug-2016 13:17:46

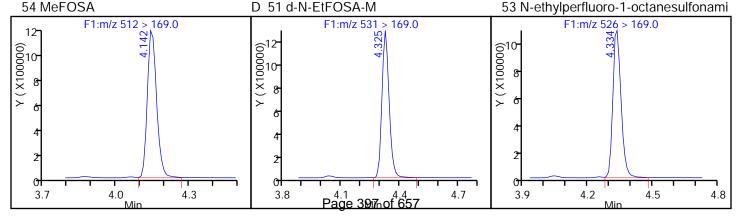
Reagents:

LCPFC2-L5_00002 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:38:48 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_018_p1_e1.d Data File: **Injection Date:** 03-Sep-2016 17:23:00 Instrument ID: **A8** Lims ID: IC L5 Add-on Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 18 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 47 M2-6:2FTS 48 Sodium 1H,1H,2H,2H-perfluorooctane43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 429 > 409.0 F1:m/z 427 > 407.0 F1:m/z 527 > 507.0 (12 (X) X (X Y (X100000) (X100000) 3.5 2.9 3.2 2.9 3.2 3.7 4.0 2.6 2.3 2.6 3.1 3.4 D 42 M2-8:2FTS D 45 d3-NMeFOSAA 44 N-methyl perfluorooctane sulfonami F1:m/z 570 > 419.0 F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 84 (X100000) Y 70 (0060 X50 ©72-560-_ ≻48- ≻40 36 30 24







Report Date: 10-Sep-2016 12:38:53 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_019_p1_e1.d

Lims ID: IC L6 Add-on

Client ID:

Sample Type: IC Calib Level: 6

Inject. Date: 03-Sep-2016 17:31:00 ALS Bottle#: 0 Worklist Smp#: 19

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:52 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 15:01:17

I II St Level Nevie	wei. piic	ппзорна	i t		Date.	U	7-3ep-2010 13.01.	1 /						
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags				
D 47 M2-6:2FTS	6													
429 > 409.0	2.925	2.934	-0.009		3853202	49.3		104						
48 Sodium 1H,		•												
427 > 407.0			-0.003		11633026	175.4		92.5						
43 Sodium 1H,		•			10001010	100 (05.0						
527 > 507.0		3.698	-0.010	1.000	12931010	183.6		95.8						
D 42 M2-8:2FTS		2 / 00	0.010		4152000	40.4		100						
529 > 509.0		3.698	-0.010		4153988	49.4		103						
D 45 d3-NMeFC 573 > 419.0		2 967	0 003		2558846	51.0		102						
44 N-methyl pe					2330040	31.0		102						
570 > 419.0				1.000	9131219	206.2		103						
D 46 d5-NEtFOS														
589 > 419.0	4.031	4.034	-0.003		2747749	49.0		98.0						
49 N-ethyl perf	luoroocta	ane sulfo	onamid											
584 > 419.0	4.031	4.040	-0.009	1.000	8977868	214.9		107						
D 52 d-N-MeFO	SA-M													
515 > 169.0	4.146	4.144	0.002		3534315	51.2		102						
54 MeFOSA														
512 > 169.0		4.144	0.002	1.000	12266767	214.3		107						
D 51 d-N-EtFOS		4 225	0.000		2272204	F2 0		10/						
531 > 169.0	4.322				3372284	52.8		106	100					
53 N-ethylperfl 526 > 169.0	uoro-1-o 4.332			1.000	12200197	213.7		107						
320 / 107.0	7.332	7.555	-0.00 I	1.000	12200177	Z 1 J . /		107						

Report Date: 10-Sep-2016 12:38:53 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Reagents:

LCPFC2-L6_00002 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:38:53

Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_019_p1_e1.d

Injection Date: 03-Sep-2016 17:31:00

Instrument ID: A8

Lims ID: IC L6 Add-on

Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 19 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 47 M2-6:2FTS 48 Sodium 1H,1H,2H,2H-perfluorooctane43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 429 > 409.0 F1:m/z 427 > 407.0 F1:m/z 527 > 507.0 2.925 (12 (X) X (X (35-0030-1×25-©35 030 $\stackrel{\smile}{\times}_{25}$ ∑20 15- 15 10 10 3.0 3.3 2.9 3.2 3.7 4.0 2.7 2.3 2.6 3.5 3.1 3.4 D 42 M2-8:2FTS D 45 d3-NMeFOSAA 44 N-methyl perfluorooctane sulfonami F1:m/z 570 > 419.0 F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 14 (X100000) Y 628 624 ()70 ()60 ×20 ×50 ≻₄₀-≻16 12 30 20 10 3.9 4.2 3.2 3.5 3.8 4.1 3.6 3.6 3.9 4.2 3.3 3.3 49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M D 46 d5-NEtFOSAA F1:m/z 589 > 419.0 F1:m/z 584 > 419.0 F1:m/z 515 > 169.0 88 28 (X100000) (X100000) (X100000) 00001 00001 20 ©77-966-∑₁₆-×55 12 33 22 3.6 3.9 4.2 4.5 3.7 4.0 4.3 3.9 4.2 3.4 4.5 3.3 54 MeFOSA D 51 d-N-EtFOSA-M 53 N-ethylperfluoro-1-octanesulfonami F1:m/z 512 > 169.0 F1:m/z 531 > 169.0 F1:m/z 526 > 169.0 (12 (0000010 8 042 0036 042 0036 ×30 ×30 **≻**24 18 18 12

0

3.8

4.1 Page 401nof 657 4.7

4.7

0

3.7

4.0

4.3

4.6

4.9

0

3.5

3.8

4.1

4.4

Report Date: 10-Sep-2016 12:38:57 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Lims ID: IC L7 Add-on

Client ID:

Sample Type: IC Calib Level: 7

Inject. Date: 03-Sep-2016 17:38:00 ALS Bottle#: 0 Worklist Smp#: 20

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:38:56 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 15:02:03

T II ST LC VCI TC VIC	wer. pric	ппоорпа	11		Date.	0	7 3cp 2010 13.02.0	70									
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags							
D 47 M2-6:2FTS	5																
429 > 409.0	2.933	2.934	-0.001		4315874	55.2		116									
48 Sodium 1H,		•															
427 > 407.0			-0.003		23130125	311.3		82.1									
43 Sodium 1H,		•			05704000	200 5		00.0									
527 > 507.0		3.698	-0.001	1.002	25721082	309.5		80.8									
D 42 M2-8:2FTS 529 > 509.0		3.698	-0 009		4901505	58.2		122									
D 45 d3-NMeFC		3.070	-0.007		4701303	50.2		122									
573 > 419.0		3.865	-0.008		2390955	47.7		95.4									
44 N-methyl pe																	
570 > 419.0				1.002	19319449	466.9		117									
D 46 d5-NEtFOS	SAA																
589 > 419.0	4.023	4.032	-0.009		2674584	47.7		95.4									
49 N-ethyl perf																	
584 > 419.0		4.040	-0.008	1.002	18536217	455.8		114									
D 52 d-N-MeFO		4 4 4 4 0	0.007		2442072	40.0		00.0									
515 > 169.0	4.137	4.143	-0.006		3443873	49.9		99.8									
54 MeFOSA 512 > 169.0	1 127	1111	-0.007	1 000	24668475	442.3		111									
D 51 d-N-EtFOS		4.144	-0.007	1.000	24006473	442.3		111									
	4.324	4 325	-0.001		3283532	51.4		103									
53 N-ethylperflu					0200002	01.1											
526 > 169.0	4.324			1.000	24514043	441.0		110									
									110								

Report Date: 10-Sep-2016 12:38:57 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Reagents:

LCPFC2-L7_00002 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:38:57 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d Data File: **Injection Date:** 03-Sep-2016 17:38:00 Instrument ID: 8A Lims ID: IC L7 Add-on Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 20 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 47 M2-6:2FTS 48 Sodium 1H,1H,2H,2H-perfluorooctane43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 429 > 409.0 F1:m/z 427 > 407.0 F1:m/z 527 > 507.0 63 00054 45 45 (012 X (X10000) X (X 670 660 60 ×50 <u>></u>36 \succ 40 27 30 18 20 10 3.0 3.3 2.9 3.2 3.5 3.7 4.0 2.7 2.6 3.4 D 42 M2-8:2FTS D 45 d3-NMeFOSAA 44 N-methyl perfluorooctane sulfonami F1:m/z 570 > 419.0 F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 56 70 (0048-40-40-060-X50-<u></u>32 _ ≻40 24 30 20 16 10 3.7 3.9 4.2 3.4 4.0 4.3 3.6 3.5 3.8 4.4 3.1 3.3 3.2 4.1 49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M D 46 d5-NEtFOSAA F1:m/z 589 > 419.0 56 (X100000) (X100000) (X100000) 84 00072 ×60 @49 @42 ×35-**≻**48 ≻₂₈-36 21 24 14 12 3.7 4.0 4.3 3.7 4.0 4.3 3.9 4.2 4.6 3.4 4.6 4.5 54 MeFOSA D 51 d-N-EtFOSA-M 53 N-ethylperfluoro-1-octanesulfonami F1:m/z 512 > 169.0 F1:m/z 531 > 169.0 F1:m/z 526 > 169.0 12 77-00066 ×55-(77-0066-1×55-(X100000) 8 ×44 33 33 22 22 0 0 0 3.9 4.2 4.5 3.8 4.1 Page 405 of 657 4.7 4.0 4.3 4.6 4.9 3.6 3.7

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Calibration Files:

LEVEL:	:	LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-128009/4	19SEP2016A 004 pl el.d
Level	2	IC 320-128009/14	19SEP2016A 014 pl e1.d
Level	3	IC 320-128009/5	19SEP2016A 005 pl el.d
Level	4	IC 320-128009/15	19SEP2016A 015 pl el.d
Level	5	IC 320-128009/6	19SEP2016A 006 pl el.d
Level	6	IC 320-128009/16	19SEP2016A 016 pl e1.d
Level	7	IC 320-128009/7	19SEP2016A 007 pl el.d
Level	8	IC 320-128009/17	19SEP2016A 017 pl el.d
Level	9	IC 320-128009/8	19SEP2016A 008 pl el.d
Level	10	IC 320-128009/18	19SEP2016A 018 pl el.d
Level	11	IC 320-128009/9	19SEP2016A 009 pl el.d
Level	12	IC 320-128009/19	19SEP2016A 019 pl el.d
Level	13	IC 320-128009/10	19SEP2016A 010 pl el.d
Level	14	IC 320-128009/20	19SEP2016A_020_p1_e1.d

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.533 1.532		1.539		1.539		1.533		1.539		1.285 - 1.785	1.536
Perfluoropentanoic acid (PFPeA)	1.809 1.806		1.806		1.815		1.807		1.814		1.559 - 2.059	1.810
Perfluorobutanesulfonic acid (PFBS)	1.842 1.848		1.840		1.849		1.841		1.848		1.664 - 2.024	1.845
Perfluorohexanoic acid (PFHxA)	2.104 2.099		2.099		2.099		2.089		2.099		1.846 - 2.346	2.097
Perfluorohexanesulfonic acid (PFHxS)	+++++ 2.366		2.382 2.417		2.454		2.451		2.375		2.165 - 2.665	2.408
Perfluoroheptanoic acid (PFHpA)	2.444 2.437		2.445		2.444		2.432		2.439		2.188 - 2.688	2.440
6:2FTS		+++++ 2.744		2.757		2.744		2.744		2.742	2.498 - 2.998	2.746
Perfluorooctanoic acid (PFOA)	+++++ 2.798		2.809 2.783		2.808		2.798		2.803		2.552 - 3.052	2.800
Perfluoroheptanesulfonic Acid (PFHpS)	2.816 2.806		2.809		2.816		2.807		2.803		2.558 - 3.058	2.810
Perfluorooctanesulfonic acid (PFOS)	+++++ 3.173		3.182 3.159		3.076		3.143		3.153		2.904 - 3.404	3.148
Perfluorononanoic acid (PFNA)	3.197 3.180		3.182		3.188		3.173		3.176		2.930 - 3.430	3.183
Perfluorooctane Sulfonamide (FOSA)	3.483 3.490		3.491		3.498		3.482		3.494		3.239 - 3.739	3.490
8:2FTS		3.502 3.491		3.506		3.499		3.484		3.494	3.246 - 3.746	3.496

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: $\underline{A8}$ GC Column: $\underline{Acquity}$ ID: $\underline{2.1 (mm)}$ Heated Purge: (Y/N) \underline{N}

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
	LVL 11	LVL 12	LVL 13	LVL 14								
Perfluorodecanoic acid (PFDA)	3.554 3.537		3.546		3.545		3.538		3.541		3.292 - 3.792	3.544
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		3.683 3.664		3.679 3.664		3.665		3.665		3.667	3.420 - 3.920	3.670
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		3.842 3.832		3.838 3.839		3.839		3.832		3.834	3.587 - 4.087	3.837
Perfluorodecanesulfonic acid (PFDS)	3.870 3.846		3.862 3.832		3.869		3.846		3.850		3.604 - 4.104	3.854
Perfluoroundecanoic acid (PFUnA)	3.886 3.869		3.886		3.877		3.869		3.873		3.625 - 4.125	3.877
MeFOSA		3.979 3.975		3.983 3.984		3.975		3.966		3.969	3.726 - 4.226	3.976
N-EtFOSA-M		4.159 4.163		4.162 4.163		4.154		4.154		4.157	3.909 - 4.409	4.159
Perfluorododecanoic acid (PFDoA)	4.181 4.153		4.181		4.180		4.162		4.166		3.918 - 4.418	4.171
Perfluorotridecanoic Acid (PFTriA)	4.454 4.426		4.445		4.444		4.426		4.430		4.185 - 4.685	4.438
Perfluorotetradecanoic acid (PFTeA)	4.688 4.666		4.688		4.687		4.674		4.669		4.424 - 4.924	4.679
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++ 5.088		5.110		5.109		5.088		5.090		4.848 - 5.348	5.097
Perfluoro-n-octadecanoic acid (PFODA)	5.501 5.453		5.486 5.446		5.478		5.456		5.461		5.219 - 5.719	5.469
13C4 PFBA	1.533 1.532		1.532 1.532		1.539		1.533		1.539		1.284 - 1.784	1.534
13C5-PFPeA	1.809 1.806		1.806		1.815		1.799		1.806		1.557 - 2.057	1.807
13C2 PFHxA	2.104 2.099		2.099		2.099		2.089		2.099		1.846 - 2.346	2.097
13C4-PFHpA	2.444 2.437		2.445		2.444		2.432		2.439		2.188 - 2.688	2.440
1802 PFHxS	2.454 2.448		2.455 2.450		2.454		2.441		2.458		2.201 - 2.701	2.451
M2-6:2FTS		2.756 2.744		2.757		2.744		2.752		2.742	2.500 - 3.000	2.749
13C4 PFOA	2.807 2.798		2.809		2.816		2.798		2.795		2.552 - 3.052	2.802
13C4 PFOS	3.189 3.173		3.182 3.167		3.181		3.173		3.176		2.927 - 3.427	3.177
13C5 PFNA	3.189		3.182		3.188		3.173		3.176		2.929 - 3.429	3.181
13C8 FOSA	3.483		3.483		3.490		3.475		3.486		3.233 - 3.733	3.485

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3 LVL 13	LVL 4 LVL 14	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
M2-8:2FTS		3.502 3.499		3.506		3.499		3.491		3.494	3.249 - 3.749	3.499
13C2 PFDA	3.554 3.537		3.546 3.531		3.553		3.530		3.533		3.291 - 3.791	3.541
d3-NMeFOSAA		3.675 3.664		3.663 3.664		3.665		3.665		3.659	3.415 - 3.915	3.665
d5-NEtFOSAA		3.842 3.824		3.838 3.831		3.832		3.832		3.827	3.582 - 4.082	3.832
13C2 PFUnA	3.886 3.869		3.878		3.877		3.869		3.873		3.622 - 4.122	3.875
d-N-MeFOSA-M		3.970 3.966		3.974 3.975		3.966		3.966		3.969	3.720 - 4.220	3.969
d-N-EtFOSA-M		4.159 4.154		4.153 4.163		4.154		4.154		4.147	3.905 - 4.405	4.155
13C2 PFDoA	4.181 4.153		4.172 4.154		4.171		4.162		4.166		3.915 - 4.415	4.166
13C2-PFTeDA	4.695 4.666		4.688 4.654		4.681	_	4.667	_	4.669		4.424 - 4.924	4.674
13C2-PFHxDA	5.120 5.088		5.110 5.068		5.109		5.088		5.090		4.846 - 5.346	5.096

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Files:

LEVEL:		LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-128009/4	19SEP2016A 004 p1 e1.d
Level	2	IC 320-128009/14	19SEP2016A 014 p1 e1.d
Level	3	IC 320-128009/5	19SEP2016A 005 pl el.d
Level	4	IC 320-128009/15	19SEP2016A 015 pl el.d
Level	5	IC 320-128009/6	19SEP2016A 006 pl el.d
Level	6	IC 320-128009/16	19SEP2016A 016 pl el.d
Level	7	IC 320-128009/7	19SEP2016A 007 pl el.d
Level	8	IC 320-128009/17	19SEP2016A 017 pl el.d
Level	9	IC 320-128009/8	19SEP2016A 008 pl el.d
Level	10	IC 320-128009/18	19SEP2016A 018 pl el.d
Level	11	IC 320-128009/9	19SEP2016A 009 pl el.d
Level	12	IC 320-128009/19	19SEP2016A 019 p1 e1.d
Level	13	IC 320-128009/10	19SEP2016A 010 pl el.d
Level	14	IC 320-128009/20	19SEP2016A_020_p1_e1.d

ANALYTE		С	F		CURVE		COEFFICIENT		#	MIN CF	%RSD	#		R^2		N R^2
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12	TYPE -	В	M1	M2					%RSD 0	R COD	0.	R COD
13C4 PFBA	193513 196223 183502 163794		211703 191120 175047		Ave		187843.183				8.3		50.0			
13C5-PFPeA	159161 159424 149548 +++++		180679 156957 135853		Ave		156936.840				9.3		50.0			
13C2 PFHxA	150260 146377 139124 120955		158146 145119 129782		Ave		141394.969				8.9		50.0			
13C4-PFHpA	141064 141796 129341 +++++		156243 136270 109857		Ave		135761.710				11.4		50.0			
1802 PFHxS	182132 178848 175938 148828		191758 177267 164178		Ave		174135.738				7.9		50.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: $\underline{A8}$ GC Column: $\underline{Acquity}$ ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE		CI	?		CURVE		COEFFICIENT		#	MIN CF	%RSD	#	MAX R^2 # MIN R^2
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12	TYPE	В	M1	М2					%RSD OR COD OR COD
M2-6:2FTS		63118 63288 64472 +++++		65371 64816 66368	Ave		64572.0526				1.9		50.0
13C4 PFOA	144988 144901 131233 92159		156473 137747 109254		Ave		130965.183				17.3		50.0
13C4 PFOS	137618 131166 132804 108109		144498 127734 120430		Ave		128908.449				9.2		50.0
13C5 PFNA	110871 112505 99804 +++++		119223 104799 85044		Ave		105374.160				11.4		50.0
13C8 FOSA	256676 242078 237722 +++++		261080 243875 217013		Ave		243073.877				6.4		50.0
M2-8:2FTS		52381 54818 55959 +++++		52981 56225 61461	Ave		55637.4530				5.8		50.0
13C2 PFDA	97690 95870 90022 73438		105293 95960 83140		Ave		91630.4914				11.5		50.0
d3-NMeFOSAA		31967 34249 34473 32995		33169 35130 31958	Ave		33420.0429				3.7		50.0
d5-NEtFOSAA		34132 36879 36863 33859		36030 38362 34342	Ave		35781.0343				4.8		50.0

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE		CI	<u> </u>		CURVE		COEFFICIENT		#	MIN CF	%RSD	#	MAX R^2 # MIN R^2
	LVL 1 LVL 5 LVL 9 LVL 13	LVL 2 LVL 6 LVL 10 LVL 14	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12	TYPE	В	M1	M2					%RSD OR COD OR COD
13C2 PFUnA	76026 75441 67988 +++++		82197 72618 58114		Ave		72063.7433				11.5		50.0
d-N-MeFOSA-M		60010 62768 63639 58499		58119 62687 59463	Ave		60740.6743				3.7		50.0
d-N-EtFOSA-M		55585 58700 60273 56091		53755 59271 57324			57285.5571				4.0		50.0
13C2 PFDoA	70080 71575 66369 54732		73521 68841 60589		Ave		66529.5171				10.0		50.0
13C2-PFTeDA	131636 139620 131830 106152		136913 137159 122028		Ave		129333.977				9.1		50.0
13C2-PFHxDA	75847 85707 85082 70343		78702 86793 78068		Ave		80077.4457				7.6		50.0

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE			RRF			CURVE		COEFFICIE	NT	# MIN RRF	%RSD		MAX	R^2	#	MIN R^2
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	TYPE	В	М1	M2				%RSD	OR COD		OR COD
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10				112							
	LVL 11			_	DVD IV											
Perfluorobutanoic acid (PFBA)	168522		176685		172052	AveID		0.8672			6.3		35.0			
		176516		168534												
	136337		+++++													
Perfluoropentanoic acid (PFPeA)	180426		180499		163562	AveID		1.0163			7.4		35.0			
		160123		152847												
	121858		+++++													
Perfluorobutanesulfonic acid (PFBS)	287590		290437		268168	AveID		1.5283			8.6		50.0			
		294561		285428												
	212293		+++++													
Perfluorohexanoic acid (PFHxA)	165784		151240		140283	AveID		0.9474			9.8		35.0			
	117004	139836		133075												
D 61 1 16 1 17 (DETT 0)	117394		95446 220578		186247			1.0276			7.0		35.0			
Perfluorohexanesulfonic acid (PFHxS)	+++++	187694		181685	186247	Avein		1.02/6			7.8		35.0			
	157878	18/694	137031	181083												
Perfluoroheptanoic acid (PFHpA)	167626		154767		141621	ΛποTD		1.0418			7.4		35.0			
refirmoroneptanoic acid (friipa)	107020	145202		132121	141021	VACID		1.0410			/ • 4		33.0			
	108314	140202	+++++	132121												
6:2FTS	100311	+++++		74399		L1ID	0.3286	0.7799						0.9980		0.9900
	46106		57144		53316											
		50843		+++++												
Perfluorooctanoic acid (PFOA)	+++++		184926		152101	AveID		1.0465			7.5		35.0			
		146053		137453												
	107797		87842													
Perfluoroheptanesulfonic Acid (PFHpS)	163328		161825		155448	AveID		1.1812			4.6		50.0			
		161905		159808												
	135405		+++++													
Perfluorooctanesulfonic acid (PFOS)	+++++	· · · · · · · · · · · · · · · · · · ·	142908		138345	AveID		1.0705			4.5		35.0			
		138342		141153												
	133461		121649													
Perfluorononanoic acid (PFNA)	122824		111920		109255	AveID		1.0158			6.0		35.0			
	05001	111114		101189												
D. (1)	85321 239552		+++++ 240425		000010	3 . 75		0.0100			C 1	\vdash	25.0			
Perfluorooctane Sulfonamide (FOSA)	239552	236005	240425	225937	228318	AveID		0.9198			6.4		35.0			
		Z30UU3		223931								1 1				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE			RRF			CURVE		COEFFICIA	ENT	#	MIN RRF	%RSD		AX RSD	R^2 OR CO	#		R^2
	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10		В	M1	М2				16	(SD	OR CO.	٥	OR	СОД
8:2FTS	40061	46689 45359	51695	44649	45693	AveID		0.8231				9.4	3	5.0				
Perfluorodecanoic acid (PFDA)	98102	93494	96938	89774	90465	AveID		0.9675				3.3	3	5.0				
	80234		+++++															
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	24819	25372 29647	31451	26566 32956	29594	AveID		0.8571				10.8	3	5.0				
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	22237	24330 27159	30468	23378 29707	27885	AveID		0.7405				12.6	3	5.0				
Perfluorodecanesulfonic acid (PFDS)	84160	83543	82478	82761	80143	AveID		0.6164				4.4	5	0.0				
Perfluoroundecanoic acid (PFUnA)	77305 101868	75633	65146 86360	69761	76740	AveID		1.0823				11.7	3	5.0		+		
MeFOSA	59169 42156	46664	54759	42033	51886	AveID		0.8116				11.5	3	5.0		+		
N-EtFOSA-M	40797	53279 42480	51011	54032 42626	49449	AveID		0.8242				10.0	3	5.0		+		
		51859		52257														
Perfluorododecanoic acid (PFDoA)	71468	66637		63819		AveID		0.9712				3.0	3	5.0				
Perfluorotridecanoic Acid (PFTriA)	59380 71018	67819	71672	64836		AveID		0.9735				3.0	5	0.0		+		
	58629	0,013	+++++	01000														
Perfluorotetradecanoic acid (PFTeA)	87292	104303		98137	102053	AveID		1.4280				6.6	5	0.0				
Perfluoro-n-hexadecanoic acid (PFHxDA)	88603 +++++	79535	108661	78264		AveID		1.2218				11.8	5	0.0		+		
Perfluoro-n-octadecanoic acid (PFODA)	69841 70216		+++++ 67690		67467	AveID		1.0747				11.0	5	0.0		+	_	
	73786	76702	63608	77208														

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Files:

LEVEL:	:	LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-128009/4	19SEP2016A 004 pl el.d
Level	2	IC 320-128009/14	19SEP2016A 014 pl el.d
Level	3	IC 320-128009/5	19SEP2016A 005 pl e1.d
Level	4	IC 320-128009/15	19SEP2016A 015 pl e1.d
Level	5	IC 320-128009/6	19SEP2016A 006 pl e1.d
Level	6	IC 320-128009/16	19SEP2016A 016 pl e1.d
Level	7	IC 320-128009/7	19SEP2016A 007 p1 e1.d
Level	8	IC 320-128009/17	19SEP2016A 017 pl e1.d
Level	9	IC 320-128009/8	19SEP2016A 008 pl e1.d
Level	10	IC 320-128009/18	19SEP2016A 018 pl e1.d
Level	11	IC 320-128009/9	19SEP2016A 009 p1 e1.d
Level	12	IC 320-128009/19	19SEP2016A 019 pl e1.d
Level	13	IC 320-128009/10	19SEP2016A 010 pl e1.d
Level	14	IC 320-128009/20	19SEP2016A 020 p1 e1.d

ANALYTE	CURVE			RESPONSE			CONCENTRATION (NG/ML)						
	TYPE	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10		
13C4 PFBA	Ave	9675649 8752351	9556019	10585141 8189714	9175100	9811140	50.0	50.0	50.0	50.0	50.0		
13C5-PFPeA	Ave	7958050 6792639	7847831	9033953	7477399	7971180	50.0	50.0	50.0	50.0	50.0		
13C2 PFHxA	Ave	7513020 6489122	7255935	7907320 6047771	6956218	7318853	50.0	50.0	50.0 50.0	50.0	50.0		
13C4-PFHpA	Ave	7053184 5492840	6813484	7812149	6467052	7089804	50.0	50.0	50.0	50.0	50.0		
1802 PFHxS	Ave	8614867 7765619	8384721	9070138 7039582	8321889	8459527	47.3 47.3	47.3	47.3 47.3	47.3	47.3		
M2-6:2FTS	Ave	3006175	2998083 3152481	3078760	3105113	3062423	47.5	47.5 47.5	47.5	47.5	47.5		
13C4 PFOA	Ave	7249396 5462704	6887350	7823661 4607973	6561673	7245057	50.0	50.0	50.0	50.0	50.0		

FORM VI LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

ANALYTE	CURVE			RESPONSE				CONCE	NTRATION (N	IG/ML)	
	TYPE -	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
13C4 PFOS	Ave	6578121 5756563	6105665	6907025 5167591	6348052	6269750	47.8 47.8	47.8	47.8 47.8	47.8	47.8
13C5 PFNA	Ave	5543570 4252184	5239930	5961155	4990176	5625233	50.0 50.0	50.0	50.0	50.0	50.0
13C8 FOSA	Ave	12833801	12193755	13053982	11886098	12103882	50.0	50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	2625785	2509047 2943974	2693162	2537782	2680454	47.9	47.9 47.9	47.9	47.9	47.9
13C2 PFDA	Ave	4884485 4156993	4798024	5264647 3671883	4501123	4793517	50.0	50.0	50.0	50.0	50.0
d3-NMeFOSAA	Ave	1712456	1598360 1597895	1756513	1658433 1649728	1723630	50.0	50.0	50.0	50.0	50.0
d5-NEtFOSAA	Ave	1843945	1706616	1918112	1801477	1843143	50.0	50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	3801278	3630899	4109847	3399378	3772032	50.0	50.0	50.0	50.0	50.0
d-N-MeFOSA-M	Ave	2905689 3138391	3000484	3134342	2905963	3181940	50.0	50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	2935000	2973167 2779243 2866192	2963542	2924949 2687759 2804548	3013661	50.0	50.0 50.0	50.0	50.0 50.0	50.0
13C2 PFDoA	Ave	3503979 3029438	3442030	3676061 2736623	3318471	3578729	50.0	50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	6581781 6101402	6857936	6845647 5307610	6591504	6981012	50.0	50.0	50.0	50.0	50.0
13C2-PFHxDA	Ave	3792346 3903423	4339629	3935104 3517129	4254115	4285360	50.0	50.0	50.0	50.0	50.0

LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA RESPONSE AND CONCENTRATION

b No.: 320-21044-1	Analy Batch No.: 128009
Column: Acquity ID: 2.1(mm)	Heated Purge: (Y/N) N
libration End Date: 09/19/2016 17:48	Calibration ID: 25237
	Column: Acquity ID: 2.1(mm)

Curve Type Legend:
Ave = Average

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

Calibration Files:

LEVEL:		LAB SAMPLE ID:	LAB FILE ID:
Level	1	IC 320-128009/4	19SEP2016A 004 p1 e1.d
Level	2	IC 320-128009/14	19SEP2016A 014 p1 e1.d
Level	3	IC 320-128009/5	19SEP2016A 005 p1 e1.d
Level	4	IC 320-128009/15	19SEP2016A 015 p1 e1.d
Level	5	IC 320-128009/6	19SEP2016A 006 p1 e1.d
Level	6	IC 320-128009/16	19SEP2016A 016 p1 e1.d
Level	7	IC 320-128009/7	19SEP2016A 007 p1 e1.d
Level	8	IC 320-128009/17	19SEP2016A 017 p1 e1.d
Level	9	IC 320-128009/8	19SEP2016A 008 p1 e1.d
Level	10	IC 320-128009/18	19SEP2016A 018 p1 e1.d
Level	11	IC 320-128009/9	19SEP2016A 009 p1 e1.d
Level	12	IC 320-128009/19	19SEP2016A 019 p1 e1.d
Level	13	IC 320-128009/10	19SEP2016A 010 p1 e1.d
Level	14	IC 320-128009/20	19SEP2016A_020_p1_e1.d

ANALYTE	IS	CURVE			RESPONSE				CONCE	NTRATION (1	NG/ML)	
	REF	TYPE	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
Perfluorobutanoic acid (PFBA)		AveID	84261 27267493	3530324	176685	8426684	860259	0.500	20.0	1.00	50.0	5.00
Perfluoropentanoic acid (PFPeA)		AveID	90213 24371595	3202450	180499	7642341	817808	0.500	20.0	1.00	50.0	5.00
Perfluorobutanesulfonic acid (PFBS)		AveID	127115 37533339	5207839	256746	12615903	1185304	0.442	17.7	0.884	44.2	4.42
Perfluorohexanoic acid (PFHxA)		AveID	82892 23478772	2796722	151240 38178367	6653747	701417	0.500	20.0	1.00	50.0	5.00
Perfluorohexanesulfonic acid (PFHxS)		AveID	+++++ 28733822	3416037	200726 49879178	8266665	847425	182	18.2	0.910	45.5	4.55
Perfluoroheptanoic acid (PFHpA)		AveID	83813 21662816	2904046	154767	6606063	708103	0.500	20.0	1.00	50.0	5.00
6:2FTS		L1ID	218541	+++++ 9639831	1083447	70530	2527202	4.74	+++++ 190	19.0	0.948	47.4

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: $\underline{A8}$ GC Column: $\underline{Acquity}$ ID: $\underline{2.1}$ (mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	IS REF	CURVE TYPE			RESPONSE				CONCE	NTRATION (N	G/ML)	
	KEF	TYPE	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8 LVL 13	LVL 4 LVL 9 LVL 14	LVL 5 LVL 10
Perfluorooctanoic acid (PFOA)		AveID	+++++ 21559473	2921050	184926 35136753	6872664	760505	+++++ 200	20.0	1.00	50.0	5.00
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	77744	3082672	154057	7606839	739932	0.476	19.0	0.952	47.6	4.76
Perfluorooctanesulfonic acid (PFOS)		AveID	24770402	2567636	132619	6549517	641920	+++++	18.6	0.928	46.4	4.64
Perfluorononanoic acid (PFNA)		AveID	61412	2222271	111920	5059430	546276	0.500	20.0	1.00	50.0	5.00
Perfluorooctane Sulfonamide (FOSA)		AveID	119776	4720107	240425	11296832	1141590	0.500	20.0	1.00	50.0	5.00
8:2FTS		AveID	191894	22364	990477	42774	2188716	4.79	0.479	19.2	0.958	47.9
Perfluorodecanoic acid (PFDA)		AveID	49051	1869881	96938	4488689	452323	0.500	192	1.00	50.0	5.00
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	16046869	12686	629013	26566	1479720	5.00	0.500	20.0	1.00	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	111187	5929407 12165	609359	13182464	1394231	5.00	0.500	20.0	1.00	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	40565	5431743 1610711	79509	11882750 3989096	386289	0.482	19.3	0.964	400	4.82
Perfluoroundecanoic acid (PFUnA)		AveID	14904378	1512661	25120161 86360	3488025	383701	193	20.0	386	50.0	5.00
MeFOSA		AveID	11833824 210779	23332	1095170	42033	2594317	5.00	0.500	20.0	1.00	50.0
N-EtFOSA-M		AveID	203984	10655813 21240	1020213	21612713 42626	2472445	5.00	0.500	20.0	1.00	50.0
				10371751		20902990			200		400	

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1 Analy Batch No.: 128009

SDG No.:

Instrument ID: A8 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/19/2016 15:48 Calibration End Date: 09/19/2016 17:48 Calibration ID: 25237

ANALYTE	IS	CURVE			RESPONSE		CONCENTRATION (NG/ML)					
	REF	TYPE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6 LVL 11	LVL 7 LVL 12	LVL 8 LVL 13	LVL 9 LVL 14	LVL 10	LVL 6 LVL 11	LVL 7 LVL 12	LVL 8 LVL 13	LVL 9 LVL 14	LVL 10
Perfluorododecanoic acid (PFDoA)		AveID	35734		70989		333574	0.500		1.00		5.00
			11876099	1332738	+++++	3190971		200	20.0	++++	50.0	
Perfluorotridecanoic Acid (PFTriA)		AveID	35509		71672		330331	0.500		1.00		5.00
				1356380		3241799			20.0		50.0	
			11725830		+++++			200		+++++		
Perfluorotetradecanoic acid (PFTeA)		AveID	43646		105900		510263	0.500		1.00		5.00
				2086068		4906866			20.0		50.0	
			17720647		+++++			200		+++++		
Perfluoro-n-hexadecanoic acid		AveID	++++		108661		409310	++++		1.00		5.00
(PFHxDA)				1590699		3913210			20.0		50.0	
			13968190		+++++			200		+++++		
Perfluoro-n-octadecanoic acid		AveID	35108		67690		337334	0.500		1.00		5.00
(PFODA)				1534044		3860401			20.0		50.0	
			14757149		25443068			200		400		

Curve Type Legend:

AveID = Average isotope dilution

L1ID = Linear 1/conc IsoDil

Report Date: 20-Sep-2016 09:49:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Lims ID: IC L1

Client ID:

Sample Type: IC Calib Level: 1

Inject. Date: 19-Sep-2016 15:48:00 ALS Bottle#: 0 Worklist Smp#: 4

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:49:10 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 20-Sep-2016 08:42:38

First Level Revie	wer: wes	stendorfo	0		Date:	2	20-Sep-2016 08:42:	38		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.533	1.534	-0.001		9675649	51.5		103	640689	
1 Perfluorobut	vric acid									
	1.533	1.535	-0.002	1.000	84261	0.5021		100	628	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.809	1.807	0.002		7958050	50.7		101	797890	
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.809	1.809	0.0	1.000	90213	0.5577		112	1251	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.842	1.844	-0.002	1.000	127115	0.4567		103		
298.9 > 99.0	1.842	1.844	-0.002	1.000	50287		2.53(0.00-0.00)	103		
7 Perfluorohex	kanoic ac	cid								
313 > 269.0	2.104	2.096	0.008	1.000	82892	0.5823		116	2910	
D 6 13C2 PFHx										
315 > 270.0	2.104	2.096	0.008		7513020	53.1		106	585848	
9 Perfluorohex										
399 > 80.0	2.463	2.415	0.048	1.000	114055	0.6094		134		
12 Perfluorohe										
363 > 319.0	2.444	2.438	0.006	1.000	83813	0.5703		114	901	
D 11 13C4-PFH	•									
367 > 322.0	2.444	2.438	0.006		7053184	52.0		104	616625	
D 10 1802 PFH										
403 > 84.0	2.454	2.451	0.003		8614867	49.5		105	452794	
15 Perfluorooc										
413 > 369.0	2.816	2.802	0.014	1.000	110728	0.7298		146	3487	
D 14 13C4 PFO										
417 > 372.0	2.807	2.802	0.005		7249396	55.4		111	885999	
13 Perfluorohe	-									
449 > 80.0	2.816	2.808	0.008	1.000	Page ⁷ 421 of (6 57 0.4783		100		

Report Date: 20-Sep-2016 09:49:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_004_p1_e1.d

Data File:	\\Chr	S/AVIMC	acramen	to\Cnrom	Data\A8\20160	1920-34/02.k	0\19SEP2016A_004	<u>p </u>	a	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooc	tane sulf	onic aci	d							М
499 > 80.0	3.189	3.154		1.000	66920	0.4542		97.9	9763	
499 > 99.0	3.182	3.154	0.028	0.998	17493		3.83(0.90-1.10)	97.9	1418	M
D 17 13C4 PFO	S									
503 > 80.0	3.189	3.177	0.012		6578121	51.0		107	298332	
D 19 13C5 PFN										
468 > 423.0		3.179	0.010		5543570	52.6		105	326593	
20 Perfluorono			0.017	1 000	(4.440	0.5.450		100	0055	
463 > 419.0	3.197	3.180	0.017	1.000	61412	0.5453		109	2055	
D 21 13C8 FOS		2.402	0.0		12022001	F2 0		10/	E0E242	
506 > 78.0		3.483			12833801	52.8		106	505243	
22 Perfluorooc 498 > 78.0			e -0.006	1 000	119776	0.5073		101	10372	
D 23 13C2 PFD		3.409	-0.000	1.000	119770	0.3073		101	10372	
515 > 470.0	3.554	3 541	0.013		4884485	53.3		107	200771	
24 Perfluorode			0.010		100 1 100	00.0		107	200771	
513 > 469.0			0.012	1.000	49051	0.5190		104	2336	
26 Perfluorode										
599 > 80.0	3.870		0.016	1.000	40565	0.4782		99.2		
D 27 13C2 PFU	nA									
565 > 520.0	3.886	3.872	0.014		3801278	52.7		105	484011	
28 Perfluoroun	decanoi	c acid								
563 > 519.0	3.886	3.875	0.011	1.000	50934	0.6190		124	2390	
D 30 13C2 PFD	οΑ									
615 > 570.0	4.181	4.165	0.016		3503979	52.7		105	270267	
29 Perfluorodo		c acid								
613 > 569.0	4.181	4.168	0.013	1.000	35734	0.5250		105	1853	
31 Perfluorotrio										
633 > 619.0	4.454	4.435	0.019	1.000	35509	0.5205		104	2178	
D 32 13C2-PFT										
715 > 670.0	4.695	4.674	0.021		6581781	50.9		102	628927	
33 Perfluorotet										
713 > 669.0	4.688	4.674	0.014	1.000	43646	0.4361	2 E2(0 00 0 00)	87.2	73.0	
713 > 169.0	4.702	4.674	0.028	1.003	12347		3.53(0.00-0.00)	87.2	4723	
D 34 13C2-PFH 815 > 770.0	xDA 5.120	5.096	0.024		3792346	47.4		94.7	738978	
					3/72340	47.4		74.1	1307/0	
35 Perfluorohe 813 > 769.0		oic acid 5.098	0.022	1.000	70911	0.8282		166	2736	
			0.022	1.000	70711	0.0202		100	2130	
36 Perfluorooc 913 > 869.0	tadecano 5.501	5.469	0.032	1.000	35108	0.4662		93.2	145	
713 / 007.0	J.JU I	5.409	0.032	1.000	33106	0.4002		73.2	145	

Report Date: 20-Sep-2016 09:49:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Reagents:

LCPFC-L1_00021 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:49:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_004_p1_e1.d Data File: Injection Date: 19-Sep-2016 15:48:00 Instrument ID: **A8** Lims ID: IC L1 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 4 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 32 635 630 30 35 ©28 024 830 ×25 ×25 ×20 ≻20 **≻**20 15 15- 12 10 10 1.7 2.0 1.5 1.1 1.4 1.2 1.4 2.0 2.3 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 40 21-35- 49 842- ×35• ≻₂₀ ≻₂₈-21 15 10 14 2.0 1.7 1.8 2.1 1.8 1.5 1.5 2.1 1.4 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 (28-(000001 X) (28-(00001 X) 35 30 ©25 ×16 ≻20 15- 15 10 10 1.8 2.1 2.4 2.7 1.5 1.8 2.1 2.4 2.7 1.8 2.1 2.4 2.7 3.3 1.5 3.0 D 10 1802 PFHxS 12 Perfluoroheptanoic acid D 11 13C4-PFHpA F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 32 24¹ (000001X) 28 ©28-0024-(000120 × × 16 16 12 12 12 0 0 0 2.0 2.3 2.6 1.8 3.0 2.1 2.4 2.7 3.0 1.8

3.6

3.9

3.0

3.3

3.6

3.9

3.3

12

3.0

12

2.8

3.1

3.4 Mir 3.7

4.0

5.0

5.3

5.6

4.7

5.0

5.3

18-

4.1

4.4

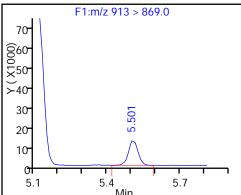
4.7

5.0

4.4

4.7

36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:49:13 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_004_p1_e1.d

Injection Date: 19-Sep-2016 15:48:00 Instrument ID: A8

Lims ID: IC L1

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 4

Injection Vol: 2.0 ul Dil. Factor: 1.0000

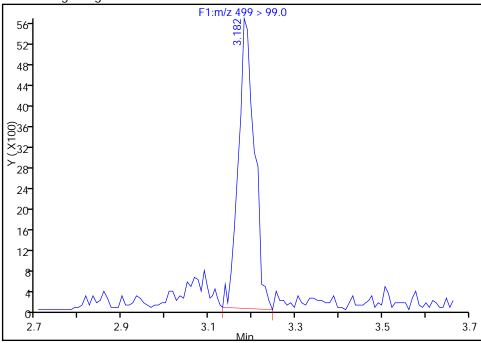
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

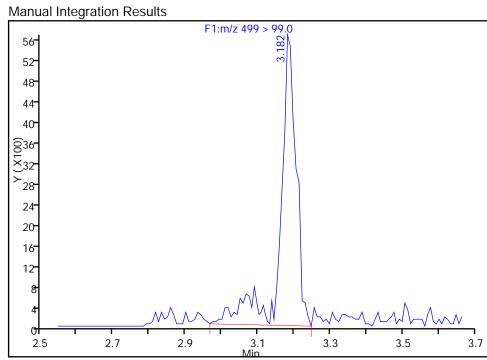
Signal: 2

RT: 3.18
Area: 14593
Amount: 0.454243
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 17493
Amount: 0.454243
Amount Units: ng/ml



Reviewer: westendorfc, 20-Sep-2016 08:42:38

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 428 of 657

Report Date: 20-Sep-2016 09:49:28 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_005_p1_e1.d

Lims ID: IC L2

Client ID:

Sample Type: IC Calib Level: 2

Inject. Date: 19-Sep-2016 15:55:00 ALS Bottle#: 0 Worklist Smp#: 5

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:49:25 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1 : Det: F1(0.00 :6.60)

Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 20-Sep-2016 08:43:01

First Level Revie	wer: wes	stendorf	С		Date:	2	20-Sep-2016 08:43:0	01		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	Δ.									
217 > 172.0	1.532	1.534	-0.002		10585141	56.4		113	407294	
1 Perfluorobut	yric acid									
212.9 > 169.0	•	1.535	0.004	1.000	176685	0.9624		96.2	1201	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.806	1.807	-0.001		9033953	57.6		115	129513	7
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.806	1.809	-0.003	1.000	180499	0.9830		98.3	2555	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0		1.844		1.000	256746	0.8760		99.1		
298.9 > 99.0	1.840	1.844	-0.004	1.000	108960		2.36(0.00-0.00)	99.1		
7 Perfluorohex										
313 > 269.0	2.099	2.096	0.003	1.000	151240	1.01		101	5331	
D 6 13C2 PFHx										
315 > 270.0	2.099	2.096	0.003		7907320	55.9		112	571520	
9 Perfluorohex										
399 > 80.0		2.415	-0.033	1.000	200726	1.02		112		
12 Perfluorohe	•									
363 > 319.0	2.445	2.438	0.007	1.000	154767	0.9508		95.1	2182	
D 11 13C4-PFH	-									
367 > 322.0	2.445	2.438	0.007		7812149	57.5		115	550608	
D 10 18O2 PFH										
403 > 84.0	2.455	2.451	0.004		9070138	52.1		110	491490	
15 Perfluorooc										
413 > 369.0	2.809	2.802	0.007	1.000	184926	1.13	1 / 5/0 00 4 40	113	6167	
413 > 169.0	2.809	2.802	0.007	1.000	112403		1.65(0.90-1.10)	113	33866	
D 14 13C4 PFO		0.000	0.007		7000//4	F0.7		440	FF0005	
417 > 372.0	2.809	2.802	0.007		7823661	59.7		119	553995	
					Dogg 420 of (257				

Report Date: 20-Sep-2016 09:49:28 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_005_p1_e1.d

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_005_p1_e1.d										
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	2.809			1.000	154057	0.9026		94.8		
18 Perfluorooctane sulfonic acid										
499 > 80.0	3.182	3.154	0.028	1.000	132619	0.8573		92.4	19279	
499 > 99.0	3.084		-0.070	0.969	34340	0.0070	3.86(0.90-1.10)	92.4	1578	
D 17 13C4 PFOS										
503 > 80.0	3.182	3.177	0.005		6907025	53.6		112	309015	
D 19 13C5 PFN					0.7.0.0					
468 > 423.0	3.182	3.179	0.003		5961155	56.6		113	260001	
20 Perfluorono			0.000		0,000	00.0				
463 > 419.0	3.182	3.180	0.002	1.000	111920	0.9241		92.4	3975	
D 21 13C8 FOS		0.100	0.002	1.000	111720	0.7211		,	0770	
506 > 78.0	3.483	3.483	0.0		13053982	53.7		107	438942	
22 Perfluorooc					13033702	33.7		107	430742	
498 > 78.0	3.491	3.489	e 0.002	1.000	240425	1.00		100	14524	
		3.407	0.002	1.000	240423	1.00		100	14324	
D 23 13C2 PFD. 515 > 470.0		3.541	0.005		5264647	57.5		115	304362	
			0.003		3204047	57.5		113	304302	
24 Perfluorode			0.004	1 000	96938	0.9516		95.2	5986	
513 > 469.0		3.542	0.004	1.000	90938	0.9516		95.2	3980	
26 Perfluorode				1 000	70500	0.0007		00.7		
599 > 80.0	3.862	3.854	0.008	1.000	79509	0.8926		92.6		
D 27 13C2 PFU		0.070	0.007		4400047				050040	
565 > 520.0	3.878	3.872	0.006		4109847	57.0		114	250810	
28 Perfluoroun										
563 > 519.0	3.886	3.875	0.011	1.000	86360	0.9708		97.1	3899	
D 30 13C2 PFD										
615 > 570.0	4.172	4.165	0.007		3676061	55.3		111	225766	
29 Perfluorodo	decanoi	c acid								
613 > 569.0	4.181	4.168	0.013	1.000	70989	0.99		99.4	3446	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.445	4.435	0.010	1.000	71672	1.00		100	5465	
D 32 13C2-PFT	eDA									
715 > 670.0	4.688	4.674	0.014		6845647	52.9		106	550869	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.688	4.674	0.014	1.000	105900	1.01		101	179	
713 > 169.0	4.681	4.674	0.007	0.999	21558		4.91(0.00-0.00)	101	8764	
D 34 13C2-PFH	xDA									
815 > 770.0	5.110	5.096	0.014		3935104	49.1		98.3	767611	
35 Perfluorohe		oic acid								
813 > 769.0		5.098	0.012	1.000	108661	1.21		121	4676	
36 Perfluorooctadecanoic acid										
913 > 869.0	5.486	5.469	0.017	1.000	67690	0.8567		85.7	349	
Reagents:	21.00				3.0					
LCPFC-L2_0002	2		^	Amount A	dded: 1.00	Units	·· ml			
LOF1 G-LZ_0002			P	amount A	uucu. 1.00	Utills), IIIL			

Report Date: 20-Sep-2016 09:49:28 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_005_p1_e1.d Data File: Injection Date: 19-Sep-2016 15:55:00 Instrument ID: **A8** Lims ID: IC L2 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 5 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 70 00030-036-635 630 630 660 ×50 ×25 ∑40⁻ ≥ 20 18 30 15 12 20 10 10 1.2 1.5 1.8 1.8 2.1 1.5 1.4 2.0 2.3 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 Y (X10000) 49 70 642-6035-860 \. \. 28 ×50 ≻40 21 30 14 20 10 2.0 1.7 1.8 2.1 1.8 2.1 1.5 1.5 1.4 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 28 660 63 49 00024 0000 20 0642-×35-054**-**1245**-**_ ≻16- ≻28 >36 12 21 27 14 18 2.0 2.3 1.8 2.1 2.4 2.7 1.8 2.1 2.4 2.7 3.0 1.5 3.3 1.7 D 10 1802 PFHxS 12 Perfluoroheptanoic acid D 11 13C4-PFHpA F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 28 35- 56 ©24**-**©30-0025-(6) (48- ×40 × ≻16--20**≻**32 15 12 24 10 0 0 0 2.4 2.7 1.8 3.0 2.1 2.4 2.7 3.0 2.1 1.8 2.1 Page 48/1h of 657



3.6

3.9

2.9

3.2

3.8

4.1

3.3

22- 11-

3.0

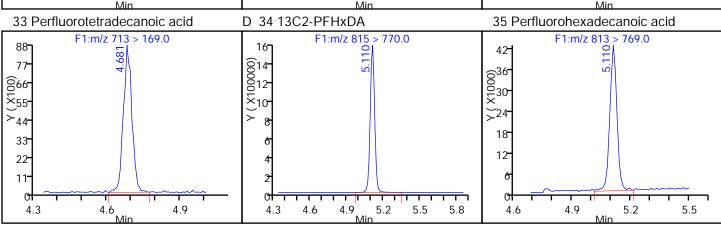
4.1

12

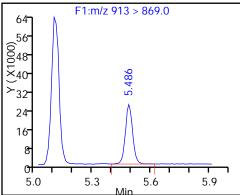
2.9

3.2

3.5 Min



36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:49:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

Data File:

Lims ID: IC L3

Client ID:

Sample Type: IC Calib Level: 3

Inject. Date: 19-Sep-2016 16:03:00 ALS Bottle#: 0 Worklist Smp#: 6

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: **A8** Instrument ID: **A8**

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:49:39 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: **Initial Calibration**

Last ICal File:

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

-+ Lovel Dovie 001/00/1005

First Level Revie	First Level Reviewer: westendorfc					Date: 20-Sep-2016 08:43:25				
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	A									
217 > 172.0	1.539	1.534	0.005		9811140	52.2		104	375846	
1 Perfluorobut	yric acid									
212.9 > 169.0	1.539	1.535	0.004	1.000	860259	5.06		101	6366	
D 4 13C5-PFP6										
267.9 > 223.0	1.815	1.807	0.008		7971180	50.8		102	783287	
3 Perfluoroper			0.007	1 000	0.1.7000	F 05		404	10051	
262.9 > 219.0	1.815	1.809	0.006	1.000	817808	5.05		101	13254	
5 Perfluorobut 298.9 > 80.0	anesulto 1.849	nic acid 1.844	0.005	1.000	1185304	4.34		98.1		
298.9 > 99.0	1.849	1.844	0.005	1.000	509888	4.34	2.32(0.00-0.00)	98.1 98.1		
7 Perfluorohex							(,			
313 > 269.0	2.099	2.096	0.003	1.000	701417	5.06		101	25008	
D 6 13C2 PFHx	κA									
315 > 270.0	2.099	2.096	0.003		7318853	51.8		104	679001	
9 Perfluorohex	kanesulfo	onic acid								
399 > 80.0	2.454	2.415	0.039	1.000	847425	4.61		101		
12 Perfluorohe	•									
363 > 319.0	2.444	2.438	0.006	1.000	708103	4.79		95.9	9470	
D 11 13C4-PFH	•	2.420	0.007		7000004	F2 2		104	F10711	
367 > 322.0	2.444	2.438	0.006		7089804	52.2		104	513711	
D 10 18O2 PFH 403 > 84.0	xS 2.454	2.451	0.003		8459527	48.6		103	454024	
15 Perfluorooc			0.003		0437327	40.0		103	434024	
413 > 369.0	2.808	2.802	0.006	1.000	760505	5.02		100	24980	
413 > 169.0	2.808	2.802	0.006	1.000	457454		1.66(0.90-1.10)	100	39632	
D 14 13C4 PFO	Α									
417 > 372.0	2.816	2.802	0.014		7245057	55.3		111	823924	
					Page 435 of 6	357				

Report Date: 20-Sep-2016 09:49:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_006_p1_e1.d

Data File:	\\Chr	omNA\Sa	mNA\Sacramento\ChromData\A8\2016)\19SEP2016A_006)6_p1_e1.d		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanesul	Ifonic Ac	id							
449 > 80.0	2.816		0.008	1.000	739932	4.78		100		
18 Perfluorooc				1.000	707702	11.70		.00		
499 > 80.0	3.076	3.154		1.000	641920	4.57		98.5	18174	
499 > 99.0	3.188	3.154	0.034	1.037	145950	4.07	4.40(0.90-1.10)	98.5	22728	
D 17 13C4 PFO										
503 > 80.0	3.181	3.177	0.004		6269750	48.6		102	316285	
D 19 13C5 PFN										
468 > 423.0	3.188	3.179	0.009		5625233	53.4		107	344956	
20 Perfluorono			0.007		0020200				011700	
463 > 419.0	3.188	3.180	0.008	1.000	546276	4.78		95.6	20116	
D 21 13C8 FOS		000	0.000	1.000	0.10270	11.70		70.0	20110	
506 > 78.0	3.490	3.483	0.007		12103882	49.8		99.6	349014	
22 Perfluorooc					12100002	47.0		77.0	347014	
498 > 78.0	3.498	3.489	0.009	1.000	1141590	5.13		103	82785	
		3.407	0.007	1.000	1141370	5.15		103	02703	
D 23 13C2 PFD. 515 > 470.0	A 3.553	3.541	0.012		4793517	52.3		105	290959	
			0.012		4773317	32.3		103	270737	
24 Perfluorode 513 > 469.0		3.542	0.003	1.000	452323	4.88		97.5	27459	
				1.000	402323	4.00		97.5	27439	
26 Perfluorode				1 000	204200	4 70		99.1		
599 > 80.0	3.869	3.854	0.015	1.000	386289	4.78		99.1		
D 27 13C2 PFU		2.072	0.005		2772022	F2 2		105	471057	
565 > 520.0	3.877	3.872	0.005		3772032	52.3		105	471357	
28 Perfluoroun			0.000	1 000	202704	4.70		040	1//00	
563 > 519.0	3.877	3.875	0.002	1.000	383701	4.70		94.0	16623	
D 30 13C2 PFD		44/5	0.007		0570700	F0.0		400	007054	
615 > 570.0	4.171	4.165	0.006		3578729	53.8		108	327354	
29 Perfluorodo										
613 > 569.0	4.180	4.168	0.012	1.000	333574	4.80		96.0	17546	
31 Perfluorotrio										
633 > 619.0	4.444	4.435	0.009	1.000	330331	4.74		94.8	20933	
D 32 13C2-PFT	eDA									
715 > 670.0	4.681	4.674	0.007		6981012	54.0		108	531574	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.687	4.674	0.013	1.000	510263	4.99		99.8	900	
713 > 169.0	4.687	4.674	0.013	1.000	100116		5.10(0.00-0.00)	99.8	38171	
D 34 13C2-PFH	xDA									
815 > 770.0	5.109	5.096	0.013		4285360	53.5		107	816844	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.109	5.098	0.011	1.000	409310	4.68		93.6	19983	
36 Perfluorooc	tadecan	oic acid								
913 > 869.0		5.469	0.009	1.000	337334	4.39		87.7	1383	
Reagents:										
LCPFC-L3_0001	9		Д	mount A	dded: 1.00	Units	: mL			
========			•			2				

Page 436 of 657

Report Date: 20-Sep-2016 09:49:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_006_p1_e1.d Data File: 19-Sep-2016 16:03:00 **Injection Date:** Instrument ID: **A8** Lims ID: IC L3 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 6 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 35 32 (00030 X25 ©28 024 630 625 \<u>\.</u> $\stackrel{\smile}{\times}_{20}$ -20 15 15 12 10 10 1.2 1.5 1.8 1.7 1.2 1.5 1.8 2.1 1.1 1.4 2.0 2.1 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 49 21 630 625 042 042 0435 0018 15 ∠28-15 21 10 14 2.1 1.9 2.2 1.7 2.0 1.5 1.8 2.4 1.6 2.3 1.2 1.3 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 28 660 24⁻ (00020-X)16⁻ 6²⁴ 620 824- 0020 ×)16-∑₁₆-12 1.8 2.1 2.4 2.7 1.7 2.0 2.3 2.0 2.6 3.2 1.5 1.4 2.6 1.4 12 Perfluoroheptanoic acid D 11 13C4-PFHpA D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 32 454 (00020-0020-©28-0024-(24⁻ 0020 <u>×</u>16 16 12 12 0 0 0 1.9 2.2 2.5 2.8 1.8 3.0 1.8 2.1 2.4 2.7 3.0 2.1 Page 4876 of 657

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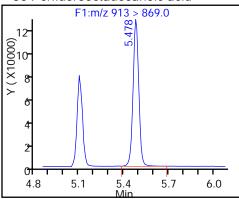
5.7

4.5

4.8

5.1

36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:49:55 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_007_p1_e1.d

Lims ID: IC L4

Client ID:

Sample Type: IC Calib Level: 4

Inject. Date: 19-Sep-2016 16:10:00 ALS Bottle#: 0 Worklist Smp#: 7

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:49:53 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 20-Sep-2016 08:42:00

First Level Revie	wer: wes	stendorf	С		Date:	2	20-Sep-2016 08:42:0	00		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.533	1.534	-0.001		9556019	50.9		102	333122	
1 Perfluorobut	vric acid									
212.9 > 169.0	•		-0.002	1.000	3530324	21.3		107	29342	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.799	1.807	-0.008		7847831	50.0		100	739318	
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.807	1.809	-0.002	1.000	3202450	20.1		100	56608	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.841		-0.003	1.000	5207839	19.2		109		
298.9 > 99.0	1.841	1.844	-0.003	1.000	2173671		2.40(0.00-0.00)	109		
7 Perfluorohex										
313 > 269.0	2.089	2.096	-0.007	1.000	2796722	20.3		102	107661	
D 6 13C2 PFHx										
315 > 270.0	2.089	2.096	-0.007		7255935	51.3		103	526485	
9 Perfluorohex										
399 > 80.0	2.451	2.415	0.036	1.000	3416037	18.8		103		
12 Perfluorohe										
363 > 319.0		2.438	-0.006	1.000	2904046	20.5		102	38746	
D 11 13C4-PFH	-									
367 > 322.0	2.432	2.438	-0.006		6813484	50.2		100	487646	
D 10 18O2 PFH										
403 > 84.0	2.441	2.451	-0.010		8384721	48.2		102	495641	
15 Perfluorooc										
413 > 369.0	2.798		-0.004	1.000	2921050	20.3	1 () () () () () ()	101	142673	
413 > 169.0	2.798	2.802	-0.004	1.000	1807490		1.62(0.90-1.10)	101	612916	
D 14 13C4 PFO		0.000	0.004		/007050	F0 /		105	4/7701	
417 > 372.0	2.798	2.802	-0.004		6887350	52.6		105	467791	
					Dogo 441 of (257				

Report Date: 20-Sep-2016 09:49:55 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_007_p1_e1.d

Data File.	WCIII	JIIIVA	acramen	to Chilon	100120100	720-34702.0	1193LF2010A_007	<u>_pı_eı.</u>	<u> </u>	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroh	neptanesul	Ifonic Ac	id							
449 > 80.0		2.808		1.000	3082672	20.4		107		
18 Perfluoroo	octane sulf	onic acid	b							
499 > 80.0	3.143		-0.011	1.000	2567636	18.8		101	108703	
499 > 99.0	3.066	3.154	-0.088	0.976	576105		4.46(0.90-1.10)	101	9769	
D 17 13C4 PF										
503 > 80.0	3.173	3.177	-0.004		6105665	47.4		99.1	269554	
D 19 13C5 PF		0.470	0.007		F220020	40.7		00.5	205 (40	
468 > 423.0	3.173	3.179	-0.006		5239930	49.7		99.5	305649	
20 Perfluoror			0.007	1 000	2222271	20.0		104	/7750	
463 > 419.0	3.173	3.180	-0.007	1.000	2222271	20.9		104	67753	
D 21 13C8 FO		2 402	0.000		10100755	FO 2		100	422250	
506 > 78.0		3.483			12193755	50.2		100	423250	
22 Perfluoroo 498 > 78.0	octane Suli 3.482			1.000	4720107	21.0		105	190804	
		3.409	-0.007	1.000	4/2010/	21.0		103	190004	
D 23 13C2 PF 515 > 470.0		3.541	0.011		4798024	52.4		105	343943	
24 Perfluoroc			-0.011		4770024	32.4		103	343743	
513 > 469.0		3.542	-0 004	1.000	1869881	20.1		101	114618	
26 Perfluoroc				1.000	1007001	20.1		101	114010	
599 > 80.0	3.846			1.000	1610711	20.5		106		
D 27 13C2 PF		0.00.	0.000			20.0				
565 > 520.0		3.872	-0.003		3630899	50.4		101	329309	
28 Perfluorou										
563 > 519.0	3.869		-0.006	1.000	1512661	19.2		96.2	69070	
D 30 13C2 PF										
615 > 570.0		4.165	-0.003		3442030	51.7		103	215949	
29 Perfluoroc										
613 > 569.0			-0.006	1.000	1332738	19.9		99.7	65965	
31 Perfluorot										
633 > 619.0		4.435	-0.009	1.000	1356380	20.2		101	74409	
D 32 13C2-PF	TeDA									
715 > 670.0	4.667	4.674	-0.007		6857936	53.0		106	373630	
33 Perfluorot	etradecan	oic acid								
713 > 669.0	4.674	4.674	0.0	1.000	2086068	21.2		106	3971	
713 > 169.0	4.667	4.674	-0.007	0.999	415364		5.02(0.00-0.00)	106	164371	
D 34 13C2-PF	HxDA									
815 > 770.0	5.088	5.096	-0.008		4339629	54.2		108	547445	
35 Perfluoroh	nexadecan	oic acid								
813 > 769.0	5.088	5.098	-0.010	1.000	1590699	18.9		94.6	60572	
36 Perfluoroo	octadecan	oic acid								
913 > 869.0	5.456	5.469	-0.013	1.000	1534044	20.7		104	5986	
Reagents:										
LCPFC-L4_000	022		Δ	mount A	.dded: 1.00	Units	: mL			

LCPFC-L4_00022 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:49:55 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_007_p1_e1.d Data File: Injection Date: 19-Sep-2016 16:10:00 Instrument ID: **A8** Lims ID: IC L4 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 7 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 _20 **≻**16 15- 12 10 1.7 2.0 8.0 1.7 2.0 1.1 1.4 1.1 1.4 2.0 2.3 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 (12 (X) X (X (21- 000018-15-∑60 ≻48 36 24 12 2.1 2.2 1.5 1.8 2.4 1.3 1.6 1.9 1.6 1.9 2.2 1.2 1.3 9 Perfluorohexanesulfonic acid 7 Perfluorohexanoic acid D 6 13C2 PFHxA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 96 Y (X100000) 024 020 020 684 672 ∑₁₆-×60->₄₈ 36 24 12 1.9 2.2 2.8 1.5 1.8 2.1 ⁄lin 2.4 2.7 1.2 1.8 2.4 3.0 1.6 2.5 12 Perfluoroheptanoic acid D 11 13C4-PFHpA D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 24⁻ (000001×16⁻ 00024 000024 20 Y (X100000) 12 12 0 0 2.9 1.9 2.2 2.5 2.8 1.7 2.0 2.3 2.6 2.9 3.2 2.0 2.3 2.6 Page 440 of 657 1.7

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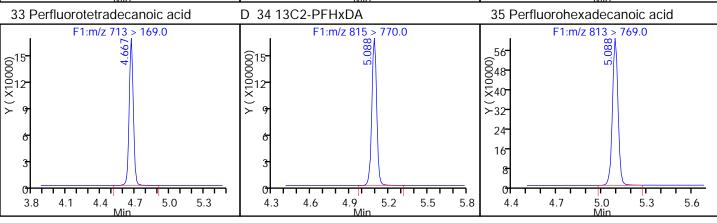
12

2.7

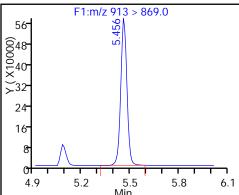
3.0

3.3 Mir 3.6

3.9



36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:50:08 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_008_p1_e1.d

Lims ID: IC L5

Client ID:

Sample Type: IC Calib Level: 5

Inject. Date: 19-Sep-2016 16:18:00 ALS Bottle#: 0 Worklist Smp#: 8

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:50:05 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

Process Host:	XAWI	RK006								
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	١									
217 > 172.0	1.539	1.534	0.005		9175100	48.8		97.7	391119	
1 Perfluorobut	yric acid									
212.9 > 169.0	1.539	1.535	0.004	1.000	8426684	53.0		106	58494	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.806	1.807	-0.001		7477399	47.6		95.3	587669	
3 Perfluoroper										
262.9 > 219.0	1.814	1.809	0.005	1.000	7642341	50.3		101	148609	
5 Perfluorobut										
298.9 > 80.0	1.848	1.844	0.004	1.000	12615903	46.9	2 22/2 22 2 22)	106		
298.9 > 99.0	1.848	1.844	0.004	1.000	5659462		2.23(0.00-0.00)	106		
7 Perfluorohex 313 > 269.0	(anoic ac 2.099	2.096	0.003	1.000	6653747	50.5		101	300492	
D 6 13C2 PFHx		2.070	0.003	1.000	0033747	50.5		101	300472	
315 > 270.0	2.099	2.096	0.003		6956218	49.2		98.4	510315	
9 Perfluorohex					0700210	17.2		70.1	010010	
399 > 80.0	2.375	2.415	-0.040	1.000	8266665	45.7		100		
12 Perfluorohe										
363 > 319.0	2.439	2.438	0.001	1.000	6606063	49.0		98.1	75782	
D 11 13C4-PFH	Aq									
367 > 322.0	2.439	2.438	0.001		6467052	47.6		95.3	581384	
D 10 18O2 PFH	xS									
403 > 84.0	2.458	2.451	0.007		8321889	47.8		101	519490	
15 Perfluorooc	tanoic ac	cid								
413 > 369.0	2.803	2.802	0.001	1.000	6872664	50.0		100	388230	
413 > 169.0	2.803	2.802	0.001	1.000	4251408		1.62(0.90-1.10)	100	140814	5
D 14 13C4 PFO										
417 > 372.0	2.795		-0.007		6561673	50.1		100	556134	
13 Perfluorohe	•			1 000	7/0/005	40.5		100		
449 > 80.0	2.803	2.808	-0.005	1.000	7606839 Page 447 of 6	48.5 57		102		
					2.9.2					

Report Date: 20-Sep-2016 09:50:08 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_008_p1_e1.d

Data File:	\\CIII)HIIVA\S	acramen	to/Chron	IDala\A8\20160	1920-34702.L	1193EP2016A_008	_pr_er.	u	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooct	ane sulf	onic acid	4							
499 > 80.0	3.153		-0.001	1.000	6549517	46.1		99.3	442226	
499 > 99.0	3.063		-0.091	0.971	1486359		4.41(0.90-1.10)	99.3	17463	
D 17 13C4 PFO	S									
503 > 80.0	3.176	3.177	-0.001		6348052	49.2		103	169930	
D 19 13C5 PFN/	4									
468 > 423.0	3.176	3.179	-0.003		4990176	47.4		94.7	277536	
20 Perfluorono	nanoic a	cid								
463 > 419.0	3.176	3.180	-0.004	1.000	5059430	49.9		99.8	178394	
D 21 13C8 FOS	A									
506 > 78.0	3.486	3.483	0.003		11886098	48.9		97.8	370121	
22 Perfluorooct	ane Sulf	fonamid	е							
498 > 78.0	3.494	3.489	0.005	1.000	11296832	51.7		103	280374	
D 23 13C2 PFD/	Д									
515 > 470.0	3.533	3.541	-0.008		4501123	49.1		98.2	267320	
24 Perfluorode	canoic a	cid								
513 > 469.0	3.541	3.542	-0.001	1.000	4488689	51.5		103	277904	
26 Perfluorode	cane Su	lfonic ac	id							
599 > 80.0	3.850	3.854	-0.004	1.000	3989096	48.7		101		
D 27 13C2 PFU	nΑ									
565 > 520.0	3.873	3.872	0.001		3399378	47.2		94.3	219071	
28 Perfluoroun	decanoio	c acid								
563 > 519.0	3.873	3.875	-0.002	1.000	3488025	47.4		94.8	184810	
D 30 13C2 PFD	οA									
615 > 570.0	4.166	4.165	0.001		3318471	49.9		99.8	242638	
29 Perfluorodo	decanoio	c acid								
613 > 569.0	4.166	4.168	-0.002	1.000	3190971	49.5		99.0	165676	
31 Perfluorotrid	lecanoic	acid								
633 > 619.0	4.430	4.435	-0.005	1.000	3241799	50.2		100	180027	
D 32 13C2-PFT	eDA									
715 > 670.0	4.669	4.674	-0.005		6591504	51.0		102	623570	
33 Perfluoroteti	radecan	oic acid								
713 > 669.0	4.669	4.674	-0.005	1.000	4906866	51.8		104	8067	
713 > 169.0	4.669	4.674	-0.005	1.000	988512		4.96(0.00-0.00)	104	380551	
D 34 13C2-PFH	xDA									
815 > 770.0	5.090	5.096	-0.006		4254115	53.1		106	403472	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.090		-0.008	1.000	3913210	48.3		96.5	253692	
36 Perfluorooct	adecan	oic acid								
913 > 869.0	5.461		-0.008	1.000	3860401	54.1		108	15168	
Reagents:										
LCDEC-15 0002	Λ		^	lmount Λ	ddad: 1.00	l Inits	·· ml			

LCPFC-L5_00020 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:50:08 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_008_p1_e1.d Data File: **Injection Date:** 19-Sep-2016 16:18:00 Instrument ID: **A8** Lims ID: IC L5 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 8 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 35 (000001X) ©30 ©25 \sum_{20} **≻**16 15- 15 12 10 10 2.0 0.9 1.2 1.5 1.8 1.1 1.4 1.7 2.3 2.1 1.4 2.0 2.3 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 24 (000001 X16 28-00024-120-(49⁻ (00042⁻ (35⁻ _ ≻16 ⁻28⁻ 21 14 2.0 2.3 1.9 2.2 1.3 1.4 1.7 1.6 1.6 1.9 2.2 1.3 9 Perfluorohexanesulfonic acid 7 Perfluorohexanoic acid D 6 13C2 PFHxA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 660 00000 20-(000020 ×16 (000020 ×16 ∑₁₆-12 12 1.8 2.1 2.4 2.7 1.7 2.0 2.3 2.6 2.0 2.6 1.5 1.4 1.4 3.2 12 Perfluoroheptanoic acid D 11 13C4-PFHpA D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 24 24 32 0021-0018-0021- ©28-0024-∑₁₅-∑₁₅-≻₁₂-. 16 12 0 0 1.8 2.1 2.4 2.7 3.0 2.0 2.3 2.6 Page 449h of 657 2.9 3.2 2.0 2.3 2.6 2.9 3.2 1.7 1.7

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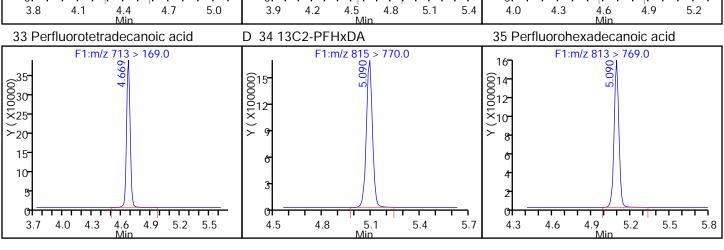
2.9

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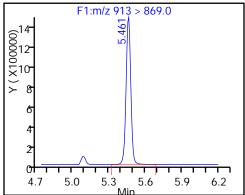
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36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:50:21 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

Data File:

Lims ID: IC L6

Client ID:

Sample Type: IC Calib Level: 6

Inject. Date: 19-Sep-2016 16:25:00 ALS Bottle#: 0 Worklist Smp#: 9

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: **A8 A8** Instrument ID:

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:50:19 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: **Isotopic Dilution** Quant By: **Initial Calibration**

Last ICal File:

Column 1: Det: F1(0.00:6.60) VAVADICOOL

Process Host:	XAWI	RK006								
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 213C4 PFBA										
217 > 172.0	1.532	1.534	-0.002		8752351	46.6		93.2	293104	
1 Perfluorobuty	yric acid									
212.9 > 169.0	1.532	1.535	-0.003	1.000	27267493	179.6		89.8	150400	
D 413C5-PFPe	Α									
267.9 > 223.0	1.806	1.807	-0.001		6792639	43.3		86.6	644203	
3 Perfluoropen										
262.9 > 219.0	1.806	1.809	-0.003	1.000	24371595	176.5		88.3	385255	
5 Perfluorobuta										
298.9 > 80.0	1.848	1.844	0.004	1.000	37533339	149.6	1 00/0 00 0 00)	84.6		
298.9 > 99.0	1.840	1.844	-0.004	0.995	19568444		1.92(0.00-0.00)	84.6		
7 Perfluorohex	anoic ac 2.099		0.002	1.000	22470772	191.0		95.5	832483	
313 > 269.0		2.096	0.003	1.000	23478772	191.0		95.5	032403	
D 6 13C2 PFHx. 315 > 270.0	A 2.099	2.096	0.003		6489122	45.9		91.8	433985	
					0407122	43.7		71.0	433703	
9 Perfluorohex 399 > 80.0	2.366		-0.049	1.000	28733822	170.3		93.6		
12 Perfluorohe			0.047	1.000	20703022	170.5		75.0		
363 > 319.0	2.437	2.438	-0 001	1.000	21662816	189.3		94.6	297526	
D 11 13C4-PFH _I			0.00.		2.0020.0	.07.0		76	277020	
367 > 322.0	2.437	2.438	-0.001		5492840	40.5		80.9	368405	
D 10 1802 PFH										
403 > 84.0	2.448	2.451	-0.003		7765619	44.6		94.3	382445	
15 Perfluorooct	anoic ac	id								
413 > 369.0	2.798	2.802	-0.004	1.000	21559473	188.6		94.3	0.0	
413 > 169.0	2.798	2.802	-0.004	1.000	13874300		1.55(0.90-1.10)	94.3	39884	
D 14 13C4 PFO	Д									
417 > 372.0	2.798	2.802	-0.004		5462704	41.7		83.4	445311	
13 Perfluoroher	otanesul	fonic Ac	id							
449 > 80.0	2.806	2.808	-0.002	1.000	25781089 Page 453 of 6	181.2 57		95.2		

Report Date: 20-Sep-2016 09:50:21 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_009_p1_e1.d

Data File:	NCIII)HIIVA\S	acramen	to/Chron	IDala(A8)20160	920-34702.1	3/193EP2016A_009	<u>_pı_eı.</u>	u	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooct	tane sulf	onic acid	4							
499 > 80.0	3.173	3.154	0.019	1.000	24770402	192.1		104	197507	6
499 > 99.0	3.137	3.154		0.989	5792804		4.28(0.90-1.10)	104	76337	
D 17 13C4 PFO	S									
503 > 80.0	3.173	3.177	-0.004		5756563	44.7		93.4	111826	
D 19 13C5 PFN	Α									
468 > 423.0	3.180	3.179	0.001		4252184	40.4		80.7	260180	
20 Perfluorono	nanoic a	cid								
463 > 419.0	3.180	3.180	0.0	1.000	17064171	197.5		98.8	435096	
D 21 13C8 FOS	A									
506 > 78.0	3.490	3.483	0.007		10850645	44.6		89.3	477623	
22 Perfluorooct	tane Sulf	fonamid	е							
498 > 78.0	3.490	3.489	0.001	1.000	34861566	174.7		87.3	370752	
D 23 13C2 PFD	A									
515 > 470.0	3.537	3.541	-0.004		4156993	45.4		90.7	236371	
24 Perfluorode	canoic a	cid								
513 > 469.0	3.537	3.542	-0.005	1.000	16046869	199.5		99.7	471914	
26 Perfluorode	cane Su	lfonic ac	id							
599 > 80.0	3.846	3.854	-0.008	1.000	14904378	200.8		104		
D 27 13C2 PFU	nA									
565 > 520.0	3.869	3.872	-0.003		2905689	40.3		80.6	261213	
28 Perfluoroun	decanoid	c acid								
563 > 519.0	3.869	3.875	-0.006	1.000	11833824	188.2		94.1	639796	
D 30 13C2 PFD	Ac									
615 > 570.0	4.153	4.165	-0.012		3029438	45.5		91.1	220417	
29 Perfluorodo										
613 > 569.0	4.153	4.168	-0.015	1.000	11876099	201.8		101	511253	
31 Perfluorotric										
633 > 619.0	4.426	4.435	-0.009	1.000	11725830	198.8		99.4	390894	
D 32 13C2-PFT										
715 > 670.0		4.674	-0.008		6101402	47.2		94.4	453125	
33 Perfluoroteti										
713 > 669.0	4.666			1.000	17720647	204.8	1 00/0 00 0 00)	102	34955	
713 > 169.0	4.659	4.6/4	-0.015	0.999	3694535		4.80(0.00-0.00)	102	454226	
D 34 13C2-PFH										
815 > 770.0		5.096			3903423	48.7		97.5	348907	
35 Perfluorohe									. =	
813 > 769.0	5.088		-0.010	1.000	13968190	188.7		94.3	495098	
36 Perfluorooct										
913 > 869.0	5.453	5.469	-0.016	1.000	14757149	226.6		113	66375	
Reagents:										
LCPFC-L6_0001	9		P	Amount A	dded: 1.00	Units	s: mL			

LCPFC-L6_00019 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:50:21 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_009_p1_e1.d Data File: 19-Sep-2016 16:25:00 Injection Date: Instrument ID: **A8** Lims ID: IC L6 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 9 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267,9 > 223.0 88 532 60²⁴ 60₂₀ (30° (30° (25° 866 $\stackrel{\smile}{\times}_{55}$ 33 10 22 1.2 1.5 1.7 1.8 2.1 1.1 1.4 2.0 1.1 1.4 1.7 2.0 2.3 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 72 (X) X (X1000000) X 806 677-0066-663 654 ∑55 ×₄₅ 36 33 27 22 18 11 2.2 1.9 2.5 1.5 2.1 2.4 1.6 1.9 2.2 1.3 1.6 1.2 1.8 1.3 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 70-000000-150-21- (70° (00000) ×50° (000018-X) > 12-∑40⁻ -40 30 30 20 20 2.0 2.3 2.0 2.3 1.8 2.1 2.4 2.7 1.4 1.7 2.6 1.7 2.6 3.0 1.4 12 Perfluoroheptanoic acid D 11 13C4-PFHpA D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 (18 (0000015-(12) 63-000054-624 620 620 ∑45 **≻**36 27 18 0 0 3.0 1.9 2.2 2.5 2.8 3.1 1.8 2.0 2.3 2.6 2.9 3.2 2.1 Page 455 of 657 1.7 1.6

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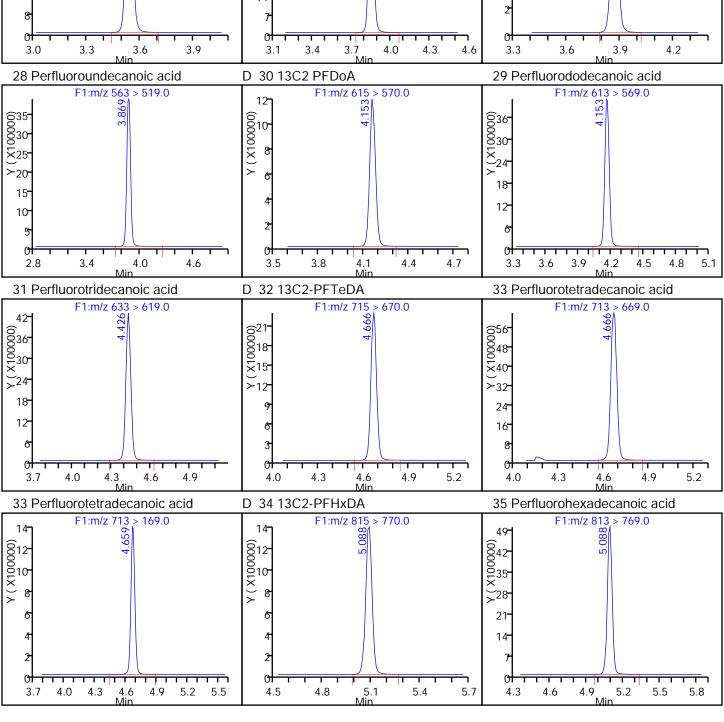
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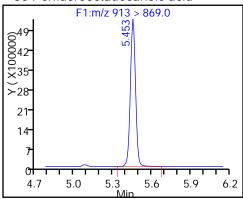
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36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:51:21 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

Data File:

Lims ID: IC L7

Client ID:

Sample Type: IC Calib Level: 7

Inject. Date: 19-Sep-2016 16:33:00 ALS Bottle#: 0 Worklist Smp#: 10

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: **A8 A8** Instrument ID:

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:51:18 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: **Isotopic Dilution** Quant By: **Initial Calibration**

Last ICal File:

Column 1: Det: F1(0.00:6.60) VAVADICOOL

Process Host:	XAW	RK006								
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	١									
217 > 172.0	1.532	1.534	-0.002		8189714	43.6		87.2	256946	
1 Perfluorobut	yric acid									
212.9 > 169.0	1.532	1.535	-0.003	1.000	43974039	309.6		77.4	216375	
D 4 13C5-PFPe	eΑ									
267.9 > 223.0	1.806	1.807	-0.001		6019692	38.4		76.7	767364	
3 Perfluoroper										
	1.806	1.809	-0.003	1.000	37330086	305.1		76.3	711297	
5 Perfluorobut										
298.9 > 80.0	1.840	1.844 1.844	-0.004 -0.013	1.000 0.995	55197562	242.7	1 00(0 00 0 00)	68.6 68.6		
298.9 > 99.0	1.831		-0.013	0.995	30601382		1.80(0.00-0.00)	08.0		
7 Perfluorohex 313 > 269.0	anoic ac 2.088		-0.008	1.000	38178367	333.2		83.3	765287	
D 6 13C2 PFHx		2.070	-0.000	1.000	30170307	333.2		03.3	703207	
315 > 270.0	2.088	2.096	-0.008		6047771	42.8		85.5	525165	
9 Perfluorohex					001,777	.2.0		00.0	020.00	
399 > 80.0	2.417	2.415	0.002	1.000	49879178	326.1		89.6		
12 Perfluorohe	ptanoic a	acid								
363 > 319.0	2.427	2.438	-0.011	1.000	34613538	351.3		87.8	393596	
D 11 13C4-PFH	рA									
367 > 322.0	2.427	2.438	-0.011		4729204	34.8		69.7	381242	
D 10 1802 PFH	xS									
403 > 84.0	2.450	2.451	-0.001		7039582	40.4		85.5	280749	
15 Perfluorooc										
413 > 369.0	2.783	2.802	-0.019	1.000	35136753	364.3		91.1	0.0	
413 > 169.0	2.792	2.802	-0.010	1.003	23600897		1.49(0.90-1.10)	91.1	51394	
D 14 13C4 PFO		0.000	0.010		4/07070	05.0		70.4	050047	
417 > 372.0	2.792		-0.010		4607973	35.2		70.4	358346	
13 Perfluorohe	•			1 000	41202007	222.2		04.0		
449 > 80.0	2.800	2.808	-0.008	1.000	41282986 Page 459 of 6	323.3 6 57		84.9		

Report Date: 20-Sep-2016 09:51:21 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_010_p1_e1.d

Data File:	\\Chr	omiva\S	acramen	to\Chrom	Data\A8\20160	920-34 /02.l	0\19SEP2016A_010	_p1_e1.	d .	
Signal	DT	EXP RT	DLT	REL RT	Docpopeo	Amount	Patio(Limits)	%Rec	S/N	Elogo
Signal	RT	KI	RT	KI	Response	ng/ml	Ratio(Limits)	70 KeC	3/11	Flags
18 Perfluorooc										_
499 > 80.0	3.159	3.154	0.005	1.000	45156111	390.2	4 10/0 00 1 10)	105	450327	7
499 > 99.0	3.159	3.154	0.005	1.000	11007030		4.10(0.90-1.10)	105	16276	
D 17 13C4 PFO 503 > 80.0	S 3.167	3 177	-0.010		5167591	40.1		83.9	80380	
D 19 13C5 PFN		3.177	-0.010		3107371	40.1		03.7	00300	
468 > 423.0		3.179	-0.012		3723817	35.3		70.7	172580	
20 Perfluorono			0.012		0,2001,	00.0		70.7	172000	
463 > 419.0	3.167		-0.013	1.000	28864551	381.5		95.4	519446	
D 21 13C8 FOS										
506 > 78.0		3.483	-0.007		9052575	37.2		74.5	285860	
22 Perfluorooc	tane Sul	fonamid	е							
498 > 78.0	3.483	3.489	-0.006	1.000	53178737	319.3		79.8	384979	
D 23 13C2 PFD	A									
515 > 470.0	3.531	3.541	-0.010		3671883	40.1		80.1	255964	
24 Perfluorode	canoic a	cid								
513 > 469.0	3.531	3.542	-0.011	1.000	26510931	373.1		93.3	686737	
26 Perfluorode										
599 > 80.0	3.832	3.854	-0.023	1.000	25120161	376.9		97.8		
D 27 13C2 PFU		0.070	0.047		04/0/00	0.4.0		, o =	005000	
565 > 520.0			-0.017		2469680	34.3		68.5	205232	
28 Perfluoroun			0.012	1 000	1000000	272.4		02.1	E244E0	
563 > 519.0		3.875	-0.013	1.000	19909092	372.4		93.1	526658	
D 30 13C2 PFD6 615 > 570.0		4.165	0.011		2736623	41.1		82.3	186791	
29 Perfluorodo			-0.011		2730023	41.1		02.5	100771	
613 > 569.0			-0.014	1 000	20472666	385.1		96.3	433434	
31 Perfluorotrio			0.011	1.000	20172000	000.1		70.0	100101	
633 > 619.0	4.418		-0.017	1.000	20278582	380.6		95.1	500521	
D 32 13C2-PFT										
715 > 670.0	4.654	4.674	-0.020		5307610	41.0		82.1	468710	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.647		-0.027	1.000	23536478	301.1		75.3	44057	
713 > 169.0	4.654	4.674	-0.020	1.001	6715056		3.51(0.00-0.00)	75.3	587079	
D 34 13C2-PFH	xDA									
815 > 770.0	5.068	5.096	-0.028		3517129	43.9		87.8	396574	
35 Perfluorohe										
813 > 769.0	5.079	5.098	-0.019	1.000	24477967	366.0		91.5	616460	
36 Perfluorooc										
913 > 869.0	5.446	5.469	-0.023	1.000	25443068	432.6		108	117521	
Reagents:	_									
LCPFC-L7 0001	9		Δ.	Amount A	dded: 100	Units	∵ ml			

LCPFC-L7_00019 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:51:21 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_010_p1_e1.d Data File: **Injection Date:** 19-Sep-2016 16:33:00 Instrument ID: **A8** Lims ID: IC L7 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 10 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 212.9 > 169.0 F1:m/z 217 > 172.0 F1:m/z 267.9 > 223.0 28 (X1000000) X (X1000000) X (X1000000) (000001 20 ©21• 00 00 018• 12 2.0 1.0 1.9 1.2 1.5 1.8 1.1 1.4 1.7 0.7 1.3 1.6 2.1 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 (12 00 X) X (X10000000) X) X (X1000000) (X1000000) (X1000000) (X1000000) Y 1.9 2.5 2.0 1.7 1.3 1.4 1.7 2.3 2.0 0.7 1.1 1.1 1.4 2.3 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 7 (X1000000) Y (X1000000) Y 2.4 Min 2.2 1.7 2.0 2.3 1.2 1.8 3.0 1.0 1.6 2.8 2.6 1.4 12 Perfluoroheptanoic acid D 11 13C4-PFHpA D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 16 (91-00078-(21⁻ 000018 ×15 0014 00012 565 -52− 39 26 13 0 0 2.9 2.0 2.6 3.2 1.7 2.0 2.3 2.6 Page 460n of 657 2.0 2.3 2.6 2.9 3.2 1.4 1.7

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4.3

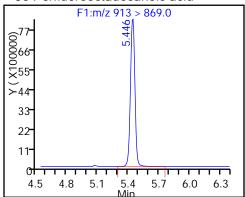
4.6

4.9

5.2

5.5

36 Perfluorooctadecanoic acid



Report Date: 20-Sep-2016 09:51:36 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_014_p1_e1.d

Lims ID: IC L1 Add-on

Client ID:

Sample Type: IC Calib Level: 1

Inject. Date: 19-Sep-2016 17:03:00 ALS Bottle#: 0 Worklist Smp#: 14

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:51:35 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

		EXP	DLT	REL		Amount				
Signal	RT	RT	RT	RT	Response	ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H	,1H,2H,2	H-perflu	orooctan	e						
427 > 407.0				1.000	371245	7.12		1502		
D 47 M2-6:2FT	S									
429 > 409.0	2.756	2.750	0.006		2998083	46.4		97.7		
43 Sodium 1H		•								
527 > 507.0	3.502	3.496	0.006	1.000	22364	0.5187		108		
D 42 M2-8:2FT										
529 > 509.0		3.499	0.003		2509047	45.1		94.1		
D 45 d3-NMeFC										
573 > 419.0	3.675	3.665	0.010		1598360	47.8		95.7		
44 N-methyl pe										
570 > 419.0	3.683	3.670	0.013	1.002	12686	0.4630		92.6		
D 46 d5-NEtFO										
589 > 419.0		3.832	0.010		1706616	47.7		95.4		
49 N-ethyl per										
584 > 419.0	3.842	3.837	0.005	1.000	12165	0.4813		96.3		
D 52 d-N-MeFC										
515 > 169.0	3.970	3.970	0.0		3000484	49.4		98.8		
54 MeFOSA										
512 > 169.0	3.979	3.976	0.003	1.000	23332	0.4791		95.8		
D 51 d-N-EtFOS										
531 > 169.0	4.159	4.155	0.004		2779243	48.5		97.0		
53 N-ethylperf										
526 > 169.0	4.159	4.159	0.0	1.000	21240	0.4636		92.7		
Reagents:										
LCPFC2-L1_000	002		Д	mount A	dded: 1.00	Units:	mL			

LCPFC2-L1_00002 Amount Added: 1.00 Units: mL

Chrom Revision: 2.2 08-Sep-2016 14:45:52 Report Date: 20-Sep-2016 09:51:36

TestAmerica Sacramento

Data File:

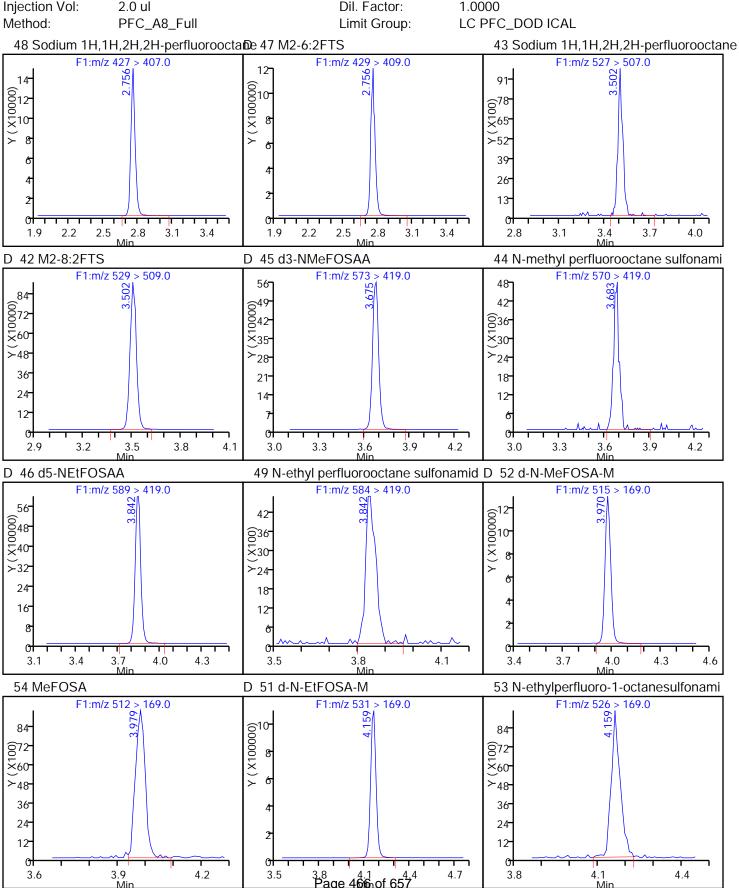
Injection Date: 19-Sep-2016 17:03:00 Instrument ID: **A8**

Lims ID: IC L1 Add-on

Client ID:

Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 14

Injection Vol: 2.0 ul Dil. Factor: 1.0000



Report Date: 20-Sep-2016 09:51:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_015_p1_e1.d

Lims ID: IC L2 Add-on

Client ID:

Sample Type: IC Calib Level: 2

Inject. Date: 19-Sep-2016 17:10:00 ALS Bottle#: 0 Worklist Smp#: 15

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:51:41 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
_	48 Sodium 1H,	1H 2H 2	H-nerflu	orooctan	Α						
2	127 > 407.0	2.757	-		1.000	70530	0.9621		101		
Е	47 M2-6:2FTS	5									
2	129 > 409.0	2.757	2.750	0.007		3105113	48.1		101		
	43 Sodium 1H,	1H,2H,2	H-perflu	orooctan	е						
Ę	527 > 507.0	3.506	3.496	0.010	1.000	42774	0.9808		102		
	42 M2-8:2FTS										
	529 > 509.0	3.506	3.499	0.007		2537782	45.6		95.2		
	45 d3-NMeFO		0.445	0.000		4/50400	40.7		00.0		
ţ	573 > 419.0		3.665			1658433	49.6		99.2		
	44 N-methyl pe				1.004	2/5//	0.0045		00.4		
	570 > 419.0		3.670	0.009	1.004	26566	0.9345		93.4		
) 46 d5-NEtFOS 589 > 419.0		2 022	0.006		1801477	50.3		101		
(3.832			1001477	30.3		101		
F	49 N-ethyl perfl 584 > 419.0		ane suito 3.837	0.001	1.000	23378	0.8762		87.6		
) 52 d-N-MeFO:		3.037	0.001	1.000	23370	0.0702		07.0		
	515 > 169.0	3.974	3.970	0.004		2905963	47.8		95.7		
•	54 MeFOSA	3.774	3.770	0.004		2700700	47.0		70.7		
F	512 > 169.0	3.983	3.976	0.007	1.000	42033	0.8911		89.1		
) 51 d-N-EtFOS										
	531 > 169.0		4.155	-0.002		2687759	46.9		93.8		
	53 N-ethylperflu										
Ę	526 > 169.0		4.159		1.000	42626	0.9621		96.2		
F	Reagents:										
	CPEC2-L2 000	02		Δ	mount A	dded: 100	Units	· ml			

LCPFC2-L2_00002 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:51:42 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_015_p1_e1.d Data File: Injection Date: 19-Sep-2016 17:10:00 Instrument ID: **A8** Lims ID: IC L2 Add-on Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 15 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full LC PFC_DOD ICAL Limit Group: 48 Sodium 1H,1H,2H,2H-perfluoroocta De 47 M2-6:2FTS 43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 427 > 407.0 F1:m/z 429 > 409.0 F1:m/z 527 > 507.0 2.757 (X100000) ∑₁₆ 2.2 2.8 3.0 2.8 3.7 2.5 3.1 2.1 2.4 3.3 3.1 4.0 Mir D 42 M2-8:2FTS D 45 d3-NMeFOSAA 44 N-methyl perfluorooctane sulfonami F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 F1:m/z 570 > 419.0 12 506 56 00048- 00048- 0048-√ (×1000) _ ≻32 ≻48 36 16- 24 12 3.8 3.4 3.7 4.0 3.2 3.5 3.2 3.5 3.8 3.1 4.1 49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M D 46 d5-NEtFOSAA F1:m/z 589 > 419.0 96 (0000010° (0000010° (0000010° (0000010°) 84 ©56 848 ×40 ×60

4.1 ≻₃₂-≻₄₈-36- 24 24 12 3.2 3.5 3.8 4.1 3.9 3.9 3.6 4.2 4.5 3.6 54 MeFOSA D 51 d-N-EtFOSA-M 53 N-ethylperfluoro-1-octanesulfonami F1:m/z 512 > 169.0 F1:m/z 531 F1:m/z 526 > 169.0 > 169.0 (X100000) 15 (00012-X) > 9 (X1000) 0 3.9 4.2 3.4 3.8 4.1 4.4 3.6 4.6

Report Date: 20-Sep-2016 09:51:47 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_016_p1_e1.d

Lims ID: IC L3 Add-on

Client ID:

Sample Type: IC Calib Level: 3

Inject. Date: 19-Sep-2016 17:18:00 ALS Bottle#: 0 Worklist Smp#: 16

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:51:47 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

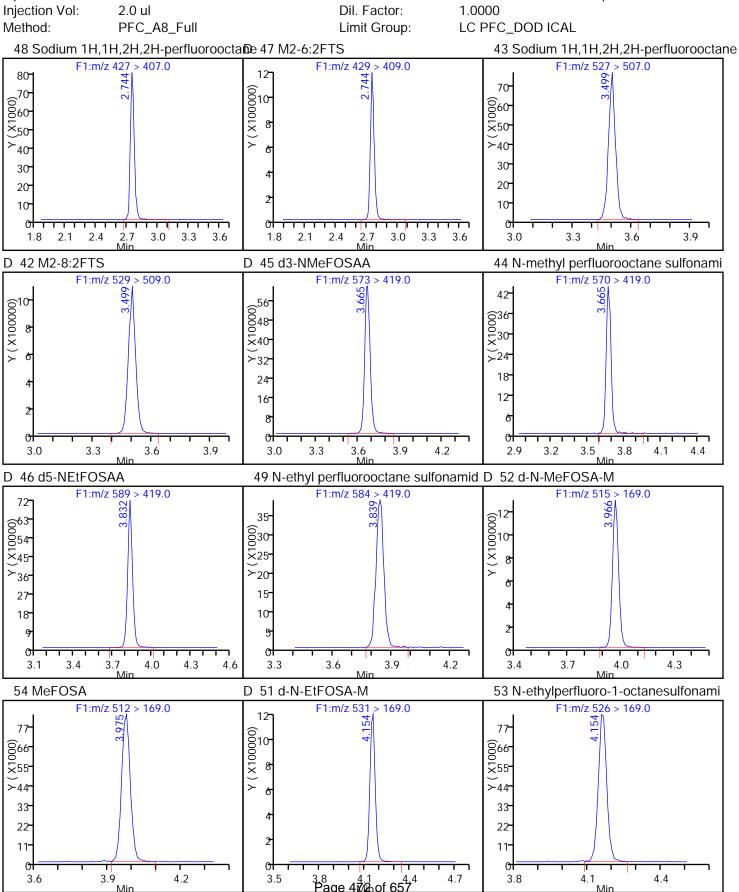
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H	.1H.2H.2	H-perflu	orooctan	e						
427 > 407.0		•	-0.004		218541	4.01		84.5		
D 47 M2-6:2FT	S									
429 > 409.0	2.744	2.750	-0.006		3006175	46.6		98.0		
43 Sodium 1H		•		е						
527 > 507.0	3.499	3.496	0.003	1.000	191894	4.25		88.8		
D 42 M2-8:2FT										
529 > 509.0		3.499	0.0		2625785	47.2		98.5		
D 45 d3-NMeF0		2//5	0.0		171045/	F1 0		100		
573 > 419.0	3.665	3.665			1712456	51.2		102		
44 N-methyl p 570 > 419.0		ctane su 3.670		1.000	124094	4.23		84.5		
		3.070	-0.005	1.000	124094	4.23		04.5		
D 46 d5-NEtFO 589 > 419.0		3.832	0.0		1843945	51.5		103		
49 N-ethyl per					1043743	01.0		100		
584 > 419.0		3.837		1.002	111187	4.07		81.4		
D 52 d-N-MeFC										
515 > 169.0	3.966	3.970	-0.004		3138391	51.7		103		
54 MeFOSA										
512 > 169.0	3.975	3.976	-0.001	1.000	210779	4.14		82.8		
D 51 d-N-EtFO	SA-M									
531 > 169.0	4.154	4.155	-0.001		2935000	51.2		102		
53 N-ethylperf	luoro-1-o	ctanesu	lfonami							
526 > 169.0	4.154	4.159	-0.005	1.000	203984	4.22		84.3		
Reagents:										
LCPEC2-L3 00	002		Δ	mount A	dded: 1.00	Units	· ml			

LCPFC2-L3_00002 Amount Added: 1.00 Units: mL

Lims ID: IC L3 Add-on

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 16



Report Date: 20-Sep-2016 09:51:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_017_p1_e1.d

Lims ID: IC L4 Add-on

Client ID:

Sample Type: IC Calib Level: 4

Inject. Date: 19-Sep-2016 17:25:00 ALS Bottle#: 0 Worklist Smp#: 17

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:51:51 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 20-Sep-2016 09:22:37

I II St Level Kevie	WCI. WC3	steriuorit	,		Date.	20-3ep-2010 07.22.37				
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,	1H,2H,2	H-perflu	orooctan	е						
		•	-0.004		1083447	21.0		111		
D 47 M2-6:2FTS	5									
429 > 409.0	2.752	2.750	0.002		3078760	47.7		100		
43 Sodium 1H,		•								
527 > 507.0	3.484	3.496	-0.012	0.998	990477	21.4		112		
D 42 M2-8:2FTS										
529 > 509.0	3.491	3.499	-0.008		2693162	48.4		101		
D 45 d3-NMeFO		0.445			4757540	50 /		405		
573 > 419.0		3.665			1756513	52.6		105		
44 N-methyl pe										
570 > 419.0	3.665	3.670	-0.005	1.000	629013	20.9		104		
D 46 d5-NEtFOS										
589 > 419.0	3.832	3.832	0.0		1918112	53.6		107		
49 N-ethyl perfl	luoroocta	ane sulfo	onamid							
584 > 419.0	3.832	3.837	-0.005	1.000	609359	21.5		107		
D 52 d-N-MeFO	SA-M									
515 > 169.0	3.966	3.970	-0.004		3134342	51.6		103		
54 MeFOSA										
512 > 169.0	3.966	3.976	-0.010	1.000	1095170	21.5		108		
D 51 d-N-EtFOS										
531 > 169.0	4.154	4.155	-0.001		2963542	51.7		103		
53 N-ethylperflu										
526 > 169.0	4.154	4.159	-0.005	1.000	1020213	20.9		104		

Report Date: 20-Sep-2016 09:51:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Reagents:

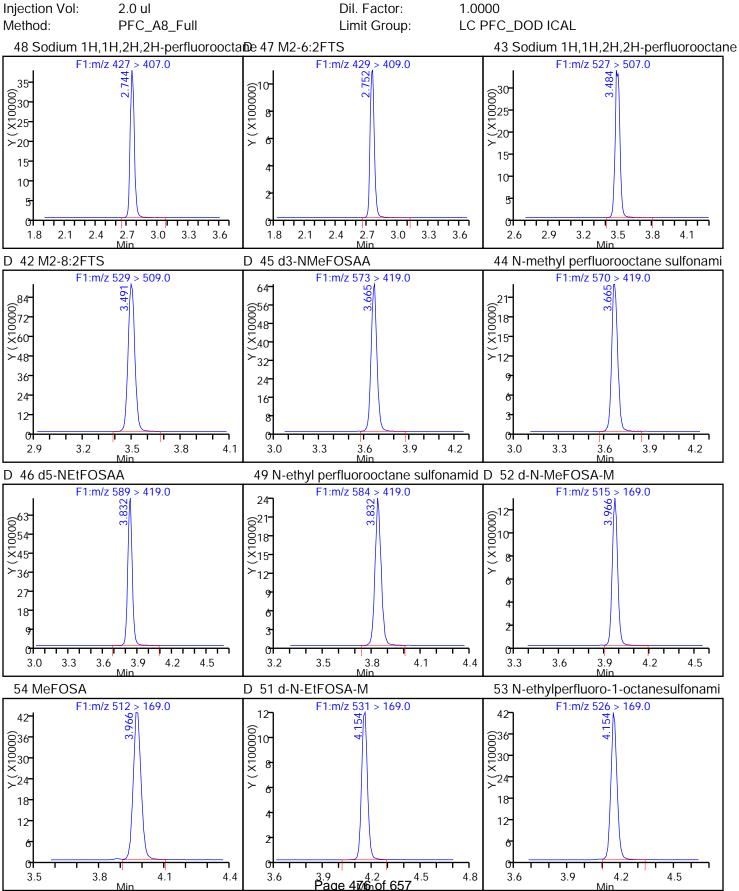
LCPFC2-L4_00002 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:51:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_017_p1_e1.d Data File: **Injection Date:** 19-Sep-2016 17:25:00 Instrument ID: **A8**

Lims ID: IC L4 Add-on

Client ID:

Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 17



Report Date: 20-Sep-2016 09:51:57 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_018_p1_e1.d

Lims ID: IC L5 Add-on

Client ID:

Sample Type: IC Calib Level: 5

Inject. Date: 19-Sep-2016 17:33:00 ALS Bottle#: 0 Worklist Smp#: 18

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:51:56 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 20-Sep-2016 09:19:57

FIISt Level Revie	wer: wes	steriuorio	,		Date: 20-5ep-2016 09:19:57) /		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1H,	1H.2H.2I	H-perflu	orooctan	e						
427 > 407.0			-0.006		2527202	49.8		105		
D 47 M2-6:2FTS	•									
429 > 409.0	2.742	2.750	-0.008		3062423	47.4		99.8		
43 Sodium 1H,		•								
527 > 507.0	3.494	3.496	-0.002	1.000	2188716	47.5		99.2		
D 42 M2-8:2FTS										
529 > 509.0	3.494	3.499	-0.005		2680454	48.2		101		
D 45 d3-NMeFO		2//5	0.007		1702/20	Г1 /		102		
573 > 419.0					1723630	51.6		103		
44 N-methyl pe 570 > 419.0				1.002	1479720	50.1		100		
D 46 d5-NEtFOS		3.070	-0.003	1.002	1479720	50.1		100		
589 > 419.0	3.827	3 832	-0.005		1843143	51.5		103		
49 N-ethyl perfl					1010110	01.0		100		
584 > 419.0		3.837		1.002	1394231	51.1		102		
D 52 d-N-MeFO	SA-M									
515 > 169.0	3.969	3.970	-0.001		3181940	52.4		105		
54 MeFOSA										
512 > 169.0	3.969	3.976	-0.007	1.000	2594317	50.2		100		
D 51 d-N-EtFOS	A-M									
531 > 169.0	4.147	4.155	-0.008		3013661	52.6		105		
53 N-ethylperflu										
526 > 169.0	4.157	4.159	-0.002	1.000	2472445	49.8		99.5		

Report Date: 20-Sep-2016 09:51:57 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Reagents:

LCPFC2-L5_00002 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:51:57 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento

\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_018_p1_e1.d Data File:

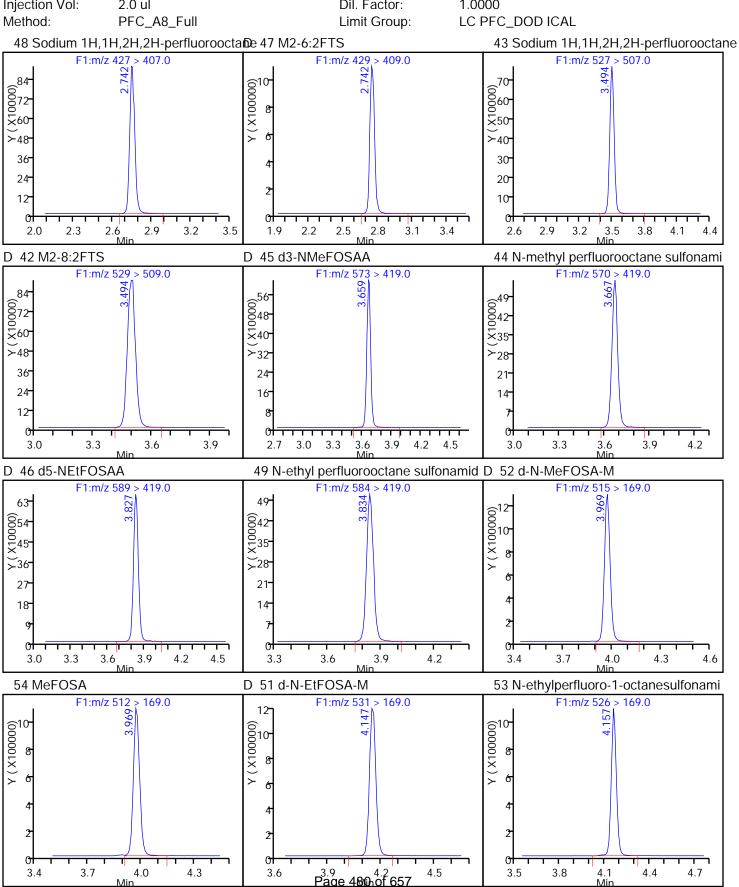
Injection Date: 19-Sep-2016 17:33:00 Instrument ID: **A8**

Lims ID: IC L5 Add-on

Client ID:

Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 18

Injection Vol: 2.0 ul Dil. Factor: 1.0000



Report Date: 20-Sep-2016 09:52:02 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_019_p1_e1.d

Lims ID: IC L6 Add-on

Client ID:

Sample Type: IC Calib Level: 6

Inject. Date: 19-Sep-2016 17:40:00 ALS Bottle#: 0 Worklist Smp#: 19

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:52:01 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

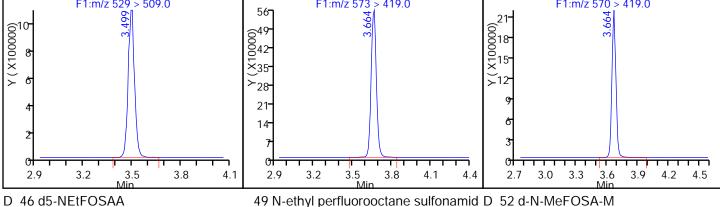
Column 1: Det: F1(0.00:6.60)

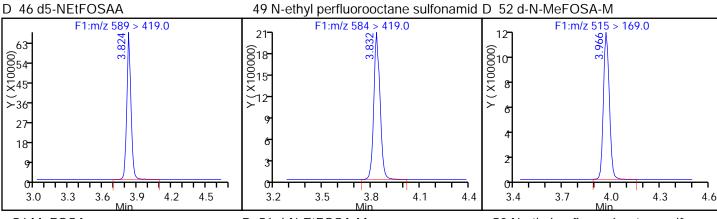
Process Host: XAWRK006

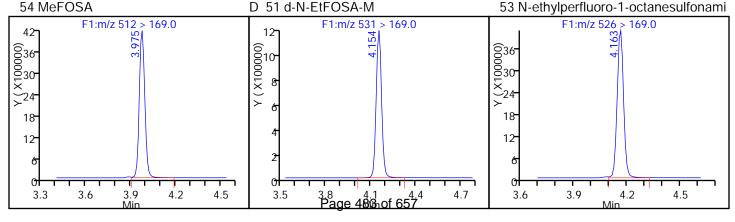
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
	48 Sodium 1H,	1H.2H 2	H-perflu	orooctan	e						
4	127 > 407.0		•	-0.004		9639831	185.8		98.0		
С	47 M2-6:2FTS	5									
4	129 > 409.0	2.744	2.750	-0.006		3152481	48.8		103		
	43 Sodium 1H,		•								
5	527 > 507.0	3.491	3.496	-0.005	0.998	8690849	171.8		89.7		
	42 M2-8:2FTS										
	529 > 509.0		3.499	0.0		2943974	52.9		110		
	45 d3-NMeFO		2 / / 5	0.001		1507005	47.0		OF (
5	573 > 419.0		3.665			1597895	47.8		95.6		
	44 N-methyl pe 570 > 419.0				1 000	E020407	014 E		108		
			3.670	-0.006	1.000	5929407	216.5		100		
) 46 d5-NEtFOS 589 > 419.0		3.832	-0 008		1717121	48.0		96.0		
	49 N-ethyl perf					1717121	40.0		70.0		
F	584 > 419.0		3.837		1.002	5431743	213.6		107		
	52 d-N-MeFO										
	515 > 169.0	3.966	3.970	-0.004		2973167	48.9		97.9		
	54 MeFOSA										
5	512 > 169.0	3.975	3.976	-0.001	1.000	10655813	220.8		110		
D	51 d-N-EtFOS	A-M									
5	531 > 169.0	4.154	4.155	-0.001		2866192	50.0		100		
	53 N-ethylperflu	uoro-1-o	ctanesul	lfonami							
5	526 > 169.0	4.163	4.159	0.004	1.000	10371751	219.5		110		
F	Reagents:										
1	CPEC2-L6 000	02		Δ	mount A	dded: 100	Units	ml			

LCPFC2-L6_00002 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:52:02 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_019_p1_e1.d Data File: 19-Sep-2016 17:40:00 **Injection Date:** Instrument ID: **A8** Lims ID: IC L6 Add-on Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 19 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL 48 Sodium 1H,1H,2H,2H-perfluoroocta De 47 M2-6:2FTS 43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 427 > 407.0 F1:m/z 429 > 409.0 F1:m/z 527 > 507.0 (00000) (00000 (X100000) $\stackrel{\smile}{\times}_{20}$ ∑20 15 12 3.0 1.9 2.2 2.8 2.1 2.4 3.3 2.5 3.1 2.4 3.0 3.6 4.2 D 42 M2-8:2FTS D 45 d3-NMeFOSAA 44 N-methyl perfluorooctane sulfonami F1:m/z 570 > 419.0 F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 56- 21**-**000018-15-Y (X100000) ×35 ≻₂₈-21 14







Report Date: 20-Sep-2016 09:52:06 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Lims ID: IC L7 Add-on

Client ID:

Sample Type: IC Calib Level: 7

Inject. Date: 19-Sep-2016 17:48:00 ALS Bottle#: 0 Worklist Smp#: 20

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub4

Method: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 20-Sep-2016 09:52:06 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK006

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
48 Sodium 1F	I,1H,2H,2	H-perflu	orooctan	e				•		
427 > 407.0		-		1.000	19216757	331.1		87.3		
D 47 M2-6:2FT	S									
429 > 409.0	2.752	2.750	0.002		3530764	54.7		115		
43 Sodium 1H		•								
527 > 507.0	3.499	3.496	0.003	1.000	18404278	322.1		84.1		
D 42 M2-8:2FT										
529 > 509.0		3.499	0.0		3324907	59.8		125		
D 45 d3-NMeF		0.775	0.001		4 (40700	40.4		00.7		
573 > 419.0		3.665			1649728	49.4		98.7		
44 N-methyl p				1 000	121024/4	4// 2		117		
570 > 419.0		3.670	-0.006	1.000	13182464	466.2		117		
D 46 d5-NEtFC 589 > 419.0	3.831	2 022	-0.001		1692948	47.3		94.6		
					1072740	47.3		74.0		
49 N-ethyl per 584 > 419.0		3.837	0.002	1.002	11882750	473.9		118		
D 52 d-N-MeF0		3.037	0.002	1.002	11002730	470.7		110		
515 > 169.0	3.975	3.970	0.005		2924949	48.2		96.3		
54 MeFOSA	0.770	0.770	0.000		_,_,,			70.0		
512 > 169.0	3.984	3.976	0.008	1.000	21612713	455.2		114		
D 51 d-N-EtFO										
531 > 169.0	4.163	4.155	0.008		2804548	49.0		97.9		
53 N-ethylper	luoro-1-o	ctanesu	lfonami							
526 > 169.0		4.159		1.000	20902990	452.1		113		
Reagents:										
LCPEC2-L7_00	002		Δ	mount A	dded: 100	Units	· ml			

LCPFC2-L7_00002 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2016 09:52:06 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento

\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d Data File:

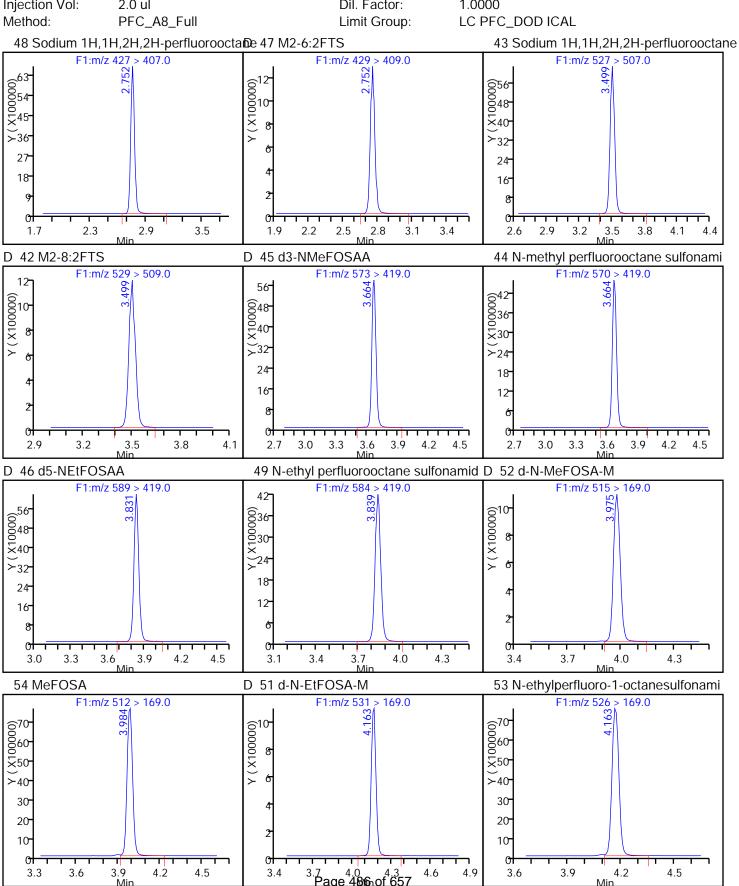
Injection Date: 19-Sep-2016 17:48:00 Instrument ID: **A8**

Lims ID: IC L7 Add-on

Client ID:

Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 20

Injection Vol: 2.0 ul Dil. Factor: 1.0000



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: <u>ICV 320-125915/12</u> Calibration Date: <u>09/03/2016</u> 16:38

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016A_012_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid	AveID	0.8766	0.9430		53.8	50.0	7.6	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.068		50.9	50.0	1.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.704		49.6	44.3	12.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	1.060		52.6	50.0	5.2	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.168		56.1	50.0	12.2	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.097		48.3	47.3	2.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.141		47.2	47.6	-0.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.127		54.2	50.0	8.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.023		41.6	47.8	-13.0	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.112		54.8	50.0	9.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9540		51.7	50.0	3.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	1.045		53.4	50.0	6.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.7003		52.9	48.3	9.6	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.107		51.4	50.0	2.8	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	1.044		53.9	50.0	7.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	1.065		53.2	50.0	6.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.942		52.6	50.0	8.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.217		53.2	50.0	6.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.097		55.9	50.0	11.9	25.0
13C4 PFBA	Ave	201916	223812		55.4	50.0	10.8	50.0
13C5-PFPeA	Ave	158393	174165		55.0	50.0	10.0	50.0
13C2 PFHxA	Ave	144323	146013		50.6	50.0	1.2	50.0
13C4-PFHpA	Ave	130863	142966		54.6	50.0	9.2	50.0
1802 PFHxS	Ave	180721	202692		53.1	47.3	12.2	50.0
13C4 PFOA	Ave	145826	165163		56.6	50.0	13.3	50.0
13C5 PFNA	Ave	127527	134128		52.6	50.0	5.2	50.0
13C4 PFOS	Ave	144726	164071		54.2	47.8	13.4	50.0
13C8 FOSA	Ave	266354	284999		53.5	50.0	7.0	50.0
13C2 PFDA	Ave	120893	126524		52.3	50.0	4.7	50.0
13C2 PFUnA	Ave	95304	101082		53.0	50.0	6.1	50.0
13C2 PFDoA	Ave	88472	98930		54.3	50.0	11.8	50.0
13C2-PFTeDA	Ave	170446	192241		56.4	50.0	12.8	50.0
13C2-PFHxDA	Ave	108855	124044		57.0	50.0	14.0	50.0

Report Date: 10-Sep-2016 12:39:48 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_012_p1_e1.d

Lims ID: ICV

Client ID:

Sample Type: ICV

Inject. Date: 03-Sep-2016 16:38:00 ALS Bottle#: 0 Worklist Smp#: 12

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist:

Method: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:39:46 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 06-Sep-2016 18:50:49

First Level Revie	ewer: pho	omsopha	ıt				06-Sep-2016 18:50:49			
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	Δ									
217 > 172.0	1.629	1.642	-0.013		11190605	55.4		111	559736	
1 Perfluorobut										
212.9 > 169.0	1.629		-0.016	1.000	10553144	53.8			134166	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.916	1.938	-0.022		8708233	55.0		110	108089	3
3 Perfluoropei	ntanoic a	cid								
262.9 > 219.0	1.925	1.940	-0.015	1.000	9303863	50.9			167186	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.959	1.976	-0.017	1.000	15285576	49.6				
298.9 > 99.0	1.959	1.976	-0.017	1.000	6667554		2.29(0.00-0.00)			
7 Perfluorohea	xanoic ad	cid								
313 > 269.0	2.230	2.253	-0.023	1.000	7737198	52.6			550398	
D 613C2 PFH	κA									
315 > 270.0	2.230	2.254	-0.024		7300662	50.6		101	877293	
9 Perfluorohe	kanesulfo	onic acid								
399 > 80.0	2.604	2.591	0.013	1.000	10510022	48.3				
D 11 13C4-PFH	lpΑ									
367 > 322.0	2.581	2.611	-0.030		7148288	54.6		109	405415	
12 Perfluorohe	ptanoic a	acid								
363 > 319.0	2.588	2.614	-0.026	1.000	8351650	56.1			137150	
D 10 18O2 PFH	xS									
403 > 84.0	2.604	2.626	-0.022		9587353	53.1		112	371076	
D 14 13C4 PFO	Α									
417 > 372.0	2.966	2.994	-0.028		8258153	56.6		113	527810	
15 Perfluorooc										
413 > 369.0	2.966	2.996	-0.030	1.000	9309204	54.2			161347	
413 > 169.0	2.966	2.996	-0.030	1.000	5601607		1.66(0.90-1.10)		300737	
					Page 489 of (657				

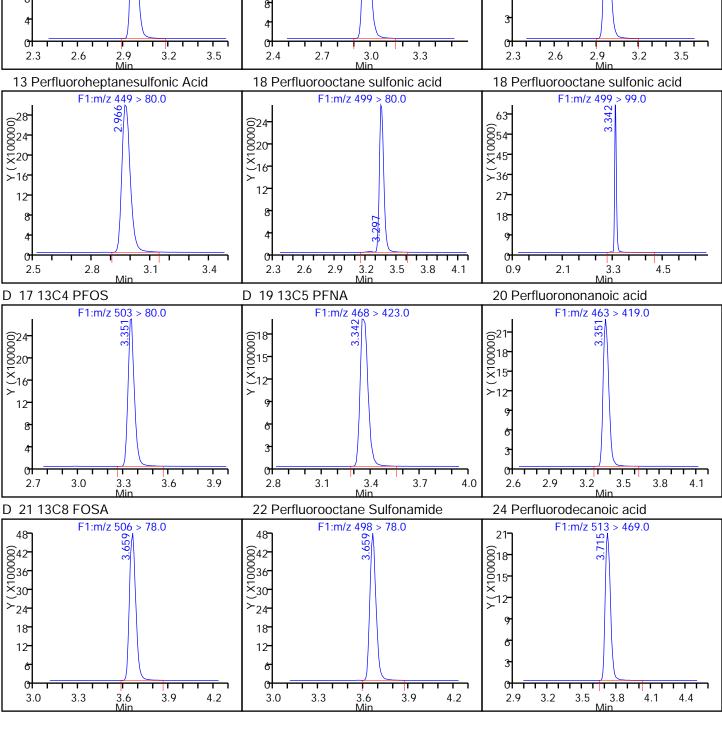
Page 489 of 657

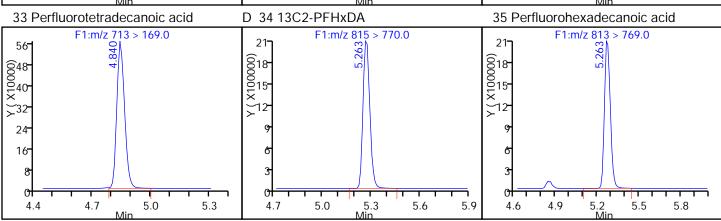
Report Date: 10-Sep-2016 12:39:48 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\\03SEP2016A_012_p1_e1.d

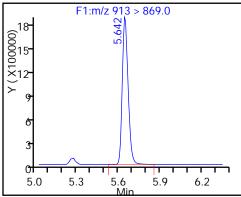
Data File:	\\Chr	omNA\S	acramen	to\Chrom	Data\A8\20160	906-34220.b	0\03SEP2016A_012	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanesul	lfonic Ac	id					•		
449 > 80.0	•	2.999		1.000	8912687	47.2				
18 Perfluorooc										
499 > 80.0	3.297	3.271	0.026	1.000	8012068	41.6			2493	
499 > 99.0	3.342	3.271	0.071	1.014	2020374		3.97(0.90-1.10)		666291	
D 17 13C4 PFO	S									
503 > 80.0	3.351	3.375	-0.024		7842577	54.2		113	266469	
D 19 13C5 PFN	A									
468 > 423.0	3.342	3.380	-0.038		6706416	52.6		105	486614	
20 Perfluorono	nanoic a	cid								
463 > 419.0	3.351	3.381	-0.030	1.000	7454639	54.8			253208	
D 21 13C8 FOS	A									
506 > 78.0	3.659	3.674	-0.015		14249937	53.5		107	478679	
22 Perfluorooc	tane Sul	fonamide	Э							
498 > 78.0	3.659	3.674	-0.015	1.000	13594915	51.7			294321	
24 Perfluorode	canoic a	cid								
513 > 469.0	3.715		-0.029	1.000	6612687	53.4			294074	
D 23 13C2 PFD	A									
515 > 470.0	3.715	3.744	-0.029		6326200	52.3		105	330472	
26 Perfluorode	cane Su	lfonic ac	id							
599 > 80.0		4.055		1.000	5544026	52.9				
28 Perfluoroun	decanoio	c acid								
563 > 519.0		4.078	-0.026	1.000	5594798	51.4			231716	
D 27 13C2 PFU	nA									
565 > 520.0		4.081	-0.038		5054079	53.0		106	408709	
29 Perfluorodo	decanoio	c acid								
613 > 569.0		4.374	-0.035	1.000	5164698	53.9			139291	
D 30 13C2 PFD	оА									
615 > 570.0		4.374	-0.035		4946516	54.3		109	284893	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.604		-0.035	1.000	5267977	53.2			25998	
D 32 13C2-PFT	eDA									
715 > 670.0		4.882	-0.032		9612062	56.4		113	819755	
33 Perfluorotet										
713 > 669.0			-0.033	1.000	9605671	52.6			13108	
713 > 169.0	4 0 40			0.998	1570961		6.11(0.00-0.00)		112366	
D 34 13C2-PFH	xDA						, ,			
815 > 770.0		5.305	-0.042		6202197	57.0		114	418136	
35 Perfluorohe										
813 > 769.0			-0.046	1.000	6021769	53.2			16081	
36 Perfluorooc										
913 > 869.0			-0.050	1.000	5425943	55.9			18401	
Reagents:	5.012	5.07£	2.000		3.20,10	00.7				
LCPFCIC_00019)		Λ	mount A	dded: 1.00	Units	·· ml			
LOI 1 CIC_00019	,		P	anount A	aaca. 1.00	Offiles	6 IIIL			

Report Date: 10-Sep-2016 12:39:48 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 16:38:00 Instrument ID: **A8** Lims ID: **ICV** Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 12 Injection Vol: 2.0 ul Dil. Factor: 1.0000 PFC_A8_Full Limit Group: LC PFC_DOD ICAL Method: D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 40 (35-(0030-(25-035 030 30 ×25 <u>></u>20 ≻₂₀-15- 15 10 10 10 1.2 1.8 1.1 1.7 2.0 2.3 0.9 1.5 2.1 1.4 1.7 2.0 2.3 2.6 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 28 030 000 025 (00000) (00000) 0024- ∑₁₆-×40 ×32-15 24 10 16 2.0 2.0 2.3 2.6 1.7 2.3 1.7 2.0 1.4 1.7 2.6 1.4 2.3 2.6 1.4 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 399 > 80.0 F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 28 (35⁻ (00030⁻ (25⁻ 024 020 020 <u>24</u> 0020-× × 16-∑₁₆-∑20⁻ 12 15- 10 1.7 2.3 2.9 2.0 2.3 0.9 1.8 2.7 1.7 2.6 1.1 3.6 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 28 2.581 (000001X) (00001X) 000024- 030 025 ×₂₀ <u>~</u>16- 12 12 10 0 0 2.0 2.3 2.6 2.9 3.2 1.8 2.4 2.7 3.0 2.1





36 Perfluorooctadecanoic acid



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: <u>ICV 320-125915/22</u> Calibration Date: <u>09/03/2016</u> 17:53

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016A_022_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
6:2FTS	AveID	0.8178	0.7355		17.1	19.0	-10.1	25.0
8:2FTS	AveID	0.8122	0.8026		18.9	19.2	-1.2	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.8654	0.8588		19.8	20.0	-0.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.7603	0.7772		20.4	20.0	2.2	25.0
MeFOSA	AveID	0.8097	0.8264		20.4	20.0	2.1	25.0
N-EtFOSA-M	AveID	0.8464	0.8543		20.2	20.0	0.9	25.0
M2-6:2FTS	Ave	78225	95627		58.1	47.5	22.2	50.0
M2-8:2FTS	Ave	84173	101793		57.9	47.9	20.9	50.0
d3-NMeFOSAA	Ave	50138	62348		62.2	50.0	24.4	50.0
d5-NEtFOSAA	Ave	56067	69208		61.7	50.0	23.4	50.0
d-N-MeFOSA-M	Ave	68982	79053		57.3	50.0	14.6	50.0
d-N-EtFOSA-M	Ave	63829	74380		58.3	50.0	16.5	50.0

Report Date: 10-Sep-2016 12:39:26 Chrom Revision: 2.2 17-Aug-2016 13:17:46

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_022_p1_e1.d

Lims ID: ICV

Client ID:

Sample Type: ICV

Inject. Date: 03-Sep-2016 17:53:00 ALS Bottle#: 0 Worklist Smp#: 22

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist:

Method: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 10-Sep-2016 12:39:25 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK053

First Level Reviewer: phomsophat Date: 07-Sep-2016 15:06:43

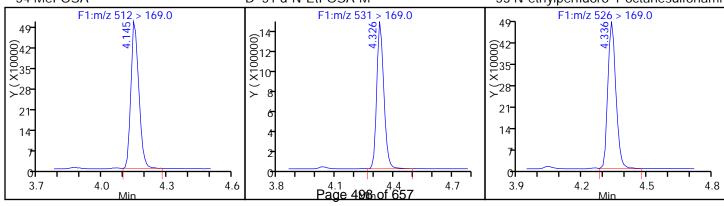
I II St Level Nevie	wei. piic	ппзорпа	IL		Date.	07-3ер-2010 13.00.43				
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 47 M2-6:2FTS	5									
429 > 409.0	2.937	2.934	0.003		4542300	58.1		122		
48 Sodium 1H,	1H,2H,2	H-perflu	orooctan	е						
427 > 407.0	2.929	2.936	-0.007	1.000	1333496	17.1				
43 Sodium 1H,		•								
527 > 507.0		3.698	-0.002	1.000	1565406	18.9				
D 42 M2-8:2FTS										
529 > 509.0		3.698	-0.002		4875866	57.9		121		
D 45 d3-NMeFC		0.045	0.000		0447005	40.0		404		
573 > 419.0		3.865			3117385	62.2		124		
44 N-methyl pe										
570 > 419.0		3.869	0.002	1.002	1070876	19.8				
D 46 d5-NEtFOS										
589 > 419.0	4.031	4.032	-0.001		3460388	61.7		123		
49 N-ethyl perf										
584 > 419.0	4.031	4.040	-0.009	1.000	1075737	20.4				
D 52 d-N-MeFO										
515 > 169.0	4.145	4.143	0.002		3952666	57.3		115		
54 MeFOSA										
512 > 169.0	4.145	4.144	0.001	1.000	1306604	20.4				
D 51 d-N-EtFOS										
531 > 169.0	4.326	4.325	0.001		3718982	58.3		117		
53 N-ethylperfl										
526 > 169.0	4.336	4.333	0.003	1.000	1270846	20.2				

Report Date: 10-Sep-2016 12:39:26 Chrom Revision: 2.2 17-Aug-2016 13:17:46

Reagents:

LCPFC2-IC_00003 Amount Added: 1.00 Units: mL

Report Date: 10-Sep-2016 12:39:26 Chrom Revision: 2.2 17-Aug-2016 13:17:46 TestAmerica Sacramento Data File: **Injection Date:** 03-Sep-2016 17:53:00 Instrument ID: **A8** Lims ID: **ICV** Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 22 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 47 M2-6:2FTS 48 Sodium 1H,1H,2H,2H-perfluorooctane43 Sodium 1H,1H,2H,2H-perfluorooctane F1:m/z 429 > 409.0 F1:m/z 427 > 407.0 F1:m/z 527 > 507.0 (000012 X) X 8 42 X100036 ©49 00 42 ×35 ∑24- ≻28 18 21 12 14 3.0 3.3 3.0 3.3 3.5 3.8 2.7 2.4 2.7 3.2 4.1 D 45 d3-NMeFOSAA D 42 M2-8:2FTS 44 N-methyl perfluorooctane sulfonami F1:m/z 570 > 419.0 F1:m/z 529 > 509.0 F1:m/z 573 > 419.0 16 Y (X100000) 35 0014 00012 X10 030-25-<u></u>20 15 10 4.0 3.9 4.0 3.4 3.7 3.6 4.2 4.5 3.7 3.3 3.4 4.3 3.1 49 N-ethyl perfluorooctane sulfonamid D 52 d-N-MeFOSA-M D 46 d5-NEtFOSAA F1:m/z 589 > 419.0 F1:m/z 584 > 419.0 F1:m/z 515 > 169.0 12 16 35 031 0014 0012 (S) 10 (0030 ×)20 ×)20 Y (X1000 ×10 15 10 3.8 3.8 4.1 4.0 4.3 3.5 4.1 4.4 3.5 4.4 54 MeFOSA D 51 d-N-EtFOSA-M 53 N-ethylperfluoro-1-octanesulfonami F1:m/z 512, > 169.0 F1:m/z 531 > 169.0 F1:m/z 526 > 169.0 49 49



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: <u>CCV 320-126120/2</u> Calibration Date: <u>09/04/2016 12:46</u>

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016D_002_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE	AVE RRF	RRF	MIN RRF	CALC	SPIKE	%D	MAX
VIVVITIE	TYPE	AVE KKE	INIT	MIN KKE	AMOUNT	AMOUNT	۵۰ ل	%D
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9003		20.5	20.0	2.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.034		19.7	20.0	-1.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.590		18.5	17.7	4.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9743		19.3	20.0	-3.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.001		19.2	20.0	-3.8	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.059		18.0	18.2	-1.4	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.164		19.3	19.0	1.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.073		20.6	20.0	3.1	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.072		16.9	18.6	-8.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.021		20.1	20.0	0.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9870		21.4	20.0	6.9	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	0.9687		19.8	20.0	-1.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.6212		18.7	19.3	-2.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.028		19.1	20.0	-4.5	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	0.9747		20.1	20.0	0.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	0.9661		19.3	20.0	-3.5	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.746		19.5	20.0	-2.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.096		18.9	20.0	-5.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.058		21.6	20.0	7.9	25.0
13C4 PFBA	Ave	201916	217488		53.9	50.0	7.7	50.0
13C5-PFPeA	Ave	158393	171787		54.2	50.0	8.5	50.0
13C2 PFHxA	Ave	144323	163888		56.8	50.0	13.6	50.0
13C4-PFHpA	Ave	130863	155702		59.5	50.0	19.0	50.0
1802 PFHxS	Ave	180721	199212		52.1	47.3	10.2	50.0
13C4 PFOA	Ave	145826	163597		56.1	50.0	12.2	50.0
13C4 PFOS	Ave	144726	160117		52.9	47.8	10.6	50.0
13C5 PFNA	Ave	127527	139785		54.8	50.0	9.6	50.0
13C8 FOSA	Ave	266354	271232		50.9	50.0	1.8	50.0
13C2 PFDA	Ave	120893	122081		50.5	50.0	1.0	50.0
13C2 PFUnA	Ave	95304	96983		50.9	50.0	1.8	50.0
13C2 PFDoA	Ave	88472	100537		56.8	50.0	13.6	50.0
13C2-PFTeDA	Ave	170446	181555		53.3	50.0	6.5	50.0
13C2-PFHxDA	Ave	108855	117505		54.0	50.0	7.9	50.0

Report Date: 17-Sep-2016 12:05:19 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_002_p1_e1.d

Lims ID: CCV L4

Client ID:

Sample Type: CCV

Inject. Date: 04-Sep-2016 12:46:00 ALS Bottle#: 0 Worklist Smp#: 2

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub2

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:17 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: westendorfc Date: 10-Sep-2016 10:11:24

First Level Reviewer: westendorfc					Date: 10-Sep-2016 10:11:2			24		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.623	1.623	0.0		10874402	53.9		108	548672	
1 Perfluorobut	vric acid									
212.9 > 169.0	1.623	1.623	0.0	1.000	3915978	20.5		103	43972	
D 413C5-PFPeA										
267.9 > 223.0	1.902	1.910	-0.008		8589358	54.2		108	158132	5
3 Perfluoropentanoic acid										
262.9 > 219.0	1.910	1.910	0.0	1.000	3552540	19.7		98.5	69773	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	1.944	1.944	0.0	1.000	5600105	18.5		104		
298.9 > 99.0	1.944	1.944	0.0	1.000	2410370		2.32(0.00-0.00)			
7 Perfluorohexanoic acid										
313 > 269.0	2.213	2.213	0.0	1.000	3193592	19.3		96.7	223360	
D 6 13C2 PFH										
315 > 270.0	2.213	2.213	0.0		8194422	56.8		114	944886	
D 11 13C4-PFH	•									
367 > 322.0	2.562	2.556	0.006		7785078	59.5		119	673039	
12 Perfluorohe	•		0.007	1 000	0447040	10.0		0.4.0	00001	
363 > 319.0		2.556	0.006	1.000	3117812	19.2		96.2	38291	
9 Perfluorohex				1 000	0040454	10.0		00 (
399 > 80.0	2.578	2.571	0.007	1.000	3840451	18.0		98.6		
D 10 1802 PFH		0.574	0.004		0.400707	E0.4		440	70/500	
403 > 84.0	2.570	2.571	-0.001		9422727	52.1		110	786590	
15 Perfluorooc			0.017	1 000	2544000	20.7		100	(7004	
413 > 369.0 413 > 169.0	2.935 2.926	2.919 2.919	0.016 0.007	1.000 0.997	3511080 2067619	20.6	1.70(0.90-1.10)	103	67934 113957	
		2.717	0.007	0.771	2007019		1.70(0.70-1.10)		11373/	
D 14 13C4 PFO 417 > 372.0	A 2.926	2.928	-0.002		8179867	56.1		112	547420	
41/ > 3/2.0	2.720	2.728	-0.002					112	547420	
					Page 501 of	657				

Page 501 of 657

Report Date: 17-Sep-2016 12:05:19 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_002_p1_e1.d

Data File:	NChr	JIIINA\5	acramen	to/Chron	1Data\A8\20100	907-34269.L	0103SEP2016D_002	:_рт_ет.	a	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluoroheptanesulfonic Acid										
449 > 80.0	pianesui 2.935	2.936		1.000	3548656	19.3		101		
18 Perfluorooct					00.0000					
499 > 80.0	3.201	3.195	0.007	1.000	3185825	16.9		91.2	168670	
499 > 99.0	3.201	3.195	0.007	1.000	731060		4.36(0.90-1.10)		8579	
D 17 13C4 PFO	S									
503 > 80.0	3.310	3.304	0.006		7653615	52.9		111	365671	
D 19 13C5 PFN	А									
468 > 423.0	3.310	3.312	-0.002		6989240	54.8		110	429551	
20 Perfluorono										
463 > 419.0	3.310	3.312	-0.002	1.000	2854725	20.1		101	94047	
D 21 13C8 FOS										
506 > 78.0		3.634	0.016		13561576	50.9		102	559791	
22 Perfluorooct										
498 > 78.0	3.650	3.642	0.008	1.000	5354153	21.4		107	224222	
D 23 13C2 PFD										
515 > 470.0		3.658	0.008		6104043	50.5		101	334787	
24 Perfluorode			0.000	4 000	00/50/0	40.0		00.0	000000	
513 > 469.0		3.666	0.008	1.000	2365260	19.8		99.0	200003	
26 Perfluorode				1 000	1017011	40.7		07.0		
599 > 80.0		3.975	0.0	1.000	1917814	18.7		97.2		
28 Perfluoroun			0.000	1 000	1004/01	10.1		05.5	00000	
563 > 519.0	4.002	3.993	0.009	1.000	1994691	19.1		95.5	93880	
D 27 13C2 PFU		2 002	0.0		4040152	F0.0		100	220701	
565 > 520.0	3.993	3.993	0.0		4849153	50.9		102	328791	
D 30 13C2 PFD6 615 > 570.0		4 20 4	0.0		F02/027	F/ 0		111	2/7074	
	4.284	4.284	0.0		5026837	56.8		114	267874	
29 Perfluorodo			0.010	1 000	1050000	20.1		101	101872	
			0.010	1.000	1959892	20.1		101	101872	
31 Perfluorotrio			-0.001	1.000	1042450	19.3		04 E	88279	
633 > 619.0	4.545	4.340	-0.001	1.000	1942659	19.3		96.5	00219	
D 32 13C2-PFT		1 701	0.000		9077761	E2 2		107	E22477	
715 > 670.0		4.781	0.009		9077761	53.3		107	533677	
33 Perfluoroteti			0.010	1 000	2510075	10 F		97.4	5750	
713 > 669.0 713 > 169.0	4.780 4.780		-0.010 -0.010	1.000 1.000	3510075 558254	19.5	6.29(0.00-0.00)	97.4	63786	
D 34 13C2-PFH		4.770	-0.010	1.000	330234		0.27(0.00-0.00)		03700	
815 > 770.0	5.188	5.188	0.0		5875256	54.0		108	424293	
			0.0		3073230	34.0		100	727273	
35 Perfluorohe: 813 > 769.0	5.188	5.188	0.0	1.000	2204550	18.9		94.4	6140	
			5.0	1.000	2204000	10.7		74.7	0170	
36 Perfluorooct 913 > 869.0	5.544		-0.001	1.000	2127331	21.6		108	9263	
Reagents:	5.544	5.545	0.001	1.000	Z 1 Z / J J 1	۷۱.0		100	/200	
LCPFC-L4_0002	2		۸	mount A	dded: 1.00	Units	·· ml			
LUPPU-L4_0002	∠		P	anount A	uueu. 1.00	Units	. IIIL			

Report Date: 17-Sep-2016 12:05:20 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_002_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 12:46:00 Instrument ID: **A8** Lims ID: CCV L4 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 2 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 32 635 630 30 ĕ24[:] ×25 $\stackrel{\smile}{\times}_{20}$ **≻**20 15 12 10 1.3 1.9 2.2 0.9 1.2 1.8 1.2 1.5 1.6 1.5 2.1 2.1 2.4 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 (21- 000018-15-91 (X100000) X (X1000000) X 8 0078 ×65 ∑52 26 13 2.2 2.5 1.7 2.3 2.0 1.7 2.0 2.3 1.3 1.6 1.4 1.4 7 Perfluorohexanoic acid D 6 13C2 PFHxA D 11 13C4-PFHpA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 367 > 322.0 12 28 00024- 00000 × 024 0020 020 () () () () Y (X100 ∑₁₆-_ ≻16- 12 1.9 2.2 2.8 1.8 2.1 2.7 1.9 2.2 2.5 2.8 1.6 2.5 1.5 2.4 3.1 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 399 F1:m/z 403 > 84.0 > 80.0 32 (X100000) (X100000) ©28-0024-. 16 0 0 0 2.4 2.7 3.0 1.5 Page 50% of 657 3.3 2.0 2.3 2.6 2.9 3.2 2.1

4.2

3.2

3.5

3.8

4.1

3.0

3.3

3.6 Min 3.9

4.2

3.0

5.5

4.3

4.6

4.9

5.2

4.6

4.9

20-

4.7

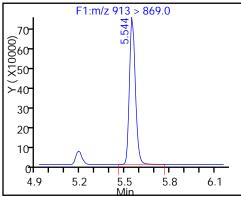
5.0

5.3

5.6

5.9

36 Perfluorooctadecanoic acid



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: CCV 320-126120/16 Calibration Date: 09/04/2016 14:31

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016D_016_p1_e1.d Conc. Units: ng/mL

23227	011517	7117	222		~~~	Q.D.T.T.	0.5	
ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
	IIFE				AMOUNT	AMOUNI		
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9109		52.0	50.0	3.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.030		49.1	50.0	-1.9	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.664		48.3	44.2	9.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9329		46.3	50.0	-7.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.033		49.6	50.0	-0.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.050		44.5	45.5	-2.3	25.0
Perfluoroheptanesulfonic	AveID	1.151	1.150		47.6	47.6	-0.0	25.0
Acid (PFHpS) Perfluorooctanoic acid	AveID	1.040	1.017		48.9	50.0	-2.3	25.0
(PFOA) Perfluorooctanesulfonic acid	AveID	1.175	1.064		42.0	46.4	-9.5	25.0
(PFOS) Perfluorononanoic acid	AveID	1.014	1.044		51.5	50.0	3.0	25.0
(PFNA) Perfluorooctane Sulfonamide	AveID	0.9229	0.9552		51.7	50.0	3.5	25.0
(FOSA) Perfluorodecanoic acid	AveID	0.9788	0.9837		50.3	50.0	0.5	25.0
(PFDA) Perfluorodecanesulfonic acid	AveID	0.6392	0.6277		47.3	48.2	-1.8	25.0
(PFDS) Perfluoroundecanoic acid	AveID	1.077	1.007		46.8	50.0	-6.4	25.0
(PFUnA) Perfluorododecanoic acid	AveID	0.9694	0.9824		50.7	50.0	1.3	25.0
(PFDoA) Perfluorotridecanoic Acid	AveID	1.001	0.9775		48.8	50.0	-2.4	25.0
(PFTriA) Perfluorotetradecanoic acid	AveID	1.793	1.788		49.9	50.0	-0.3	25.0
(PFTeA) Perfluoro-n-hexadecanoic	L1ID		1.141		49.8	50.0	-0.3	25.0
acid (PFHxDA) Perfluoro-n-octadecanoic	AveID	0.9803	1.102		56.2	50.0	12.5	25.0
acid (PFODA) 13C4 PFBA	Ave	201916	212435		52.6	50.0	5.2	50.0
13C5-PFPeA	Ave	158393	169542		53.5	50.0	7.0	50.0
13C2 PFHxA	Ave	144323	156308		54.2	50.0	8.3	50.0
13C4-PFHpA	Ave	130863	145918		55.8	50.0	11.5	50.0
1802 PFHxS	Ave	180721	197633		51.7	47.3	9.4	50.0
13C4 PFOA	Ave	145826	159675		54.7	50.0	9.5	50.0
13C4 PFOS	Ave	144726	161265		53.3	47.8	11.4	50.0
13C5 PFNA		127527	132088		51.8	50.0	3.6	50.0
13C8 FOSA	Ave	266354	265841		49.9	50.0	-0.2	50.0
13C2 PFDA	Ave	120893	117554		48.6	50.0	-2.8	50.0
13C2 PFUnA	Ave	95304	93169		48.9	50.0	-2.2	50.0
13C2 PFDoA	Ave	88472	96108		54.3	50.0	8.6	50.0
13C2-PFTeDA	Ave	170446	184209		54.0	50.0	8.1	50.0
13C2-PFHxDA	Ave	108855	120637		55.4	50.0	10.8	50.0

Report Date: 17-Sep-2016 13:26:47 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_016_p1_e1.d

Lims ID: CCV L5

Client ID:

Sample Type: CCV

Inject. Date: 04-Sep-2016 14:31:00 ALS Bottle#: 0 Worklist Smp#: 16

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub2

Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 13:26:45 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 13:26:45

First Level Revie	wer: bar	nettj			Date:	1	7-Sep-2016 13:26:4	ł5		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.616	1.623	-0.007		10621749	52.6		105	452542	
1 Perfluorobut	vric acid									
212.9 > 169.0	-	1.623	-0.007	1.000	9675635	52.0		104	94472	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.904	1.910	-0.006		8477077	53.5		107	155517	3
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.904	1.910	-0.006	1.000	8730221	49.1		98.1	169701	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.947	1.944	0.003	1.000	14537419	48.3		109		
298.9 > 99.0	1.947	1.944	0.003	1.000	6413096		2.27(0.00-0.00)			
7 Perfluorohex										
313 > 269.0	2.205	2.213	-0.008	1.000	7291135	46.3		92.6	427823	
D 6 13C2 PFHx		0.040	0.000		7045004	540		100	047407	
315 > 270.0	2.205	2.213	-0.008		7815381	54.2		108	917107	
D 11 13C4-PFH	•	2 557	0.000		7205001	FF 0		110	/10707	
367 > 322.0	2.553	2.556	-0.003		7295901	55.8		112	612707	
12 Perfluorohe 363 > 319.0	ptanoic a 2.553		-0.003	1.000	7537422	49.6		99.3	102723	
				1.000	7537422	49.0		99.3	102723	
9 Perfluorohex 399 > 80.0	canesulto 2.569		-0.002	1.000	9439142	44.5		97.7		
		2.371	-0.002	1.000	9439142	44.3		91.1		
D 10 18O2 PFH 403 > 84.0	x5 2.569	2.571	-0.002		9348018	51.7		109	526395	
15 Perfluorooc			-0.002		7340010	31.7		107	320373	
413 > 369.0	2.933	2.919	0.014	1.000	8116010	48.9		97.7	169668	
413 > 169.0	2.925	2.919	0.006	0.997	4982130	40.7	1.63(0.90-1.10)	71.1	237925	
D 14 13C4 PFO									21120	
417 > 372.0	2.925	2.928	-0.003		7983750	54.7		109	447858	
					Daga FOR of (

Report Date: 17-Sep-2016 13:26:47 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_016_p1_e1.d

Data File:	\\Chr	omNA\Sa	acramen	to\Chrom	Data\A8\20160	907-34269.b	0\03SEP2016D_016	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanocul	Ifonic Ac	id					-		
449 > 80.0	2.933		-0.003	1.000	8829612	47.6		99.9		
18 Perfluorooc				1.000	0027012	17.0		,,,,		
499 > 80.0	3.275	3.195	0.081	1.000	7961568	42.0		90.5	176220	
499 > 99.0	3.301	3.195	0.107	1.008	1851120	72.0	4.30(0.90-1.10)	70.5	527176	
D 17 13C4 PFO										
503 > 80.0	3.292	3.304	-0.012		7708464	53.3		111	316117	
D 19 13C5 PFN										
468 > 423.0	3.301	3.312	-0.011		6604382	51.8		104	399134	
20 Perfluorono			0.0		333.332	00			0,,,,,,,,	
463 > 419.0	3.301		-0.011	1.000	6895449	51.5		103	267942	
D 21 13C8 FOS		0.012	0.011	1.000	3373117	01.0			20,,,2	
506 > 78.0	3.635	3.634	0.001		13292027	49.9		99.8	769327	
22 Perfluorooc					13272027	77.7		77.0	707327	
498 > 78.0	3.643	3.642	0.001	1.000	12696418	51.7		103	328492	
		3.042	0.001	1.000	12070410	31.7		103	320472	
D 23 13C2 PFD. 515 > 470.0		3.658	0.001		5877718	48.6		97.2	391643	
			0.001		3077710	40.0		71.2	371043	
24 Perfluorode			0.001	1 000	5782126	50.3		101	319404	
513 > 469.0		3.666	0.001	1.000	3/82120	50.3		101	319404	
26 Perfluorode				1 000	4070221	47.0		00.0		
599 > 80.0		3.975	0.003	1.000	4879331	47.3		98.2		
28 Perfluoroun			0.007	4 000	4/00050	44.0		00 (057/00	
563 > 519.0	3.987	3.993	-0.006	1.000	4692859	46.8		93.6	257692	
D 27 13C2 PFU										
565 > 520.0	3.987	3.993	-0.006		4658457	48.9		97.8	524408	
D 30 13C2 PFD										
615 > 570.0	4.280	4.284	-0.004		4805388	54.3		109	269523	
29 Perfluorodo	decanoid	c acid								
613 > 569.0	4.280	4.284	-0.004	1.000	4720850	50.7		101	172378	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.544	4.546	-0.002	1.000	4697199	48.8		97.6	215833	
D 32 13C2-PFT	eDA									
715 > 670.0	4.784	4.781	0.003		9210469	54.0		108	529403	
33 Perfluorotet	radecan	oic acid								
713 > 669.0	4.784	4.790	-0.006	1.000	8591046	49.9		99.7	18538	
713 > 169.0	4.775	4.790	-0.015	0.998	1358811		6.32(0.00-0.00)		122593	
D 34 13C2-PFH	xDA									
815 > 770.0	5.191	5.188	0.003		6031856	55.4		111	417730	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.191	5.188	0.003	1.000	5480930	49.8		99.7	16808	
36 Perfluorooc										
913 > 869.0	5.547		0.002	1.000	5297270	56.2		112	21537	
Reagents:					: · - · •					
LCPFC-L5_0002	20		٨	mount A	dded: 1.00	Units	·· ml			
LOI 1 C-L3_0002	.0		P	anount A	uucu. 1.00	UTIILS	. IIIL			

Page 509 of 657

Report Date: 17-Sep-2016 13:26:47 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_016_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 14:31:00 Instrument ID: **A8** Lims ID: CCV L5 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 16 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 32 (00000) (00000 ©30 ©25 824 \sum_{20} $\stackrel{\smile}{\times}_{20}$ _20 15- 15- 12 10 10 1.3 1.9 2.2 1.2 1.5 1.8 2.0 1.6 2.1 1.4 1.7 2.3 2.6 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 56- 24 (30 00 00 25 (000020 ×16 0649- ×35 ≻₂₈-15 21 10 14 2.3 2.3 2.0 2.6 1.7 2.0 1.7 2.0 2.3 1.4 1.7 1.4 7 Perfluorohexanoic acid D 6 13C2 PFHxA D 11 13C4-PFHpA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 367 > 322.0 28 (24⁻ 00020-(000020 ×16 824- <u>8</u>20-∑₁₆-∑₁₆-12 12 1.9 2.2 2.8 1.9 2.2 2.5 2.8 1.9 2.2 2.5 2.8 1.6 2.5 1.6 3.1 9 Perfluorohexanesulfonic acid 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 F1:m/z 403 > 84.0 32 (24⁻ 00020-(00020-0020-©28-0024-∑₁₆ <u>≻</u>16-. 16 12 0 1.8 2.1 2.4 2.7 3.0 3.3 8.0 1.7 Page 5Mh of 657 3.5 2.0 2.3 2.6 2.9 3.2

3.9

4.2

3.0

3.3

3.9

4.2

3.3

4.2

3.0

3.9

12

3.0

5.4

4.3

4.6

4.9

4.5

4.8

5.7

4.4

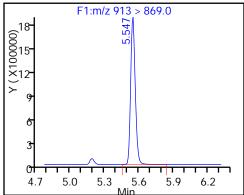
4.7

5.0

5.3

5.6

36 Perfluorooctadecanoic acid



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: <u>CCV 320-126120/30</u> Calibration Date: <u>09/04/2016 16:16</u>

Instrument ID: A8 Calib Start Date: 09/03/2016 15:38

GC Column: Acquity ID: 2.10(mm) Calib End Date: 09/03/2016 17:38

Lab File ID: 03SEP2016D_030_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8766	0.9138		20.8	20.0	4.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.050	1.035		19.7	20.0	-1.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.522	1.629		18.9	17.7	7.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9630		19.1	20.0	-4.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.041	1.047		20.1	20.0	0.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.074	1.065		18.0	18.2	-0.8	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.040	1.075		20.7	20.0	3.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.151	1.177		19.5	19.0	2.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.175	1.077		17.0	18.6	-8.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.014	1.023		20.2	20.0	0.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9229	0.9823		21.3	20.0	6.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9788	0.8151		16.7	20.0	-16.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6392	0.6203		18.7	19.3	-3.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.077	1.013		18.8	20.0	-5.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9694	0.9773		20.2	20.0	0.8	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.001	0.9737		19.5	20.0	-2.7	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.793	1.751		19.5	20.0	-2.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.130		19.5	20.0	-2.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.9803	1.105		22.6	20.0	12.8	25.0
13C4 PFBA	Ave	201916	215516		53.4	50.0	6.7	50.0
13C5-PFPeA	Ave	158393	170073		53.7	50.0	7.4	50.0
13C2 PFHxA	Ave	144323	160954		55.8	50.0	11.5	50.0
13C4-PFHpA	Ave	130863	154056		58.9	50.0	17.7	50.0
1802 PFHxS	Ave	180721	195950		51.3	47.3	8.4	50.0
13C4 PFOA	Ave	145826	165115		56.6	50.0	13.2	50.0
13C4 PFOS	Ave	144726	155174		51.3	47.8	7.2	50.0
13C5 PFNA	Ave	127527	140512		55.1	50.0	10.2	50.0
13C8 FOSA	Ave	266354	268272		50.4	50.0	0.7	50.0
13C2 PFDA	Ave	120893	124190		51.4	50.0	2.7	50.0
13C2 PFUnA	Ave	95304	100529		52.7	50.0	5.5	50.0
13C2 PFDoA	Ave	88472	101415		57.3	50.0	14.6	50.0
13C2-PFTeDA	Ave	170446	185442		54.4	50.0	8.8	50.0
13C2-PFHxDA	Ave	108855	124025		57.0	50.0	13.9	50.0

Report Date: 17-Sep-2016 12:52:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_030_p1_e1.d

Lims ID: CCV L4

Client ID:

Sample Type: CCV

Inject. Date: 04-Sep-2016 16:16:00 ALS Bottle#: 0 Worklist Smp#: 30

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub2

Method: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:52:51 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: barnettj Date: 17-Sep-2016 12:48:40

First Level Revie	wer: bar	nettj			Date:	1	7-Sep-2016 12:48:4	łO		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.617	1.623	-0.007		10775777	53.4		107	498752	
1 Perfluorobut	yric acid									
212.9 > 169.0	•	1.623	0.0	1.000	3938585	20.8		104	34359	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.902	1.910	-0.008		8503643	53.7		107	105470	4
3 Perfluoroper	ntanoic a	cid								
262.9 > 219.0	1.902	1.910	-0.008	1.000	3521520	19.7		98.6	62419	
5 Perfluorobut	anesulfo	nic acid								
298.9 > 80.0	1.944	1.944		1.000	5642886	18.9		107		
298.9 > 99.0	1.944	1.944	0.0	1.000	2365871		2.39(0.00-0.00)			
7 Perfluorohex										
313 > 269.0	2.203	2.213	-0.010	1.000	3099947	19.1		95.6	216538	
D 6 13C2 PFHx		0.010			0047705	55.0		440		
315 > 270.0	2.213	2.213	0.0		8047705	55.8		112	688865	
D 11 13C4-PFH	•	0.557	0.001		770070/	50.0		110	(40000	
367 > 322.0	2.555	2.556	-0.001		7702796	58.9		118	642392	
12 Perfluorohe	•		0.001	1 000	222/202	20.1		101	44572	
363 > 319.0	2.555		-0.001	1.000	3226382	20.1		101	44563	
9 Perfluorohex				1 000	2707470	10.0		99.2		
399 > 80.0	2.570	2.571	-0.001	1.000	3797478	18.0		99.2		
D 10 18O2 PFH 403 > 84.0	xS 2.578	2.571	0.007		9268458	51.3		108	500005	
			0.007		9200430	31.3		106	300003	
15 Perfluorooc 413 > 369.0	2.926	2.919	0.007	1.000	3550476	20.7		103	77520	
413 > 369.0 413 > 169.0	2.920	2.919	-0.007	0.997	2084806	20.7	1.70(0.90-1.10)	103	108914	
D 14 13C4 PFO		,,,	3.001	3.771	200 1000		3(0.70 1.10)		.00717	
417 > 372.0	A 2.926	2.928	-0.002		8255759	56.6		113	534037	
3,2.3	,_9	,_0	3.332		Dags 515 of (20.007	

Report Date: 17-Sep-2016 12:52:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_030_p1_e1.d

Data File:	NChr	JIIINA\5	acramen	OCHION	1Data\A8\20100	907-34269.L	0035EP2016D_030	_рт_ет.	u	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
10 D (I)					-	_				
13 Perfluorohe 449 > 80.0	•	2.936		1.000	3476010	19.5		102		
				1.000	3470010	19.5		102		
18 Perfluorooci 499 > 80.0	tane suii 3.185	3.195		1.000	3102533	17.0		91.7	56959	
499 > 80.0 499 > 99.0	3.209	3.195	0.009	1.008	687902	17.0	4.51(0.90-1.10)	91.7	7260	
D 17 13C4 PFO		3.173	0.013	1.000	001702		4.51(0.70 1.10)		7200	
503 > 80.0	3.302	3.304	-0.002		7417304	51.3		107	280349	
D 19 13C5 PFN		0.001	0.002		7117001	01.0		107	200017	
468 > 423.0		3.312	-0.010		7025604	55.1		110	317249	
20 Perfluorono			0.010		7020001	00.1			01,21,	
463 > 419.0		3.312	-0.002	1.000	2874129	20.2		101	97892	
D 21 13C8 FOS		0.012	0.002	1.000	20,112,	20.2		101	71072	
506 > 78.0		3.634	0.014		13413613	50.4		101	485926	
22 Perfluorooc					10410010	30.4		101	400720	
498 > 78.0	3.641			1.000	5270234	21.3		106	302106	
D 23 13C2 PFD		0.012	0.001	1.000	0270201	21.0		100	002100	
515 > 470.0	3.664	3 658	0.006		6209492	51.4		103	291035	
24 Perfluorode			0.000		0207472	51.4		100	271000	
513 > 469.0		3.666	-0.010	1.000	2024459	16.7		83.3	56973	
26 Perfluorode				1.000	2024437	10.7		03.5	30773	
599 > 80.0		3.975		1.000	1855902	18.7		97.0		
28 Perfluoroun			-0.002	1.000	1033702	10.7		77.0		
563 > 519.0	4.000	3.993	0.007	1.000	2037593	18.8		94.1	99044	
D 27 13C2 PFU		3.773	0.007	1.000	2037373	10.0		74.1	77044	
565 > 520.0	3.991	3.993	0.002		5026468	52.7		105	344509	
		3.773	-0.002		3020400	32.7		103	344307	
D 30 13C2 PFD6 615 > 570.0		4.284	0.002		5070736	57.3		115	327957	
			-0.002		3070730	37.3		113	321731	
29 Perfluorodo 613 > 569.0			-0.002	1 000	1982149	20.2		101	95201	
			-0.002	1.000	1902149	20.2		101	93201	
31 Perfluorotric 633 > 619.0	aecanoic 4.544		-0.002	1.000	1975030	19.5		97.3	92912	
		4.340	-0.002	1.000	1975050	19.5		91.3	92912	
D 32 13C2-PFT		4 701	0.004		0272007	E 4 4		100	F22710	
715 > 670.0	4.785	4.781	0.004		9272086	54.4		109	532710	
33 Perfluorotet			0.005	1 000	2554250	10.5		07.7	(00)	
713 > 669.0	4.785	4.790		1.000 0.998	3551850	19.5	6.37(0.00-0.00)	97.7	6926 100589	
713 > 169.0	4.775	4.790	-0.015	0.996	557920		0.37(0.00-0.00)		100369	
D 34 13C2-PFH		Г 100	0.002		/2012//	F7.0		111	110/10	
815 > 770.0	5.191	5.188	0.003		6201266	57.0		114	440648	
35 Perfluorohe			0.000	1 000	2204545	10 5		07.4	71.41	
813 > 769.0	5.191	5.188	0.003	1.000	2291545	19.5		97.4	7141	
36 Perfluorooci			0.000	4 000	004000	00 /		440	0.470	
913 > 869.0	5.547	5.545	0.002	1.000	2242039	22.6		113	8479	
Reagents:	_									
LCPFC-L4_0002	!2		Α	mount A	dded: 1.00	Units	: mL			

Report Date: 17-Sep-2016 12:52:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_030_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 16:16:00 Instrument ID: **A8** Lims ID: CCV L4 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 30 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 40 035 030 30 ĕ24[:] ×25 $\stackrel{\smile}{\times}_{20}$ 15 12 10 1.2 1.5 1.8 0.9 1.2 1.5 1.8 2.0 2.1 2.1 1.4 1.7 2.3 2.6 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 (21- 000018-15-(X100000) X (X1000000) X 8 684**-**672-×60 ≻48 36 24 12 1.9 2.2 1.7 2.3 1.8 2.5 2.0 2.1 1.3 1.6 1.4 1.5 7 Perfluorohexanoic acid D 6 13C2 PFHxA D 11 13C4-PFHpA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 367 > 322.0 28 Y (X100000) (24⁻ 00020 824- 0020 ×)16-<u>≻</u>16• 12 12 1.7 2.0 2.3 2.6 2.9 1.9 2.5 2.8 1.9 2.2 2.5 2.8 3.1 1.6 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 F1:m/z 403 > 84.0 12 (X100000) (X100000) 8 628-6024-×20 ≻16- 12 0 0 2.9 1.9 2.2 2.5 2.8 3.1 0.7 1.6 Page 5M7nof 657 4.3 2.0 2.3 2.6

3.8

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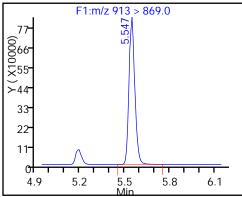
20-

4.6

4.9

5.2

36 Perfluorooctadecanoic acid



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: CCV 320-128009/36 Calibration Date: 09/19/2016 19:48

Instrument ID: A8 Calib Start Date: 09/19/2016 15:48

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/19/2016 17:48

Lab File ID: 19SEP2016B_012_p1_e1.d Conc. Units: ng/mL

	0					0.5	0 -	
ANALYTE	CURVE	AVE RRF	RRF	MIN RRF	CALC	SPIKE	%D	MAX
	TYPE				AMOUNT	AMOUNT		%D
Perfluorobutanoic acid	AveID	0.8672	0.9339		21.5	20.0	7.7	25.0
(PFBA) Perfluoropentanoic acid	AveID	1.016	1.042		20.5	20.0	2.5	25.0
(PFPeA)	AvelD	1.016	1.042		20.5	20.0	2.5	
Perfluorobutanesulfonic acid (PFBS)	AveID	1.528	1.521		17.6	17.7	-0.5	25.0
Perfluorohexanoic acid	AveID	0.9474	0.9787		20.7	20.0	3.3	25.0
(PFHxA) Perfluoroheptanoic acid	AveID	1.042	1.028		19.7	20.0	-1.3	25.0
(PFHpA) Perfluorohexanesulfonic acid	AveID	1.028	1.044		18.5	18.2	1.6	25.0
(PFHxS)								
Perfluorooctanoic acid (PFOA)	AveID	1.047	1.094		20.9	20.0	4.5	25.0
Perfluoroheptanesulfonic	AveID	1.181	1.233		19.9	19.0	4.4	25.0
Acid (PFHpS) Perfluorononanoic acid	AveID	1.016	1.020		20.1	20.0	0.4	25.0
(PFNA) Perfluorooctanesulfonic acid		4 0.74	1 001		15.0	10.6		0.5.0
(PFOS)	AveID	1.071	1.034		17.9	18.6	-3.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9198	0.9860		21.4	20.0	7.2	25.0
Perfluorodecanoic acid	AveID	0.9675	0.9801		20.3	20.0	1.3	25.0
(PFDA) Perfluorodecanesulfonic acid	AveID	0.6164	0.6356		19.9	19.3	3.1	25.0
(PFDS) Perfluoroundecanoic acid	AveID	1.082	1.026		19.0	20.0	-5.2	25.0
(PFUnA)		0.0710			00.4	22.2	0.5	
Perfluorododecanoic acid (PFDoA)	AveID	0.9712	0.9763		20.1	20.0	0.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9735	1.031		21.2	20.0	5.9	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.428	1.395		19.5	20.0	-2.3	25.0
Perfluoro-n-hexadecanoic	AveID	1.222	1.246		20.4	20.0	2.0	25.0
acid (PFHxDA) Perfluoro-n-octadecanoic	AveID	1.075	1.235		23.0	20.0	15.0	25.0
acid (PFODA) 13C4 PFBA	Ave	187843	193639		51.5	50.0	3.1	50.0
13C5-PFPeA	Ave	156937	151036		48.1	50.0	-3.8	50.0
13C2 PFH×A	Ave	141395	149977		53.0	50.0	6.1	50.0
13C4-PFHpA	Ave	135762	139941		51.5	50.0	3.1	50.0
1802 PFHxS	Ave	174136	179848		48.9	47.3	3.3	50.0
13C4 PFOA	Ave	130965	139147		53.1	50.0	6.2	50.0
13C5 PFNA	Ave	105374	110393		52.4	50.0	4.8	50.0
13C4 PFOS	Ave	128908	128118		47.5	47.8	-0.6	50.0
13C8 FOSA	Ave	243074	229565		47.2	50.0	-5.6	50.0
13C2 PFDA	Ave	91630	99481		54.3	50.0	8.6	50.0
13C2 PFUnA	Ave	72064	76819		53.3	50.0	6.6	50.0
13C2 PFDoA	Ave	66530	69268		52.1	50.0	4.1	50.0
13C2-PFTeDA	Ave	129334	134865		52.1	50.0	4.3	50.0
	1 -							

Report Date: 21-Sep-2016 12:26:05 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_012_p1_e1.d

Lims ID: CCV L4

Client ID:

Sample Type: CCV

Inject. Date: 19-Sep-2016 19:48:00 ALS Bottle#: 0 Worklist Smp#: 36

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Sublist: chrom-PFC_A8_Full*sub2

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 21-Sep-2016 12:26:04 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK048

First Level Reviewer: chandrasenas Date: 21-Sep-2016 12:26:03

First Level Revie	ewer: cha	ındraser	nas		Date:	2	21-Sep-2016 12:26:0)3		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	4									
217 > 172.0	1.526	1.534	-0.008		9681955	51.5		103	528624	
1 Perfluorobut	yric acid									
212.9 > 169.0	1.526	1.535	-0.009	1.000	3616780	21.5		108	32173	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.792	1.807	-0.015		7551810	48.1		96.2	100131	7
3 Perfluoroper										
262.9 > 219.0	1.792	1.809	-0.017	1.000	3147806	20.5		103	59497	
5 Perfluorobut			0.010	1 000	4005704	47 /		00.5		
298.9 > 80.0 298.9 > 99.0	1.825 1.825	1.844 1.844	-0.019 -0.019	1.000 1.000	4835634 2069565	17.6	2.34(0.00-0.00)	99.5		
7 Perfluorohex			-0.017	1.000	2007303		2.54(0.00-0.00)			
313 > 269.0	2.072		-0.024	1.000	2935696	20.7		103	138513	
D 613C2 PFH)										
315 > 270.0	2.072	2.096	-0.024		7498858	53.0		106	930403	
9 Perfluorohex	kanesulfo	onic acid	l							
399 > 80.0	2.422	2.415	0.007	1.000	3416653	18.5		102		
12 Perfluorohe	ptanoic a	acid								
363 > 319.0	2.401	2.438	-0.037	1.000	2877919	19.7		98.7	38090	
D 11 13C4-PFH	•									
367 > 322.0	2.401	2.438	-0.037		6997039	51.5		103	614974	
D 10 1802 PFH		0.454	0.007		050/000	40.0		100		
403 > 84.0	2.415	2.451	-0.036		8506822	48.9		103	442281	
15 Perfluorooc			0.046	1 000	2044660	20.0		10E	110004	
413 > 369.0 413 > 169.0	2.756 2.756		-0.046 -0.046	1.000 1.000	3044669 1800125	20.9	1.69(0.90-1.10)	105	119826 4820	
D 14 13C4 PFO		2.002	0.040	1.000	1000120				1020	
417 > 372.0	2.756	2.802	-0.046		6957338	53.1		106	124377	1
					Page 522 of					

Report Date: 21-Sep-2016 12:26:05 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_012_p1_e1.d

Data File:	\\Chr	omina\S	acramen	to\Chrom	Data\A8\20160	920-34702.b)\19SEP2016B_012	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanosul	fonic Ac	id					-		
449 > 80.0	•	2.808		1.000	3007387	19.9		104		
18 Perfluorooc				1.000	0007007	17.7		101		
499 > 80.0	3.122		ر -0.032	1.000	2458804	17.9		96.6	215581	
499 > 99.0	3.128		-0.032	1.000	564968	17.7	4.35(0.90-1.10)	70.0	1590	
D 17 13C4 PFO		0	0.020		00.700				.070	
503 > 80.0	3.128	3 177	-0.049		6124058	47.5		99.4	315576	
D 19 13C5 PFN		0.177	0.017		0121000	17.0		, , , , ,	010070	
468 > 423.0	3.122	3 170	-0.057		5519645	52.4		105	335465	
			-0.037		3317043	32.4		103	333403	
20 Perfluorono 463 > 419.0	3.122	3.180	U UE0	1.000	2251115	20.1		100	72390	
		3.100	-0.036	1.000	2231113	20.1		100	12390	
D 21 13C8 FOS		2 402	0.010		114702/2	47.0		04.4	212212	
506 > 78.0		3.483			11478262	47.2		94.4	312213	
22 Perfluorooc				4 000	450/004	04.4		407	450000	
498 > 78.0	3.465	3.489	-0.024	1.000	4526904	21.4		107	159099	
D 23 13C2 PFD										
515 > 470.0		3.541	-0.055		4974060	54.3		109	305091	
24 Perfluorode										
513 > 469.0	3.486	3.542	-0.056	1.000	1949944	20.3		101	100714	
26 Perfluorode										
599 > 80.0	3.795	3.854	-0.059	1.000	1570068	19.9		103		
D 27 13C2 PFU	nA									
565 > 520.0	3.811	3.872	-0.061		3840972	53.3		107	234929	
28 Perfluoroun	decanoi	c acid								
563 > 519.0	3.811	3.875	-0.064	1.000	1576123	19.0		94.8	97893	
D 30 13C2 PFD	οΑ									
615 > 570.0	4.097	4.165	-0.068		3463384	52.1		104	182088	
29 Perfluorodo	decanoio	c acid								
613 > 569.0	4.107	4.168	-0.061	1.000	1352500	20.1		101	69640	
31 Perfluorotrio	decanoic	acid								
633 > 619.0	4.366		-0.069	1.000	1428699	21.2		106	72152	
D 32 13C2-PFT	eDA									
715 > 670.0		4.674	-0.073		6743234	52.1		104	544846	
33 Perfluorotet										
713 > 669.0	4.601		-0.073	1.000	1932457	19.5		97.7	35975	
713 > 169.0	4.601		-0.073	1.000	408082	17.0	4.74(0.00-0.00)	,,,,	164662	
D 34 13C2-PFH							(0)			
815 > 770.0		5.096	-0.085		4576714	57.2		114	616329	
			0.005		4370714	07.2		117	010027	
35 Perfluorohe 813 > 769.0	5.011		-0.087	1.000	1725957	20.4		102	119392	
			-0.067	1.000	1720707	20.4		102	117372	
36 Perfluorooc			0.100	1 000	1711400	22.0		115	11//15	
913 > 869.0	5.36/	5.469	-0.102	1.000	1711428	23.0		115	116615	
Reagents:	_									
LCPFC-L4_0002	.2		Α	mount A	dded: 1.00	Units	:: mL			

Report Date: 21-Sep-2016 12:26:05 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_012_p1_e1.d Data File: Injection Date: 19-Sep-2016 19:48:00 Instrument ID: **A8** Lims ID: CCV L4 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 36 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 (00030 X25 ©28 0024 ×20 -20 **≻**16 15 10 1.7 2.0 1.9 1.3 1.9 1.1 1.4 1.0 1.3 1.6 1.0 1.6 2.5 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 21 88 (12 X 100000) X (X 100000) X (X 100000) (0018-000015-×)12-677 666 ×55 33 22 11 2.2 1.4 2.0 2.3 1.6 1.9 1.6 1.9 2.2 1.3 1.3 9 Perfluorohexanesulfonic acid 7 Perfluorohexanoic acid D 6 13C2 PFHxA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 12 28 Y (X100000) () () () () 824- <u>6</u>20-Y (X100 ∑₁₆-12 1.8 2.1 1.9 2.2 2.0 2.6 1.5 2.4 2.7 1.6 2.5 2.8 1.4 3.2 1.3 D 11 13C4-PFHpA 12 Perfluoroheptanoic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367 > 322.0 F1:m/z 403 > 84.0 24⁻ (000001×16⁻ (X100000) 628 624 624 ×20 ≻16- 12 12 0 0 1.9 2.2 2.5 2.8 2.9 3.2 1.8 2.1 2.4 2.7 3.0 1.7

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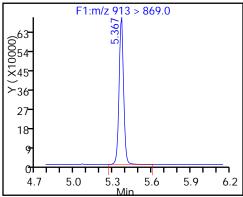
4.5

4.8

5.1 Min 5.4

5.7

36 Perfluorooctadecanoic acid



FORM VII LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Lab Sample ID: <u>CCV 320-128009/50</u> Calibration Date: <u>09/19/2016 21:33</u>

Instrument ID: A8 Calib Start Date: 09/19/2016 15:48

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 09/19/2016 17:48

Lab File ID: 19SEP2016B_026_p1_e1.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8672	0.9101		52.5	50.0	4.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.016	1.017		50.0	50.0	0.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.528	1.570		45.4	44.2	2.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9474	0.9634		50.8	50.0	1.7	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.042	1.056		50.7	50.0	1.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.031		45.7	45.5	0.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.047	1.071		51.2	50.0	2.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.181	1.234		49.7	47.6	4.5	25.0
Perfluorononanoic acid (PFNA)	AveID	1.016	1.045		51.4	50.0	2.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.071	1.063		46.1	46.4	-0.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9198	0.9815		53.4	50.0	6.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9675	0.9897		51.1	50.0	2.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6164	0.6507		50.9	48.2	5.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.082	1.049		48.5	50.0	-3.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9712	0.9889		50.9	50.0	1.8	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9735	1.003		51.5	50.0	3.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.428	1.367		47.9	50.0	-4.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	AveID	1.222	1.198		49.0	50.0	-2.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.075	1.199		55.8	50.0	11.6	25.0
13C4 PFBA	Ave	187843	191375		50.9	50.0	1.9	50.0
13C5-PFPeA	Ave	156937	151825		48.4	50.0	-3.3	50.0
13C2 PFHxA	Ave	141395	152579		54.0	50.0	7.9	50.0
13C4-PFHpA	Ave	135762	132530		48.8	50.0	-2.4	50.0
1802 PFHxS	Ave	174136	183278		49.8	47.3	5.3	50.0
13C4 PFOA	Ave	130965	134510		51.4	50.0	2.7	50.0
13C5 PFNA	Ave	105374	107385		51.0	50.0	1.9	50.0
13C4 PFOS	Ave	128908	131008		48.6	47.8	1.6	50.0
13C8 FOSA	Ave	243074	228269		47.0	50.0	-6.1	50.0
13C2 PFDA	Ave	91630	96339		52.6	50.0	5.1	50.0
13C2 PFUnA	Ave	72064	74761		51.9	50.0	3.7	50.0
13C2 PFDoA	Ave	66530	69702		52.4	50.0	4.8	50.0
13C2-PFTeDA	Ave	129334	134095		51.8	50.0	3.7	50.0
13C2-PFHxDA	Ave	80077	92035		57.5	50.0	14.9	50.0

Report Date: 21-Sep-2016 14:40:09 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

Data File:

Lims ID: CCV L5

Client ID:

Sample Type: CCV

Inject. Date: 19-Sep-2016 21:33:00 ALS Bottle#: 0 Worklist Smp#: 50

Injection Vol: Dil. Factor: 2.0 ul 1.0000

Sample Info:

Operator ID: **A8** Instrument ID: **A8**

Sublist: chrom-PFC_A8_Full*sub2

Method: \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 21-Sep-2016 14:40:07 Calib Date: 19-Sep-2016 17:48:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: **Initial Calibration**

Last ICal File:

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK023

-+ Lovel Dovie 001/11/10/07

First Level Revie	wer: wes	stendorf	С		Date:	2	1-Sep-2016 14:40:0)7		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA	A									
217 > 172.0	1.519	1.534	-0.015		9568765	50.9		102	538649	
1 Perfluorobut	yric acid									
212.9 > 169.0	1.526	1.535	-0.009	1.000	8708244	52.5		105	92668	
D 4 13C5-PFP6	eΑ									
267.9 > 223.0	1.792	1.807	-0.015		7591240	48.4		96.7	100408	5
3 Perfluoroper										
262.9 > 219.0		1.809	-0.017	1.000	7718524	50.0		100	126119	
5 Perfluorobut			0.010	4 000	4074/4/0	45.4		100		
298.9 > 80.0 298.9 > 99.0	1.825 1.825	1.844	-0.019 -0.019	1.000 1.000	12716169 5615324	45.4	2.26(0.00-0.00)	103		
7 Perfluorohe			-0.019	1.000	3013324		2.20(0.00-0.00)			
313 > 269.0	2.062		-0.034	1.000	7349584	50.8		102	392779	
D 613C2 PFHx										
315 > 270.0	2.062	2.096	-0.034		7628955	54.0		108	710431	
9 Perfluorohex	kanesulfo	onic acid	I							
399 > 80.0	2.410	2.415	-0.005	1.000	8600031	45.7		100		
12 Perfluorohe	ptanoic a	acid								
363 > 319.0	2.391	2.438	-0.047	1.000	6997067	50.7		101	78994	
D 11 13C4-PFH	•									
367 > 322.0	2.391	2.438	-0.047		6626523	48.8		97.6	468276	
D 10 1802 PFH										
403 > 84.0	2.403	2.451	-0.048		8669060	49.8		105	607513	
15 Perfluorooc			0.051	1 000	7201450	F1 0		100	2/0/40	
413 > 369.0 413 > 169.0	2.751 2.751		-0.051 -0.051	1.000 1.000	7201459 4268893	51.2	1.69(0.90-1.10)	102	368448 258174	
D 14 13C4 PFO		2.002	0.001	1.000	4200073		1.07(0.70-1.10)		230174	
417 > 372.0	A 2.751	2.802	-0.051		6725487	51.4		103	788759	
					Page 520 of 6					

Report Date: 21-Sep-2016 14:40:09 Chrom Revision: 2.2 08-Sep-2016 14:45:52

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_026_p1_e1.d

Data File:	\\Chr	omNA\S	acramen	to\Chrom	Data\A8\20160	920-34702.b	119SEP2016B_026	_p1_e1.		
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
12 Darelli analas		 f=:=!=					ı			
13 Perfluorohe 449 > 80.0	ptanesui 2.757		:ia -0.051	1.000	7695584	49.7		104		
				1.000	7073304	47.7		104		
18 Perfluorooci 499 > 80.0	3.119		u -0.035	1.000	6463571	46.1		99.3	448043	
499 > 99.0	3.119		-0.035	1.000	1435740	40.1	4.50(0.90-1.10)	77.5	232197	
D 17 13C4 PFO							,			
503 > 80.0	3.119	3.177	-0.058		6262185	48.6		102	293262	
D 19 13C5 PFN										М
468 > 423.0	3.113	3.179	-0.066		5369238	51.0		102	895411	
20 Perfluorono	nanoic a	cid								
463 > 419.0	3.119	3.180	-0.061	1.000	5612292	51.4		103	190994	
D 21 13C8 FOS	Α									
506 > 78.0	3.468	3.483	-0.015		11413438	47.0		93.9	582991	
22 Perfluorooc	tane Sulf	fonamid	е							
498 > 78.0	3.468	3.489	-0.021	1.000	11202719	53.4		107	316569	
D 23 13C2 PFD	A									
515 > 470.0	3.482	3.541	-0.059		4816950	52.6		105	248268	
24 Perfluorode	canoic a	cid								
513 > 469.0	3.482	3.542	-0.060	1.000	4767109	51.1		102	191605	
26 Perfluorode										
599 > 80.0	3.792	3.854	-0.062	1.000	4108574	50.9		106		
D 27 13C2 PFU										
565 > 520.0	3.807		-0.065		3738033	51.9		104	339941	
28 Perfluoroun										
563 > 519.0	3.807	3.875	-0.068	1.000	3922273	48.5		97.0	200992	
D 30 13C2 PFD		4 4 4 5	0.070		2.405.002	FO 4		105	1/0701	
615 > 570.0		4.165	-0.072		3485083	52.4		105	163721	
29 Perfluorodo			0.075	1 000	244/4/0	F0.0		100	1/4420	
613 > 569.0			-0.075	1.000	3446460	50.9		102	164430	
31 Perfluorotric 633 > 619.0			0.072	1 000	3497072	51.5		103	173989	
		4.433	-0.073	1.000	3497072	31.3		103	173909	
D 32 13C2-PFT6 715 > 670.0		4.674	0.077		6704771	51.8		104	429890	
			-0.077		0704771	31.0		104	429090	
33 Perfluorotet 713 > 669.0			-0.077	1.000	4763897	47.9		95.7	103871	
713 > 169.0	4.591		-0.077	0.999	1011982	47.7	4.71(0.00-0.00)	73.7	204303	
D 34 13C2-PFH			1.000				(3.00 3.00)		500	
815 > 770.0		5.096	-0.101		4601739	57.5		115	456418	
35 Perfluorohe								_	2	
813 > 769.0			-0.096	1.000	4174274	49.0		98.0	237955	
36 Perfluorooc						-		-		
913 > 869.0	5.351		-0.118	1.000	4178436	55.8		112	283490	

Report Date: 21-Sep-2016 14:40:09 Chrom Revision: 2.2 08-Sep-2016 14:45:52

QC Flag Legend Review Flags

M - Manually Integrated

Reagents:

LCPFC-L5_00020 Amount Added: 1.00 Units: mL

Report Date: 21-Sep-2016 14:40:09 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_026_p1_e1.d Data File: **Injection Date:** 19-Sep-2016 21:33:00 Instrument ID: **A8** Lims ID: CCV L5 Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 50 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 519 (00030 X25 ©30 ©25 ©28 0024 ×20 \sum_{20} -20 **≻**16 15- 15 10 10 1.7 2.0 1.7 1.1 1.4 2.3 8.0 1.1 1.4 2.0 1.1 1.4 2.0 2.3 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 49 (21° (21° (218° (218° (215°) 628 0024 (0042 00042 ×35 ∑20 ∑28- 21 12 14 2.2 1.4 1.7 2.0 2.3 1.6 1.9 1.6 1.9 2.2 1.3 1.3 7 Perfluorohexanoic acid D 6 13C2 PFHxA 9 Perfluorohexanesulfonic acid F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 399 > 80.0 28 28 00024- 00000 × (00020 ×16 <u>24</u> 0020 × >16 _ ≻16- 12 12 12 1.9 2.2 2.5 1.7 2.0 2.3 2.8 1.6 2.8 1.4 2.6 0.4 1.6 4.0 1.3 12 Perfluoroheptanoic acid D 11 13C4-PFHpA D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 367, > 322.0 F1:m/z 403 > 84.0 24 24 391 391 628 624 624 0021- 0021- ∑₁₅-×20 ∑₁₅-≻16- ≻₁₂-12 12 0 0 1.8 2.1 2.4 2.7 3.0 1.8 2.1 Page 582 of 657 3.0 1.9 2.2 2.5 2.8 1.6 3.1



3.8

2.9

2.8

3.1

3.7

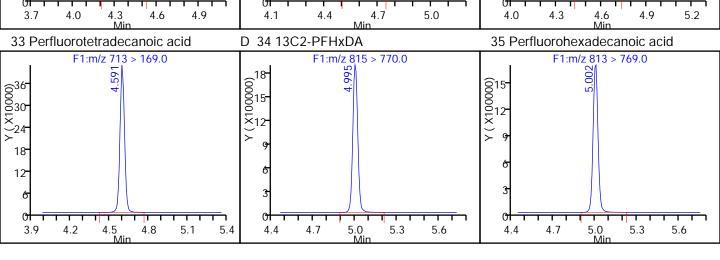
4.0

2.9

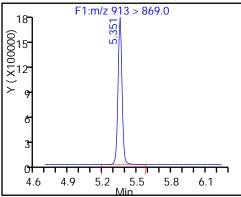
3.2

3.5 Min 3.8

4.1



36 Perfluorooctadecanoic acid



Report Date: 21-Sep-2016 14:40:09 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160920-34702.b\19SEP2016B_026_p1_e1.d

Injection Date: 19-Sep-2016 21:33:00 Instrument ID: A8

Lims ID: CCV L5

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 50

Injection Vol: 2.0 ul Dil. Factor: 1.0000

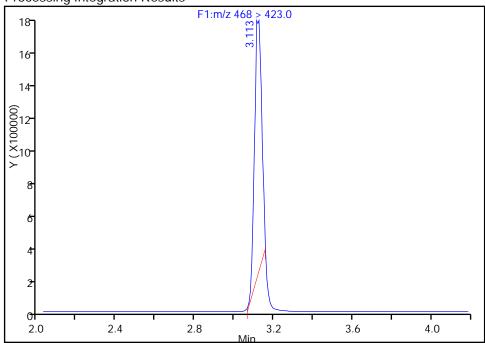
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

D 19 13C5 PFNA, CAS: STL00995

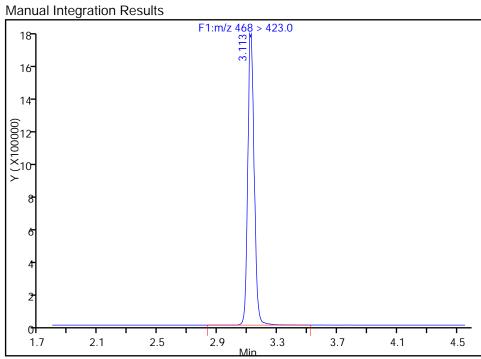
Signal: 1

RT: 3.11
Area: 3948087
Amount: 37.467316
Amount Units: ng/ml

Processing Integration Results



RT: 3.11
Area: 5369238
Amount: 50.954029
Amount Units: ng/ml



Reviewer: westendorfc, 21-Sep-2016 14:40:07

Audit Action: Manually Integrated

Audit Reason: Baseline

Page 536 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1					
SDG No.:						
Client Sample ID:	Lab Sample ID: MB 320-123451/1-A					
Matrix: Water	Lab File ID: 03SEP2016D_005_p1_e1.d					
Analysis Method: 537 (Modified)	Date Collected:					
Extraction Method: 3535	Date Extracted: 08/22/2016 13:34					
Sample wt/vol: 500.00(mL)	Date Analyzed: 09/04/2016 13:08					
Con. Extract Vol.: 1.00(mL)	Dilution Factor: 1					
Injection Volume: 2(uL)	GC Column: Acquity ID: 2.1(mm)					
% Moisture:	GPC Cleanup: (Y/N) N					
Analysis Batch No · 126120	Units: na/L					

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	2.0	0.92
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U M	2.5	2.0	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.5	2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U M	4.0	3.0	1.3
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.75

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	130		25-150
STL00990	13C4 PFOA	139		25-150
STL00991	13C4 PFOS	130		25-150
STL01892	13C4-PFHpA	147		25-150
STL00995	13C5 PFNA	129		25-150
STL00994	1802 PFHxS	133		25-150

Report Date: 17-Sep-2016 12:05:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_005_p1_e1.d

Lims ID: MB 320-123451/1-A

Client ID:

Sample Type: MB

Inject. Date: 04-Sep-2016 13:08:00 ALS Bottle#: 0 Worklist Smp#: 5

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

First Level Reviewer: westendorfc				Date:	Date: 16-Sep-2016 08:04:24					
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 2 13C4 PFBA										
217 > 172.0	1.623	1.623	0.0		15435880	76.4		153	757334	
1 Perfluorobuty	yric acid									
212.9 > 169.0	1.637	1.623	0.014	1.000	32798	0.1212			226	
D 4 13C5-PFPe	eΑ									
267.9 > 223.0	1.902	1.910	-0.008		11015237	69.5		139	851802	
3 Perfluoropen	itanoic a	cid								
262.9 > 219.0	1.893	1.910	-0.017	1.000	12972	0.0561			146	
7 Perfluorohex	anoic ac	cid								
313 > 269.0	2.202	2.213	-0.011	1.000	20138	0.1066			580	
D 613C2 PFHx	Α									
315 > 270.0	2.202	2.213	-0.011		9378190	65.0		130	849255	
D 11 13C4-PFH _I										
367 > 322.0	2.553	2.556	-0.003		9592615	73.3		147	708760	
12 Perfluorohe _l										M
363 > 319.0	2.553	2.556	-0.003	1.000	10625	0.0532			148	M
9 Perfluorohex										
399 > 80.0	2.568	2.571	-0.003	1.000	47947	0.1853				
D 10 18O2 PFH										
403 > 84.0	2.568	2.571	-0.003		11399175	63.1		133	693067	
15 Perfluorooct										
413 > 369.0	2.925	2.919	0.006	1.000	27359	0.1295	1 00/0 00 1 10)		375	
413 > 169.0	2.916	2.919	-0.003	0.997	14271		1.92(0.90-1.10)		613	
D 14 13C4 PFO		2 020	0.000		101510/5	,,, ,		100	F/7044	
417 > 372.0	2.925	2.928	-0.003		10151065	69.6		139	567244	
D 47 M2-6:2FTS		2.024	0.051		1401	0.0101		0.0		
429 > 409.0	2.883	2.934			1491	0.0191		0.0		
48 Sodium 1H, 427 > 407.0	1H,2H,2 2.900	•			2666	NR				
42 <i>1 ></i> 401.0	2.900	2.730	-0.030	1.000	2000 Page 538 of 6					

Page 538 of 657

Data File:	\\Chr	omNA\S	acramen	to\Chrom	Data\A8\20160	907-34269.b	0\03SEP2016D_005	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Perfluorohe	ntanosu	Ifonic Ac	·id						,	
449 > 80.0	2.925		-0.011	1.000	2615	0.0121				
18 Perfluorooc										M
499 > 80.0	3.307	3.195	0.113	1.000	28667	0.1301			2690	M
499 > 99.0	3.307	3.195	0.113	1.000	9740		2.94(0.90-1.10)		2074	
D 17 13C4 PFO	S									
503 > 80.0	3.299	3.304	-0.005		8959317	61.9		130	417140	
D 19 13C5 PFN	A									
468 > 423.0	3.307	3.312	-0.005		8217172	64.4		129	392118	
D 21 13C8 FOS	Α									
506 > 78.0	3.637	3.634	0.003		5575795	20.9		41.9	244581	
22 Perfluorooc	tane Sul	fonamid	е							
498 > 78.0	3.645	3.642	0.003	1.000	11074	0.1076			1054	
D 23 13C2 PFD	A									
515 > 470.0	3.669	3.658	0.011		7528996	62.3		125	495411	
24 Perfluorode	canoic a	cid								M
513 > 469.0	3.661		-0.005	1.000	5428	0.0368			460	M
D 42 M2-8:2FTS	S									
529 > 509.0	3.645	3.698	-0.053		2062	0.0245		0.0		
43 Sodium 1H,	1H.2H.2	H-perflu	orooctan	е						
527 > 507.0	3.637	•	-0.061		329	NR				
D 45 d3-NMeFC	SAA									
573 > 419.0	3.815	3.865	-0.050		2935	0.0585		0.0		
44 N-methyl pe										
570 > 419.0		3.869		1.005	1159	NR				
26 Perfluorode										
599 > 80.0	3.960		-0.015	1.000	1305	0.0109				
28 Perfluoroun										
563 > 519.0			-0.006	1 000	16865	0.1347			777	
D 27 13C2 PFU		0.770	0.000	1.000	10000	0.1017				
565 > 520.0		3.993	-0.006		5816859	61.0		122	496469	
D 46 d5-NEtFOS		0.770	0.000		0010007	01.0		122	170107	
589 > 419.0		4.032	0.046		1167	0.0208		0.0		
					1107	0.0200		0.0		
49 N-ethyl perf 584 > 419.0				0.978	2013	NR				
		4.040	-0.000	0.770	2013	IVIX				
D 52 d-N-MeFO 515 > 169.0		4.143	0.006		2137	0.0310		0.0		
	4.137	4.143	-0.000		2137	0.0310		0.0		
54 MeFOSA	4 1 2 7	1 1 1 1	0.017	1 000	2727	ND				
512 > 169.0		4.144	-0.017	1.000	2737	NR				
D 30 13C2 PFD		4 20 4	0.005		F 4 / / 4 F F	/10		104	/20420	
615 > 570.0		4.284	-0.005		5466455	61.8		124	630438	
29 Perfluorodo			0.000	1 000	2057	0.007.4			474	M
613 > 569.0	4.307	4.284	0.023	1.000	3856	0.0364			174	
D 51 d-N-EtFOS			0.555		40	0.0000		0 -		
531 > 169.0		4.325			1844	0.0289		0.0		
53 N-ethylperfl										
526 > 169.0	4.317	4.333	-0.016	1.000	2818	NR				

Chrom Revision: 2.2 08-Sep-2016 14:45:52 Report Date: 17-Sep-2016 12:05:52

•	•	•
Data File:	\\ChromNA\Sacramento\ChromData\A8\2	20160907-34269.b\03SEP2016D_005_p1_e1.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
31 Perfluorotrid	lecanoic	acid								
633 > 619.0	4.534	4.546	-0.012	1.000	2941	0.0269			165	
D 32 13C2-PFT6	eDA									
715 > 670.0	4.782	4.781	0.001		10851349	63.7		127	971214	
33 Perfluoroteti	radecan	oic acid								
713 > 669.0	4.792	4.790	0.002	1.000	74093	0.3780			131	
713 > 169.0	4.773	4.790	-0.017	0.996	3497		21.19(0.00-0.00)		768	
D 34 13C2-PFH	xDA									
815 > 770.0	5.178	5.188	-0.010		6531057	60.0		120	467305	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.382	5.188	0.194	1.000	839	-0.4410			3.1	
36 Perfluorooct	tadecand	oic acid								
913 > 869.0	5.536	5.545	-0.009	1.000	4067	0.0379			11.8	

QC Flag Legend Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

Report Date: 17-Sep-2016 12:05:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:08:00 Instrument ID: **A8** Lims ID: MB 320-123451/1-A Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 5 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 Y (X1000) () 30-30-30-×35 ≻28 18 21 12 1.2 1.8 1.6 Mir 1.9 2.0 1.5 2.1 1.3 1.4 1.7 2.3 3 Perfluoropentanoic acid 5 Perfluorobutanesulfonic acid (ND) 5 Perfluorobutanesulfonic acid (ND) F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 12 24 √ (×1000) 6 20 687 77 ∑₁₆-12 57 37 2.1 2.7 2.0 0.9 1.5 0.9 1.5 2.1 2.7 1.7 7 Perfluorohexanoic acid D 6 13C2 PFHxA D 11 13C4-PFHpA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 367 > 322.0 35 50 ©30 0 0 25 0030 0025 × 6⁴³ ×36 \succeq_{20} \mathcal{L}_{20} -29 15 15 22 10 15 2.0 2.3 2.1 2.3 2.6 2.9 1.5 1.8 2.4 2.7 2.0 12 Perfluoroheptanoic acid (M) 9 Perfluorohexanesulfonic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 F1:m/z 403 > 84.0 42 38 20 18 12 14 2 0 2.6 3.0 3.3 1.9 2.2 2.5 2.8 3.1 2.3 1.8 Min

3.5

4.1

3.1

3.4

3.7

4.0

2.9

0

2.3

3.9

2.7

3.0

3.3 Min

4.0

0

3.7

4.6

0

3.4

4.0 Min

4.3

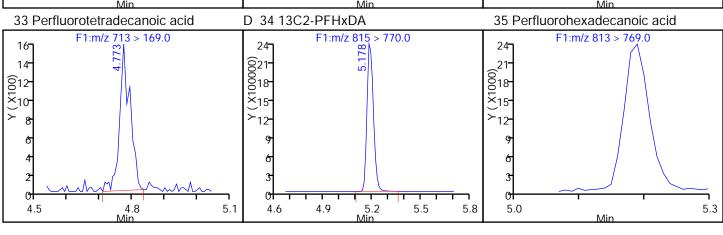
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16

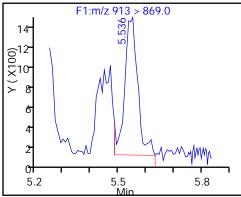
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3.8

4.1



36 Perfluorooctadecanoic acid



Report Date: 17-Sep-2016 12:05:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d

Injection Date: 04-Sep-2016 13:08:00 Instrument ID: A8

Lims ID: MB 320-123451/1-A

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 5

Injection Vol: 2.0 ul Dil. Factor: 1.0000

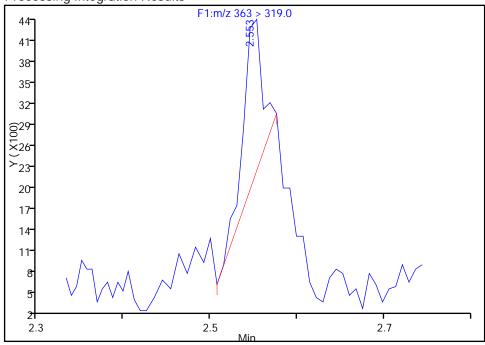
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

12 Perfluoroheptanoic acid, CAS: 375-85-9

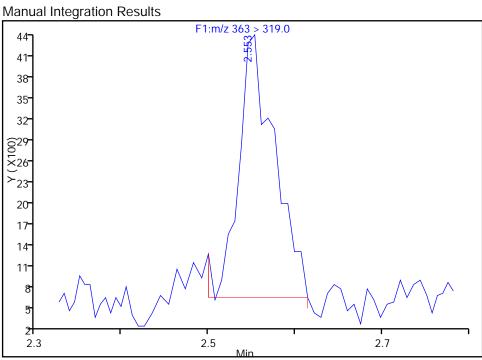
Signal: 1

RT: 2.55
Area: 3320
Amount: 0.016626
Amount Units: ng/ml

Processing Integration Results



RT: 2.55
Area: 10625
Amount: 0.053208
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:28:01

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

Page 546 of 657

Report Date: 17-Sep-2016 12:05:52 Chrom Revision: 2.2 08-Sep-2016 14:45:52 Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_005_p1_e1.d

Injection Date: 04-Sep-2016 13:08:00 Instrument ID: A8

Lims ID: MB 320-123451/1-A

Client ID:

Operator ID: A8 ALS Bottle#: 0 Worklist Smp#: 5

Injection Vol: 2.0 ul Dil. Factor: 1.0000

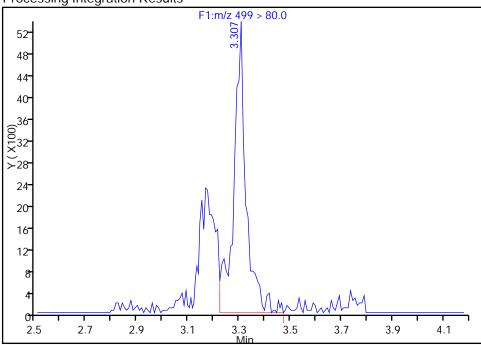
Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL Column: Detector F1(0.00 :6.60)

18 Perfluorooctane sulfonic acid, CAS: 1763-23-1

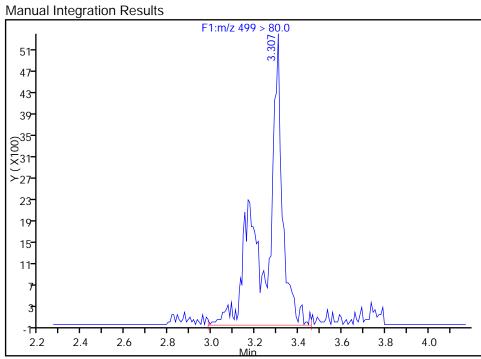
Signal: 1

RT: 3.31
Area: 17816
Amount: 0.080882
Amount Units: ng/ml

Processing Integration Results



RT: 3.31
Area: 28667
Amount: 0.130145
Amount Units: ng/ml



Reviewer: barnettj, 17-Sep-2016 11:28:01

Audit Action: Manually Integrated

Audit Reason: Isomers

Page 547 of 657

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1
SDG No.:	
Client Sample ID:	Lab Sample ID: LCS 320-123451/2-A
Matrix: Water	Lab File ID: 03SEP2016D_006_p1_e1.d
Analysis Method: 537 (Modified)	Date Collected:
Extraction Method: 3535	Date Extracted: 08/22/2016 13:34
Sample wt/vol: 500.00(mL)	Date Analyzed: 09/04/2016 13:16
Con. Extract Vol.: 1.00(mL)	Dilution Factor: 1
Injection Volume: 2(uL)	GC Column: Acquity ID: 2.1(mm)
% Moisture:	GPC Cleanup: (Y/N) N
Analysis Batch No.: 126120	Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34.2		2.5	2.0	0.92
375-85-9	Perfluoroheptanoic acid (PFHpA)	36.6		2.5	2.0	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.2		2.5	2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	36.5		2.5	2.0	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29.5		4.0	3.0	1.3
335-67-1	Perfluorooctanoic acid (PFOA)	37.9		2.5	2.0	0.75

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	123		25-150
STL00990	13C4 PFOA	131		25-150
STL00991	13C4 PFOS	125		25-150
STL01892	13C4-PFHpA	131		25-150
STL00995	13C5 PFNA	120		25-150
STL00994	1802 PFHxS	128		25-150

Report Date: 17-Sep-2016 12:06:01 Chrom Revision: 2.2 08-Sep-2016 14:45:52

> TestAmerica Sacramento **Target Compound Quantitation Report**

Data File:

Lims ID: LCS 320-123451/2-A

Client ID:

LCS Sample Type:

Inject. Date: 04-Sep-2016 13:16:00 ALS Bottle#: 0 Worklist Smp#: 6

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: 8A Instrument ID: **A8**

Method: \\ChromNA\\Sacramento\\ChromData\\A8\\20160907-34269.b\\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: **Initial Calibration**

\\ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d Last ICal File:

Det: F1(0.00:6.60) Column 1:

Process Host: XAWRK003

Signal RT EXP RT DLT RT REL RT Response Amount ng/ml Ratio(Li D 2 13C4 PFBA 217 > 172.0 1.623 1.623 0.0 12824450 63.5 1 Perfluorobutyric acid 212.9 > 169.0 1.623 1.623 0.0 1.000 4156417 18.5	127 92.4	S/N 512180	Flags
217 > 172.0		512180	
217 > 172.0		512180	
	92.4		
212.9 > 169.0	92.4		
		46300	
D 413C5-PFPeA			
267.9 > 223.0	128	1244410)
3 Perfluoropentanoic acid			
262.9 > 219.0 1.910 1.910 0.0 1.000 3585117 16.9	84.5	55493	
5 Perfluorobutanesulfonic acid			
298.9 > 80.0	96.7		
298.9 > 99.0	-0.00)		
7 Perfluorohexanoic acid	00.1	155570	
313 > 269.0 2.213 2.213 0.0 1.000 3150669 17.6	88.1	155570	
D 613C2 PFHxA	100	740051	
315 > 270.0 2.213 2.213 0.0 8878586 61.5	123	748951	
D 11 13C4-PFHpA 367 > 322.0 2.556 2.556 0.0 8546221 65.3	101	725574	
	131	725576	
12 Perfluoroheptanoic acid 363 > 319.0 2.556 2.556 0.0 1.000 3251492 18.3	91.4	51262	
	91.4	31202	
9 Perfluorohexanesulfonic acid 399 > 80.0 2.571 2.571 0.0 1.000 3881059 15.6	85.8		
D 10 1802 PFHxS	05.0		
403 > 84.0 2.571 2.571 0.0 10948235 60.6	128	424733	
15 Perfluorooctanoic acid	120	424733	
413 > 369.0 2.919 2.919 0.0 1.000 3777003 19.0	94.8	69560	
413 > 169.0 2.928 2.919 0.009 1.003 2199077 1.72(0.90		126245	
D 14 13C4 PFOA	,		
417 > 372.0 2.928 2.928 0.0 9576337 65.7	131	803328	
13 Perfluoroheptanesulfonic Acid			
449 > 80.0 2.936 2.936 0.0 1.000 Page 340 of 657 18.2	95.6		
1 ago 040 01 001			

Signal
499 > 80.0 3.195 3.195 0.0 1.000 3130445 14.7 79.4 59208 499 > 99.0 3.270 3.195 0.076 1.024 714166 4.38(0.90-1.10) 16509 D 17 13C4 PFOS 503 > 80.0 3.304 3.304 0.0 8641022 59.7 125 472109 D 19 13C5 PFNA 468 > 423.0 3.312 0.0 7674475 60.2 120 398121 20 Perfluoroonanoic acid 463 > 419.0 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 0.0 1.000 2417409 17.4 87.2 10
499 > 80.0 3.195 3.195 0.0 1.000 3130445 14.7 79.4 59208 499 > 99.0 3.270 3.195 0.076 1.024 714166 4.38(0.90-1.10) 16509 D 17 13C4 PFOS 503 > 80.0 3.304 3.304 0.0 8641022 59.7 125 472109 D 19 13C5 PFNA 468 > 423.0 3.312 0.0 7674475 60.2 120 398121 20 Perfluoroonanoic acid 463 > 419.0 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 0.0 1.000 2417409 17.4 87.2 10
499 > 99.0 3.270 3.195 0.076 1.024 714166 4.38(0.90-1.10) 16509 D 17 13C4 PFOS 503 > 80.0 3.304 3.304 0.0 8641022 59.7 125 472109 D 19 13C5 PFNA 468 > 423.0 3.312 3.312 0.0 7674475 60.2 120 398121 20 Perfluoronanoic acid 463 > 419.0 3.312 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 22 Perfluorooctane Sulforamide 498 > 78.0 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
D 17 13C4 PFOS 503 > 80.0
503 > 80.0 3.304 3.304 0.0 8641022 59.7 125 472109 D 19 13C5 PFNA 468 > 423.0 3.312 3.312 0.0 7674475 60.2 120 398121 20 Perfluoronomanoic acid 463 > 419.0 3.312 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 22 Perfluorooctane Sulfornamide 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 0.0 1.000 2417409 17.4 87.2 105462
D 19 13C5 PFNA 468 > 423.0
468 > 423.0 3.312 3.312 0.0 7674475 60.2 120 398121 20 Perfluoronomanoic acid 463 > 419.0 3.312 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 22 Perfluorooctane Sulfonamide 498 > 78.0 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 0.0 1.000 2417409 17.4 87.2 105462
463 > 419.0 3.312 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
463 > 419.0 3.312 3.312 0.0 1.000 2835518 18.2 91.1 98122 D 21 13C8 FOSA 506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 22 Perfluorooctane Sulfonamide 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 0.0 1.000 2417409 17.4 87.2 105462
506 > 78.0 3.634 3.634 0.0 4878063 18.3 36.6 279246 22 Perfluorooctane Sulfonamide 498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 0.0 1.000 2417409 17.4 87.2 105462
498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
498 > 78.0 3.642 3.642 0.0 1.000 1677114 18.6 93.1 114144 D 23 13C2 PFDA 515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
515 > 470.0 3.658 3.658 0.0 7084786 58.6 117 389133 24 Perfluorodecanoic acid 513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
24 Perfluorodecanoic acid 513 > 469.0
513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
513 > 469.0 3.666 3.666 0.0 1.000 2417409 17.4 87.2 105462
26 Perfluorodecane Sulfonic acid
20 FORMOTOROUGHO DUHOHIO UOIG
599 > 80.0 3.975 3.975 0.0 1.000 1866304 16.2 83.8
28 Perfluoroundecanoic acid
563 > 519.0 3.993 3.993 0.0 1.000 2051938 16.8 83.8 89158
D 27 13C2 PFUnA
565 > 520.0 3.993 3.993 0.0 5683569 59.6 119 394139
D 30 13C2 PFDoA
615 > 570.0 4.284 4.284 0.0 5564932 62.9 126 365678
29 Perfluorododecanoic acid
613 > 569.0 4.284 4.284 0.0 1.000 1946540 18.0 90.2 97435
31 Perfluorotridecanoic acid
633 > 619.0 4.546 4.546 0.0 1.000 1921891 17.2 86.2 87142
D 32 13C2-PFTeDA
715 > 670.0 4.781 4.781 0.0 11093805 65.1 130 505152
33 Perfluorotetradecanoic acid
713 > 669.0 4.790 4.790 0.0 1.000 3856521 19.3 96.6 8162
713 > 169.0 4.781 4.790 -0.009 0.998 586656 6.57(0.00-0.00) 69760
D 34 13C2-PFHxDA
815 > 770.0 5.188 5.188 0.0 6684383 61.4 123 581645
35 Perfluorohexadecanoic acid
813 > 769.0 5.188 5.188 0.0 1.000 2211991 17.1 85.4 8565
36 Perfluorooctadecanoic acid
913 > 869.0 5.545 5.545 0.0 1.000 2109806 19.3 96.7 8759

Report Date: 17-Sep-2016 12:06:01 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_006_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:16:00 Instrument ID: **A8** Lims ID: LCS 320-123451/2-A Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 (35 (00030 ×25 042 0036 ×30 ≻₂₄-≻20 15 18 10 12 0.9 1.2 1.8 1.9 1.0 1.6 1.9 1.5 2.1 1.3 1.6 2.2 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 F1:m/z 262.9 > 219.0 24-(000001X16-Y (X100000) (X100000) X (X1000000) X 8 12 1.9 2.2 1.7 2.3 1.8 2.5 2.0 2.1 2.4 1.3 1.6 1.4 1.5 7 Perfluorohexanoic acid D 6 13C2 PFHxA D 11 13C4-PFHpA F1:m/z 315 > 270.0 F1:m/z 313 > 269.0 F1:m/z 367 > 322.0 (28-(000001 X) (28-(00001 X) Y (X100000) 28 0024 0024 20 ×16 ~16- 1.7 2.0 2.3 2.6 2.9 1.9 2.2 2.5 2.8 2.2 2.5 2.8 1.6 3.1 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid D 10 1802 PFHxS F1:m/z 399 > 80.0 F1:m/z 363 > 319.0 F1:m/z 403 > 84.0 12 (X100000) (X100000) 8 635- ×25 ≻20 15 10 0 1.8 2.1 2.4 2.7 3.0 3.3 8.0 1.7 Page 55/11nof 657 3.5 1.9 2.2 2.5 2.8 3.1

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4.9

11

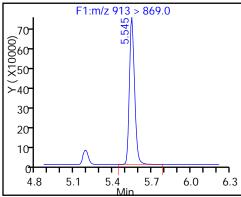
4.6

5.2

5.5

5.8

36 Perfluorooctadecanoic acid



FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1					
SDG No.:						
Client Sample ID:	Lab Sample ID: LCSD 320-123451/3-A					
Matrix: Water	Lab File ID: 03SEP2016D_007_p1_e1.d					
Analysis Method: 537 (Modified)	Date Collected:					
Extraction Method: 3535	Date Extracted: 08/22/2016 13:34					
Sample wt/vol: 500.00(mL)	Date Analyzed: 09/04/2016 13:23					
Con. Extract Vol.: 1.00(mL)	Dilution Factor: 1					
Injection Volume: 2(uL)	GC Column: Acquity ID: 2.1(mm)					
% Moisture:	GPC Cleanup: (Y/N) N					
Analysis Batch No.: 126120	Units: ng/L					

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34.6		2.5	2.0	0.92
375-85-9	Perfluoroheptanoic acid (PFHpA)	35.4		2.5	2.0	0.80
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.8		2.5	2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	36.6		2.5	2.0	0.65
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30.0		4.0	3.0	1.3
335-67-1	Perfluorooctanoic acid (PFOA)	36.6		2.5	2.0	0.75

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00993	13C2 PFHxA	128		25-150
STL00990	13C4 PFOA	135		25-150
STL00991	13C4 PFOS	128		25-150
STL01892	13C4-PFHpA	137		25-150
STL00995	13C5 PFNA	122		25-150
STL00994	1802 PFHxS	132		25-150

Report Date: 17-Sep-2016 12:06:08 Chrom Revision: 2.2 08-Sep-2016 14:45:52

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b\\03SEP2016D_007_p1_e1.d

Lims ID: LCSD 320-123451/3-A

Client ID:

Sample Type: LCSD

Inject. Date: 04-Sep-2016 13:23:00 ALS Bottle#: 0 Worklist Smp#: 7

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info:

Operator ID: A8 Instrument ID: A8

Method: \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\PFC_A8_Full.m

Limit Group: LC PFC_DOD ICAL

Last Update: 17-Sep-2016 12:05:30 Calib Date: 03-Sep-2016 17:38:00

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \ChromNA\Sacramento\ChromData\A8\20160906-34220.b\03SEP2016A_020_p1_e1.d

Column 1: Det: F1(0.00:6.60)

Process Host: XAWRK003

	10003311031.	$\wedge \wedge \vee \vee$	KKOOS								
	Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
Ī	D 213C4 PFBA										
	217 > 172.0	1.616	1.623	-0.007		12806947	63.4		127	447551	
	1 Perfluorobut	vric acid									
		1.616	1.623	-0.007	1.000	4188723	18.7		93.3	44038	
ı	D 4 13C5-PFPe	eΑ									
	267.9 > 223.0	1.902	1.910	-0.008		10256860	64.8		130	125041	5
	3 Perfluoroper	itanoic a	cid								
	262.9 > 219.0	1.902	1.910	-0.008	1.000	3687803	17.1		85.6	63681	
	5 Perfluorobut										
	298.9 > 80.0	1.944	1.944	0.0	1.000	6266449	17.3		97.8		
	298.9 > 99.0	1.944	1.944	0.0	1.000	2687413		2.33(0.00-0.00)			
	7 Perfluorohex			0.011	4 000	0400500	47.4		0F /	400070	
	313 > 269.0	2.202	2.213	-0.011	1.000	3190523	17.1		85.6	190370	
	D 6 13C2 PFHx		2 212	0.011		0240045	/ / 1		100	014470	
	315 > 270.0	2.202	2.213	-0.011		9248845	64.1		128	814472	
	D 11 13C4-PFH 367 > 322.0	рА 2.554	2 556	-0.002		8990253	68.7		137	106412	n
				-0.002		0990255	00.7		137	1004120	J
	12 Perfluorohe 363 > 319.0			-0.002	1.000	3314871	17.7		88.6	45089	
	9 Perfluorohex				1.000	3314071	17.7		00.0	43007	
	399 > 80.0	2.562	2.571		1.000	4060520	15.9		87.2		
	D 10 18O2 PFH:		2.071	0.007	1.000	1000020	10.7		07.2		
	403 > 84.0	2.562	2.571	-0.009		11263676	62.3		132	380851	
	15 Perfluorooct										
	413 > 369.0	2.926	2.919	0.007	1.000	3749086	18.3		91.4	72234	
	413 > 169.0	2.918	2.919	-0.001	0.997	2294410		1.63(0.90-1.10)		98345	
I	D 14 13C4 PFO	Α									
	417 > 372.0	2.918	2.928	-0.010		9858018	67.6		135	459512	
	13 Perfluorohe	ptanesul	fonic Ac	id							
	449 > 80.0	2.926	2.936	-0.010	1.000	3817146	17.8		93.7		

Data File:	\\Chr	omNA\S	acramen ⁻	to\Chrom	Data\A8\20160	907-34269.k	0\03SEP2016D_007	_p1_e1.	d	
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluorooc	tano culf	fonic aci	d							
499 > 80.0	3.184		-0.010	1.000	3272538	15.0		80.7	58240	
499 > 99.0	3.267	3.195	0.073	1.026	742702	10.0	4.41(0.90-1.10)	00.7	15729	
D 17 13C4 PFO	S						, ,			
503 > 80.0	3.292	3.304	-0.012		8886905	61.4		128	314382	
D 19 13C5 PFN	Α									
468 > 423.0	3.301	3.312	-0.011		7766613	60.9		122	301235	
20 Perfluorono	nanoic a	ıcid								
463 > 419.0	3.301	3.312	-0.011	1.000	2877515	18.3		91.4	96871	
D 21 13C8 FOS										
506 > 78.0	3.629	3.634	-0.005		6328792	23.8		47.5	303893	
22 Perfluorooc										
498 > 78.0		3.642	-0.005	1.000	2146609	18.4		91.9	95216	
D 23 13C2 PFD										
515 > 470.0	3.661	3.658	0.003		7404315	61.2		122	489798	
24 Perfluorode			0.005	1 000	05/7004	477		00.7	100540	
513 > 469.0	3.661		-0.005	1.000	2567034	17.7		88.6	130543	
26 Perfluorode				1 000	107000/	1/7		07.4		
599 > 80.0			-0.007	1.000	1978986	16.7		86.4		
28 Perfluoroun			-0.007	1 000	2058941	17.2		94 O	95941	
563 > 519.0	3.986	3.993	-0.007	1.000	2038941	17.2		86.0	95941	
D 27 13C2 PFU 565 > 520.0	na 3.986	3 003	-0.007		5560277	58.3		117	313763	
D 30 13C2 PFD		3.773	-0.007		3300277	50.5		117	313703	
615 > 570.0		4.284	-0.005		5443711	61.5		123	373705	
29 Perfluorodo			-0.003		3443711	01.5		123	373703	
613 > 569.0			-0.005	1.000	1976304	18.7		93.6	84174	
31 Perfluorotrio			0.000	1.000	1770001	10.7		70.0	01171	
633 > 619.0	4.540		-0.006	1.000	1960190	18.0		89.9	91214	
D 32 13C2-PFT			0.000		.,			07.7	,	
715 > 670.0	4.782	4.781	0.001		11673386	68.5		137	557467	
33 Perfluorotet										
713 > 669.0	4.782		-0.008	1.000	3953598	20.3		101	8919	
713 > 169.0	4.772		-0.018	0.998	627394		6.30(0.00-0.00)		235099	
D 34 13C2-PFH	xDA									
815 > 770.0	5.188	5.188	0.0		6816253	62.6		125	598843	
35 Perfluorohe	xadecan	oic acid								
813 > 769.0	5.188	5.188	0.0	1.000	2243240	17.7		88.6	9843	
36 Perfluorooc	tadecan	oic acid								
913 > 869.0	5.537	5.545	-0.008	1.000	2168831	20.3		102	7760	

Report Date: 17-Sep-2016 12:06:08 Chrom Revision: 2.2 08-Sep-2016 14:45:52 TestAmerica Sacramento \ChromNA\Sacramento\ChromData\A8\20160907-34269.b\03SEP2016D_007_p1_e1.d Data File: **Injection Date:** 04-Sep-2016 13:23:00 Instrument ID: **A8** Lims ID: LCSD 320-123451/3-A Client ID: Operator ID: **A8** ALS Bottle#: 0 Worklist Smp#: 7 Injection Vol: 2.0 ul Dil. Factor: 1.0000 Method: PFC_A8_Full Limit Group: LC PFC_DOD ICAL D 213C4 PFBA 1 Perfluorobutyric acid D 413C5-PFPeA F1:m/z 217 > 172.0 F1:m/z 212.9 > 169.0 F1:m/z 267.9 > 223.0 (00001X) (00001X) (00001X) (35 (00030 ×25 -24 ≻20 18 15 10 1.3 1.9 2.2 0.9 1.2 1.8 1.9 1.6 1.5 2.1 1.3 1.6 2.2 5 Perfluorobutanesulfonic acid 5 Perfluorobutanesulfonic acid 3 Perfluoropentanoic acid F1:m/z 262.9 > 219.0 F1:m/z 298.9 > 80.0 F1:m/z 298.9 > 99.0 24-(000001X16-(0000012-X) > 8 Y (X100000) 12 1.9 2.2 1.8 2.4 1.8 2.5 1.5 2.1 2.1 2.4 1.3 1.6 1.5 7 Perfluorohexanoic acid D 6 13C2 PFHxA D 11 13C4-PFHpA F1:m/z 313 > 269.0 F1:m/z 315 > 270.0 F1:m/z 367 > 322.0 12 32 (30⁻ 00025 () () () () ©28**-**0024**-**Y (X100 ×20 ≻₁₆ 15- 10 1.8 2.1 2.4 1.9 2.5 2.8 2.1 2.4 2.7 3.0 2.7 3.0 1.6 1.8 3.3 12 Perfluoroheptanoic acid 9 Perfluorohexanesulfonic acid D 10 1802 PFHxS F1:m/z 363 > 319.0 F1:m/z 399 > 80.0 F1:m/z 403 > 84.0 12 12 (X100000) 8 (X100000) 8 635- ×25 ≻20 15 10 0 1.9 2.2 2.5 2.8 3.1 0.7 1.6 2.5 Page 55% of 657 4.3 1.9 2.2 2.5 2.8 3.1

3.7

4.0

2.9

3.2

3.4

2.9

3.2

3.5 Mir 3.8

4.1

3.1

3.5 Mii 3.8

4.1

4.4

4.7

5.0

5.3

5.6

5.9

0

4.2

4.5

4.8

5.1

10

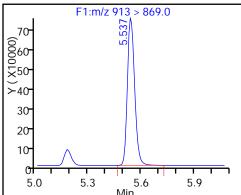
4.7

5.0

5.3

5.6

36 Perfluorooctadecanoic acid



Lab Name:	TestAmerica Sacramento	Job No.:	320-21044-1
SDG No.:			

Instrument ID: A8 Start Date: 09/03/2016 15:38

Analysis Batch Number: 125915 End Date: 09/03/2016 21:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-125915/4		09/03/2016 15:38	1	03SEP2016A_004_ p1 e1.d	Acquity 2.1 (mm)
IC 320-125915/5		09/03/2016 15:46	1	03SEP2016A 005	Acquity 2.1 (mm)
IC 320-125915/6		09/03/2016 15:53	1	p1 e1.d 03SEP2016A_006_	Acquity 2.1 (mm)
IC 320-125915/7		09/03/2016 16:01	1	p1 e1.d 03SEP2016A_007_	Acquity 2.1 (mm)
IC 320-125915/8		09/03/2016 16:08	1	p1 e1.d 03SEP2016A_008_ p1 e1.d	Acquity 2.1 (mm)
IC 320-125915/9		09/03/2016 16:16	1	03SEP2016A 009	Acquity 2.1 (mm)
IC 320-125915/10		09/03/2016 16:23	1	p1 e1.d 03SEP2016A_010_ p1 e1.d	Acquity 2.1 (mm)
ZZZZZ		09/03/2016 16:31	1	pr er.a	Acquity 2.1 (mm)
ICV 320-125915/12		09/03/2016 16:38	1	03SEP2016A_012_	Acquity 2.1 (mm)
ZZZZZ		09/03/2016 16:46	1	p1_e1.d	Acquity 2.1 (mm)
IC 320-125915/14		09/03/2016 16:53	1	03SEP2016A 014	Acquity 2.1 (mm)
				p1 e1.d	
IC 320-125915/15		09/03/2016 17:01	1	03SEP2016A_015_ p1 e1.d	Acquity 2.1 (mm)
IC 320-125915/16		09/03/2016 17:08	1	03SEP2016A_016_ p1 e1.d	Acquity 2.1 (mm)
IC 320-125915/17		09/03/2016 17:16	1	03SEP2016A_017_ pl el.d	Acquity 2.1 (mm)
IC 320-125915/18		09/03/2016 17:23	1	03SEP2016A_018_ pl el.d	Acquity 2.1 (mm)
IC 320-125915/19		09/03/2016 17:31	1	03SEP2016A_019_ p1 e1.d	Acquity 2.1 (mm)
IC 320-125915/20		09/03/2016 17:38	1	03SEP2016A_020_ p1 e1.d	Acquity 2.1 (mm)
ZZZZZ		09/03/2016 17:46	1	P1 01.0	Acquity 2.1 (mm)
ICV 320-125915/22		09/03/2016 17:53	1	03SEP2016A_022_ p1 e1.d	Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:01	1	P- v-v-	Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:08	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:16	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:23	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:31	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:38	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:46	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 18:53	1		Acquity 2.1 (mm)
CCV 320-125915/31		09/03/2016 19:01	1		Acquity 2.1 (mm)
CCV 320-125915/32		09/03/2016 19:08	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 19:16	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 19:23	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 19:31	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 19:38	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 19:46	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 19:53	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:01	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:08	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:16	10		Acquity 2.1 (mm)

Lab Name: TestAmerica Sacramento	Job No.: <u>320-21044-1</u>
SDG No.:	
Instrument ID: A8	Start Date: 09/03/2016 15:38
Analysis Batch Number: 125915	End Date: 09/03/2016 21:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/03/2016 20:23	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:31	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 20:38	1		Acquity 2.1 (mm)
CCV 320-125915/45		09/03/2016 20:46	1		Acquity 2.1 (mm)
CCV 320-125915/46		09/03/2016 20:53	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 21:01	1		Acquity 2.1 (mm)
ZZZZZ		09/03/2016 21:08	10		Acquity 2.1(mm)
ZZZZZ		09/03/2016 21:16	1		Acquity 2.1(mm)
CCV 320-125915/50		09/03/2016 21:23	1		Acquity 2.1 (mm)
CCV 320-125915/51		09/03/2016 21:31	1		Acquity 2.1(mm)

Lab Name:	TestAmerica Sacramento	Job No.: 320-21044-1
SDG No.:		
Instrumen	t ID: <u>A8</u>	Start Date: 09/04/2016 12:38

Analysis Batch Number: 126120 End Date: 09/04/2016 17:54

			ı		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/04/2016 12:38	1		Acquity 2.1 (mm)
CCV 320-126120/2		09/04/2016 12:46	1	03SEP2016D_002_ p1 e1.d	Acquity 2.1 (mm)
CCV 320-126120/3		09/04/2016 12:53	1	pr cr.u	Acquity 2.1 (mm)
ZZZZZ		09/04/2016 13:01	1		Acquity 2.1 (mm)
MB 320-123451/1-A		09/04/2016 13:08	1	03SEP2016D_005_ p1 e1.d	Acquity 2.1 (mm)
LCS 320-123451/2-A		09/04/2016 13:16	1	03SEP2016D_006_ pl e1.d	Acquity 2.1(mm)
LCSD 320-123451/3-A		09/04/2016 13:23	1	03SEP2016D_007_ p1 e1.d	Acquity 2.1(mm)
320-21044-1		09/04/2016 13:31	1	03SEP2016D_008_ p1 e1.d	Acquity 2.1(mm)
320-21044-2		09/04/2016 13:38	1	03SEP2016D 009	Acquity 2.1(mm)
320-21044-3		09/04/2016 13:46	1	p1 e1.d 03SEP2016D_010_	Acquity 2.1(mm)
320-21044-4		09/04/2016 13:54	1	p1 e1.d 03SEP2016D_011_ p1 e1.d	Acquity 2.1(mm)
320-21044-5		09/04/2016 14:01	1	03SEP2016D_012_ p1 e1.d	Acquity 2.1(mm)
320-21044-6		09/04/2016 14:08	1	03SEP2016D_013_ p1 e1.d	Acquity 2.1(mm)
320-21044-7		09/04/2016 14:16	1	03SEP2016D_014_ p1 e1.d	Acquity 2.1(mm)
ZZZZZ		09/04/2016 14:24	1	pr er.u	Acquity 2.1 (mm)
CCV 320-126120/16		09/04/2016 14:31	1	03SEP2016D_016_ p1 e1.d	Acquity 2.1 (mm)
CCV 320-126120/17		09/04/2016 14:39	1	pr cr.u	Acquity 2.1(mm)
ZZZZZ		09/04/2016 14:46	1		Acquity 2.1 (mm)
320-21044-8		09/04/2016 14:54	1	03SEP2016D_019_ p1 e1.d	Acquity 2.1(mm)
ZZZZZ		09/04/2016 15:01	1	1	Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:09	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:16	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:24	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:31	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:39	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:46	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 15:54	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:01	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:09	1		Acquity 2.1(mm)
CCV 320-126120/30		09/04/2016 16:16	1	03SEP2016D_030_ p1 e1.d	Acquity 2.1 (mm)
CCV 320-126120/31		09/04/2016 16:24	1	-	Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:31	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 16:39	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:46	1		Acquity 2.1(mm)
ZZZZZ		09/04/2016 16:54	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 17:01	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 17:09	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 17:16	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 17:24	1		Acquity 2.1 (mm)
			<u> </u>		

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1
SDG No.:	
Instrument ID: A8	Start Date: 09/04/2016 12:38
Analysis Batch Number: 126120	End Date: 09/04/2016 17:54

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION	LAB FILE ID	COLUMN ID
			FACTOR		
ZZZZZ		09/04/2016 17:31	1		Acquity 2.1 (mm)
ZZZZZ		09/04/2016 17:39	1		Acquity 2.1 (mm)
CCV 320-126120/42		09/04/2016 17:46	1		Acquity 2.1 (mm)
CCV 320-126120/43		09/04/2016 17:54	1		Acquity 2.1 (mm)

Lab	Name:	TestAmerica	Sacramento	Job No.	. :	320-21044-1
SDG	No.:					

Instrument ID: A8 Start Date: 09/19/2016 15:33

Analysis Batch Number: 128009 End Date: 09/20/2016 00:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/19/2016 15:33	1		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 15:40	1		Acquity 2.1 (mm)
IC 320-128009/4		09/19/2016 15:48	1	19SEP2016A_004_	Acquity 2.1 (mm)
IC 320-128009/5		09/19/2016 15:55	1	p1 e1.d 19SEP2016A_005_ p1 e1.d	Acquity 2.1 (mm)
IC 320-128009/6		09/19/2016 16:03	1	19SEP2016A 006	Acquity 2.1 (mm)
IC 320-128009/7		09/19/2016 16:10	1	p1 e1.d 19SEP2016A_007_ p1 e1.d	Acquity 2.1 (mm)
IC 320-128009/8		09/19/2016 16:18	1	p1 e1.d 19SEP2016A_008_	Acquity 2.1 (mm)
IC 320-128009/9		09/19/2016 16:25	1	p1 e1.d 19SEP2016A_009_	Acquity 2.1 (mm)
IC 320-128009/10		09/19/2016 16:33	1	p1 e1.d 19SEP2016A_010_ p1 e1.d	Acquity 2.1 (mm)
ZZZZZ		09/19/2016 16:40	1	-	Acquity 2.1 (mm)
ICV 320-128009/12		09/19/2016 16:48	1		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 16:55	1		Acquity 2.1 (mm)
IC 320-128009/14		09/19/2016 17:03	1	19SEP2016A_014_ p1 e1.d	Acquity 2.1 (mm)
IC 320-128009/15		09/19/2016 17:10	1	19SEP2016A_015_ p1 e1.d	Acquity 2.1 (mm)
IC 320-128009/16		09/19/2016 17:18	1	19SEP2016A 016	Acquity 2.1 (mm)
IC 320-128009/17		09/19/2016 17:25	1	p1 e1.d 19SEP2016A_017_	Acquity 2.1 (mm)
IC 320-128009/18		09/19/2016 17:33	1	p1 e1.d 19SEP2016A_018_ p1 e1.d	Acquity 2.1 (mm)
IC 320-128009/19		09/19/2016 17:40	1	p1 e1.d 19SEP2016A_019_ p1 e1.d	Acquity 2.1 (mm)
IC 320-128009/20		09/19/2016 17:48	1	19SEP2016A_020_ p1 e1.d	Acquity 2.1 (mm)
ZZZZZ		09/19/2016 17:55	1		Acquity 2.1 (mm)
ICV 320-128009/22		09/19/2016 18:03	1		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 18:10	1		Acquity 2.1 (mm)
CCV 320-128009/36		09/19/2016 19:48	1	19SEP2016B_012_ p1 e1.d	Acquity 2.1 (mm)
CCV 320-128009/37		09/19/2016 19:55	1	_	Acquity 2.1 (mm)
320-21044-3 DL		09/19/2016 20:40	2	19SEP2016B_019_ p1 e1.d	Acquity 2.1 (mm)
320-21044-4 DL		09/19/2016 20:48	5	19SEP2016B_020_ p1 e1.d	Acquity 2.1 (mm)
ZZZZZ		09/19/2016 20:55	5		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 21:03	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 21:10	5		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 21:18	5		Acquity 2.1 (mm)
CCV 320-128009/50		09/19/2016 21:33	1	19SEP2016B_026_ p1 e1.d	Acquity 2.1 (mm)
CCV 320-128009/51		09/19/2016 21:40	1	-	Acquity 2.1 (mm)
ZZZZZ		09/19/2016 21:55	5		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:03	100		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:10	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:18	100		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:25	10		Acquity 2.1 (mm)

Lab Name: TestAmerica Sacramento	Job No.: 320-21044-1
SDG No.:	
Instrument ID: A8	Start Date: 09/19/2016 15:33
Analysis Batch Number: 128009	End Date: 09/20/2016 00:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		09/19/2016 22:33	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:40	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:48	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 22:55	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:03	100		Acquity 2.1 (mm)
CCV 320-128009/64		09/19/2016 23:18	1		Acquity 2.1 (mm)
CCV 320-128009/65		09/19/2016 23:25	1		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:40	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:48	10		Acquity 2.1 (mm)
ZZZZZ		09/19/2016 23:55	10		Acquity 2.1 (mm)
CCV 320-128009/71		09/20/2016 00:10	1		Acquity 2.1 (mm)
CCV 320-128009/72		09/20/2016 00:18	1		Acquity 2.1 (mm)

Sample Name	Acquisition Date & Time
RB	9/19/2016 14:40
RB	9/19/2016 15:05
RB	9/19/2016 15:13
RB	9/19/2016 15:13
L1 b	
L2 b	9/19/2016 15:28
L3 b	9/19/2016 15:35 9/19/2016 15:43
L4 b	
L5 b	9/19/2016 15:50
	9/19/2016 15:58
L6_b	9/19/2016 16:05
L7_b	9/19/2016 16:13
CCB	9/19/2016 16:20
ICV_b	9/19/2016 16:28
RB_b	9/19/2016 16:35
L1 ADD ON	9/19/2016 16:43
L2 ADD ON	9/19/2016 16:50
L3 ADD ON	9/19/2016 16:58
L4 ADD ON	9/19/2016 17:05
L5 ADD ON	9/19/2016 17:13
L6 ADD ON	9/19/2016 17:20
L7 ADD ON	9/19/2016 17:28
ССВ	9/19/2016 17:35
ICV ADD ON	9/19/2016 17:43
RB	9/19/2016 17:50
TPFOA	9/19/2016 17:58
500-116565-A-1-A 10X	9/19/2016 18:05
500-116565-A-1-B MS 10X	9/19/2016 18:13
500-116565-A-1-C MSD 10X	9/19/2016 18:20
500-116565-A-4-A 10X	9/19/2016 18:28
500-116565-A-5-A 10X	9/19/2016 18:35
500-116565-A-6-A 100X	9/19/2016 18:43
500-116565-A-7-A 10X	9/19/2016 18:50
500-116565-A-9-A 10X	9/19/2016 18:58
500-116565-A-10-A 100X	9/19/2016 19:05
500-116565-A-13-A 10X	9/19/2016 19:13
RB	9/19/2016 19:20
CCV L4	9/19/2016 19:28
CCV L4 ADD ON	9/19/2016 19:35
RB	9/19/2016 19:43
500-116565-A-14-A 10X	9/19/2016 19:50
500-116565-A-15-A 10X	9/19/2016 19:58
500-116565-A-16-A 10X	9/19/2016 20:05
500-116566-A-3-A 10X	9/19/2016 20:13
320-21044-A-3-A 2X	9/19/2016 20:20
320-21044-A-4-A 5X	9/19/2016 20:28
320-21084-A-1-A 5X	9/19/2016 20:35

320-21084-A-6-A 5X 9/19/2016 20:50 320-21084-A-6-B MS 5X 9/19/2016 20:58 RB 9/19/2016 21:05 CCV L5 9/19/2016 21:13 CCV L5 ADD ON 9/19/2016 21:28 320-21084-A-6-C MSD 5X 9/19/2016 21:28 320-21084-A-6-C MSD 5X 9/19/2016 21:35 320-21174-A-1-A 100X 9/19/2016 21:43 320-21174-A-2-A 10X 9/19/2016 21:50 320-21174-A-3-A 10X 9/19/2016 22:05 320-21174-A-4-A 10X 9/19/2016 22:05 320-21174-A-6-A 10X 9/19/2016 22:20 320-21174-A-6-A 10X 9/19/2016 22:28 320-21190-B-1-A 10X 9/19/2016 22:28 320-21190-A-9-A 100X 9/19/2016 22:35 320-21190-A-9-A 100X 9/19/2016 22:43 RB 9/19/2016 22:50	200 24004 (2 140)	
320-21084-A-6-B MS 5X RB 9/19/2016 21:05 CCV L5 9/19/2016 21:05 CCV L5 9/19/2016 21:20 RB 9/19/2016 21:20 RB 9/19/2016 21:20 RB 9/19/2016 21:20 RB 9/19/2016 21:20 320-21084-A-6-C MSD 5X 9/19/2016 21:35 320-21174-A-1-A 100X 9/19/2016 21:35 320-21174-A-2-A 10X 9/19/2016 21:58 320-21174-A-3-A 10X 9/19/2016 22:05 320-21174-A-4-A 10X 9/19/2016 22:33 320-21174-A-5-A 10X 9/19/2016 22:20 320-21174-A-5-A 10X 9/19/2016 22:23 320-21179-B-1-A 10X 9/19/2016 22:35 320-21190-B-1-A 10X 9/19/2016 22:35 CCV L4 9/19/2016 22:35 CCV L4 9/19/2016 23:35 RB 9/19/2016 23:33 320-21174-B-1-A 10X 9/19/2016 23:32 320-21174-B-1-A 10X 9/19/2016 23:32 RB 9/19/2016 23:35 RB 9/19/2016 23:35 RB 9/19/2016 23:35 RB 9/19/2016 23:35 CCV L5 9/19/2016 0:35 CCV L5 CCV L4 9/19/2016 0:35 CCV L4 9/20/2016 0:50 RB 9/20/2016 1:33 320-21289-B-1-A 9/20/2016 1:33 320-21289-B-15-A 9/20/2016 1:51 RB 9/20/2016 1:51 RB 9/20/2016 1:51 RB 9/20/2016 2:13 RB 9/20/2016 2:13	320-21084-A-3-A 10X	9/19/2016 20:43
RB 9/19/2016 21:05 CCV L5 9/19/2016 21:13 CCV L5 ADD ON 9/19/2016 21:20 RB 9/19/2016 21:23 320-21084-A-6-C MSD 5X 9/19/2016 21:35 320-21174-A-1-A 100X 9/19/2016 21:35 320-21174-A-2-A 10X 9/19/2016 21:35 320-21174-A-3-A 10X 9/19/2016 22:05 320-21174-A-3-A 10X 9/19/2016 22:05 320-21174-A-5-A 10X 9/19/2016 22:13 320-21174-A-5-A 10X 9/19/2016 22:13 320-21174-A-5-A 10X 9/19/2016 22:23 320-21174-A-6-A 10X 9/19/2016 22:28 320-21174-A-6-A 10X 9/19/2016 22:28 320-21190-B-1-A 10X 9/19/2016 22:35 320-21190-B-1-A 10X 9/19/2016 22:35 RB 9/19/2016 22:36 CCV L4 9/19/2016 22:50 CCV L4 ADD ON 9/19/2016 23:05 RB 9/19/2016 23:05 RB 9/19/2016 23:33 320-21174-B-1-A 10X 9/19/2016 23:20 320-21174-B-1-A 10X 9/19/2016 23:20 320-21174-B-1-A 10X 9/19/2016 23:32 RB 9/19/2016 23:35 CCV L5 9/19/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:03 CCV L4 ADD ON 9/20/2016 0:03 CCV L4 P9/20/2016 0:03 CCV L5 P9/20/2016 0:03		
CCV L5		· - · · · · · · · · · · · · · · · · · ·
CCV L5 ADD ON 9/19/2016 21:20 RB 9/19/2016 21:28 320-21084-A-6-C MSD 5X 9/19/2016 21:35 320-21174-A-1-A 100X 9/19/2016 21:35 320-21174-A-2-A 10X 9/19/2016 21:58 320-21174-A-3-A 10X 9/19/2016 22:03 320-21174-A-3-A 10X 9/19/2016 22:13 320-21174-A-5-A 10X 9/19/2016 22:03 320-21174-A-5-A 10X 9/19/2016 22:03 320-21174-A-5-A 10X 9/19/2016 22:23 320-21174-A-6-A 10X 9/19/2016 22:23 320-21174-A-6-A 10X 9/19/2016 22:35 320-21190-B-1-A 10X 9/19/2016 22:35 320-21190-A-9-A 100X 9/19/2016 22:35 CCV L4 9/19/2016 22:50 CCV L4 9/19/2016 23:05 RB 9/19/2016 23:05 RB 9/19/2016 23:05 RB 9/19/2016 23:28 320-21174-B-1-A 10X 9/19/2016 23:28 320-21174-B-4-A 10X 9/19/2016 23:28 320-21190-B-9-A 10X 9/19/2016 23:35 RB 9/19/2016 23:35 CCV L5 DD ON 9/19/2016 23:35 RB 9/19/2016 23:50 CCV L4 ADD ON 9/19/2016 23:50 CCV L5 ADD ON 9/19/2016 23:50 CCV L4 ADD ON 9/19/2016 23:50 CCV L4 ADD ON 9/19/2016 23:50 CCV L4 CCV L4 9/20/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:35 CCV L4 DD ON 9/20/2016 0:30 CCV L4 DD ON 9/20/2016 0:30 CCV L4 9/20/2016 0:30 CCV L5 9/20/2016 0:30		
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320-21084-A-6-C MSD 5X 320-21174-A-1-A 100X 320-21174-A-2-A 10X 320-21174-A-2-A 10X 320-21174-A-3-A 10X 320-21174-A-3-A 10X 320-21174-A-3-A 10X 320-21174-A-3-A 10X 320-21174-A-5-A 10X 320-21174-A-5-A 10X 320-21174-A-5-A 10X 320-21174-A-6-A 10X 320-21174-A-6-A 10X 320-21174-A-6-A 10X 320-21190-B-1-A 10X 320-21190-B-1-A 10X 320-21190-B-1-A 10X 320-21190-A-9-A 100X 320-21174-B-1-A 10X 320-21170-B-9-A 10X 320-21170-B-9-A 10X 320-21170-B-9-A 10X 320-21170-B-9-A 10X 320-21190-B-9-A 10X 320-2110-B-9-A 10X 320-21280-B-1-A 9/20/2016 0:38 320-21289-B-1-A 9/20/2016 1:38 320-21289-B-1-A 9/20/2016 1:38 320-21289-B-13-A 9/20/2016 1:38 320-21289-B-13-A 9/20/2016 1:38 320-21289-B-13-A 9/20/2016 1:58 320-21289-B-13-A 9/20/2016 2:21 320-21289-B-13-A 9/20/2016 2:31 320-21289-B-13-A 9/20/2016 2:31		
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320-21190-B-1-A 10X 320-21190-A-9-A 100X RB 9/19/2016 22:58 CCV L4 9/19/2016 22:58 CCV L4 ADD ON RB 9/19/2016 23:05 RB 9/19/2016 23:13 320-21174-B-1-A 10X 9/19/2016 23:23 320-21174-B-4-A 10X 9/19/2016 23:23 320-21190-B-9-A 10X 9/19/2016 23:28 RB 9/19/2016 23:28 CCV L5 QCV L5 QCV L5 QCV L5 QCV L5 ADD ON QCV L4 QCV L5		
320-21190-A-9-A 100X RB 9/19/2016 22:50 CCV L4 9/19/2016 22:50 CCV L4 ADD ON RB 9/19/2016 23:05 RB 9/19/2016 23:05 RB 9/19/2016 23:03 320-21174-B-1-A 10X 9/19/2016 23:20 320-21174-B-4-A 10X 9/19/2016 23:28 320-21190-B-9-A 10X RB 9/19/2016 23:35 RB 9/19/2016 23:35 RB 9/19/2016 23:43 CCV L5 9/19/2016 23:50 CCV L5 ADD ON 9/19/2016 23:50 CCV L4 9/20/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:50 RB 9/20/2016 0:50 MB 320-127865/1-A LCS 320-127865/1-A LCS 320-127865/3-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:28 320-21289-B-1-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:33 320-21289-B-15-A 9/20/2016 1:55 CCV L5 9/20/2016 1:58 CCV L5 9/20/2016 1:58 CCV L5 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:01 RB 9/20/2016 2:01 RB 9/20/2016 2:01 RB 9/20/2016 2:01		- · · · · · · · · · · · · · · · · · · ·
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CCV L4 9/19/2016 22:58 CCV L4 ADD ON 9/19/2016 23:05 RB 9/19/2016 23:13 320-21174-B-1-A 10X 9/19/2016 23:28 320-21174-B-4-A 10X 9/19/2016 23:28 320-21190-B-9-A 10X 9/19/2016 23:35 RB 9/19/2016 23:35 RB 9/19/2016 23:35 CCV L5 9/19/2016 23:50 CCV L5 ADD ON 9/19/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:35 Cartridge QC LCS 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:50 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:05 320-21289-B-1-A 9/20/2016 1:20 320-21289-B-1-A 9/20/2016 1:28 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 1:51 CCV L5 9/20/2016 1:51 CCV L5 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		9/19/2016 22:43
CCV L4 ADD ON 9/19/2016 23:05 RB 9/19/2016 23:13 320-21174-B-1-A 10X 9/19/2016 23:20 320-21174-B-4-A 10X 9/19/2016 23:28 320-21190-B-9-A 10X 9/19/2016 23:35 RB 9/19/2016 23:35 RB 9/19/2016 23:50 CCV L5 ADD ON 9/19/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:28 RB 9/20/2016 0:28 RB 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:35 Cartridge QC LCS 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/3-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:20 320-21289-B-1-A 9/20/2016 1:20 320-21289-B-13-A 9/20/2016 1:33 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 1:51 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
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320-21174-B-1-A 10X 320-21174-B-4-A 10X 320-21174-B-4-A 10X 320-21190-B-9-A 10X 320-21190-B-9-A 10X 320-21190-B-9-A 10X 320-21190-B-9-A 10X 320-21190-B-9-A 10X 320-21299-B-1-A 320-21289-B-15-A 320-21289-B-15-A 320-21289-B-15-A 320-221289-B-15-A 320-221280-B-15-A 320-22180-B-15-A 320-221280-B-15-A 32		
320-21174-B-4-A 10X 9/19/2016 23:28 320-21190-B-9-A 10X 9/19/2016 23:35 RB 9/19/2016 23:43 CCV L5 9/19/2016 23:50 CCV L5 ADD ON 9/19/2016 0:05 RB 9/20/2016 0:05 RB 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:28 RB 9/20/2016 0:28 RB 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:35 Cartridge QC LCS 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/3-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:20 320-21289-B-13-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:01 RB 9/20/2016 2:01		
320-21190-B-9-A 10X RB 9/19/2016 23:43 CCV L5 9/19/2016 23:50 CCV L5 ADD ON 9/19/2016 0:23:58 RB 9/20/2016 0:05 RB 9/20/2016 0:13 CCV L4 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:43 Cartridge QC LCS MB 320-127865/1-A 9/20/2016 0:50 MB 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:20 320-21289-B-1-A 9/20/2016 1:28 320-21289-B-15-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:01 RB 9/20/2016 2:01 RB 9/20/2016 2:21		
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CCV L5 ADD ON 9/19/2016 23:58 RB 9/20/2016 0:05 RB 9/20/2016 0:20 CCV L4 9/20/2016 0:28 RB 9/20/2016 0:28 RB 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:50 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:05 LCSD 320-12789-B-1-A 9/20/2016 1:20 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:06 RB 9/20/2016 2:01		
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CCV L4 9/20/2016 0:20 CCV L4 ADD ON 9/20/2016 0:28 RB 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:13 320-21289-B-1-A 9/20/2016 1:20 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:13		
CCV L4 ADD ON 9/20/2016 0:28 RB 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:05 LCSD 320-21289-B-1-A 9/20/2016 1:20 320-21289-B-13-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
RB 9/20/2016 0:35 Cartridge QC MB 9/20/2016 0:43 Cartridge QC LCS 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 1:05 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:13 320-21289-B-1-A 9/20/2016 1:20 320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:13		
Cartridge QC MB 9/20/2016 0:43 Cartridge QC LCS 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:13 320-21289-B-1-A 9/20/2016 1:20 320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
Cartridge QC LCS 9/20/2016 0:50 MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:13 320-21289-B-1-A 9/20/2016 1:20 320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
MB 320-127865/1-A 9/20/2016 0:58 LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:13 320-21289-B-1-A 9/20/2016 1:20 320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:13		
LCS 320-127865/2-A 9/20/2016 1:05 LCSD 320-127865/3-A 9/20/2016 1:13 320-21289-B-1-A 9/20/2016 1:20 320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
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320-21289-B-1-A 9/20/2016 1:20 320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
320-21289-A-4-A 9/20/2016 1:28 320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
320-21289-B-13-A 9/20/2016 1:35 320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
320-21289-B-15-A 9/20/2016 1:43 RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
RB 9/20/2016 1:51 CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
CCV L5 9/20/2016 1:58 CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
CCV L5 ADD ON 9/20/2016 2:06 RB 9/20/2016 2:13 RB 9/20/2016 2:21		
RB 9/20/2016 2:13 RB 9/20/2016 2:21		
RB 9/20/2016 2:21		
		
CCV L4 9/20/2016 2:28	<u> </u>	
	CCV L4	9/20/2016 2:28

CCV L4 ADD ON	9/20/2016 2:36
RB	9/20/2016 2:43
MB 320-127423/1-A	9/20/2016 2:51
LCS 320-127423/2-A	9/20/2016 2:58
LCSD 320-127423/2-A	9/20/2016 3:06
320-21041-B-1-A	
	9/20/2016 3:13
320-21041-B-2-A 320-21041-B-3-A	9/20/2016 3:21
	9/20/2016 3:28
320-21041-B-4-A	9/20/2016 3:36
320-21041-B-5-A	9/20/2016 3:43
320-21041-B-6-A	9/20/2016 3:51
RB	9/20/2016 3:58
CCV L5	9/20/2016 4:06
CCV L5 ADD ON	9/20/2016 4:13
RB	9/20/2016 4:21
320-21041-B-7-A	9/20/2016 4:28
320-21041-B-8-A	9/20/2016 4:36
RB	9/20/2016 4:43
MB 320-127453/1-A	9/20/2016 4:51
LCS 320-127453/2-A	9/20/2016 4:58
LCSD 320-127453/3-A	9/20/2016 5:06
320-21103-B-1-A	9/20/2016 5:13
320-21103-B-2-A	9/20/2016 5:21
320-21103-B-3-A	9/20/2016 5:28
320-21103-B-4-A	9/20/2016 5:36
RB	9/20/2016 5:43
CCV L4	9/20/2016 5:51
CCV L4 ADD ON	9/20/2016 5:58
RB	9/20/2016 6:06
320-21103-B-5-A	9/20/2016 6:13
320-21103-B-6-A	9/20/2016 6:21
320-21103-B-7-A	9/20/2016 6:28
320-21103-B-8-A	9/20/2016 6:36
320-21103-B-9-A	9/20/2016 6:43
320-21097-B-1-A	9/20/2016 6:51
320-21097-B-2-A	9/20/2016 6:58
320-21097-B-3-A	9/20/2016 7:06
320-21097-B-4-A	9/20/2016 7:13
320-21097-B-5-A	9/20/2016 7:21
RB	9/20/2016 7:28
CCV L5	9/20/2016 7:36
CCV L5 ADD ON	9/20/2016 7:43
RB	9/20/2016 7:51
320-21097-B-6-A	9/20/2016 7:58
320-21097-B-7-A	9/20/2016 8:06
320-21097-B-8-A	9/20/2016 8:13
320-21097-B-9-A	9/20/2016 8:21
	

MB 320-127452/1-A	9/20/2016 8:28
LCS 320-127452/2-A	9/20/2016 8:36
LCSD 320-127452/3-A	9/20/2016 8:43
320-21371-B-5-A	9/20/2016 8:51
320-21371-B-7-A	9/20/2016 8:58
320-21371-B-8-A	9/20/2016 9:06
RB	9/20/2016 9:13
CCV L4	9/20/2016 9:21
CCV L4 ADD ON	9/20/2016 9:28
RB	9/20/2016 9:36

Sample Name	Acquisition Date & Time
RB	9/3/2016 14:56
RB	9/3/2016 15:03
RB_b	9/3/2016 15:11
L1_b	9/3/2016 15:18
L2_b	9/3/2016 15:26
L3_b	9/3/2016 15:33
L4_b	9/3/2016 15:41
L5_b	9/3/2016 15:48
L6_b	9/3/2016 15:56
L7_b	9/3/2016 16:03
RB_b	9/3/2016 16:11
ICV_b	9/3/2016 16:18
RB_b	9/3/2016 16:26
L1 ADD ON	9/3/2016 16:33
L2 ADD ON	9/3/2016 16:41
L3 ADD ON	9/3/2016 16:48
L4 ADD ON	9/3/2016 16:56
L5 ADD ON	9/3/2016 17:03
L6 ADD ON	9/3/2016 17:11
L7 ADD ON	9/3/2016 17:18
RB	9/3/2016 17:26
ICV ADD ON	9/3/2016 17:33
RB	9/3/2016 17:41
LCPFC2SP 00017	9/3/2016 17:48
Manifold QC (7)	9/3/2016 17:56
MB 320-125349/1-A	9/3/2016 18:03
LCS 320-125349/2-A	9/3/2016 18:11
LCSD 320-125349/3-A	9/3/2016 18:18
320-20838-B-5-A	9/3/2016 18:26
RB	9/3/2016 18:33
CCV L4	9/3/2016 18:41
CCV L4 ADD ON	9/3/2016 18:48
RB	9/3/2016 18:56
MB 320-124781/1-A	9/3/2016 19:03
LCS 320-124781/2-A	9/3/2016 19:11
320-21226-A-1-A	9/3/2016 19:18
320-21226-A-1-B MS	9/3/2016 19:26
320-21226-A-1-C MSD	9/3/2016 19:33
320-21226-A-3-A	9/3/2016 19:41
320-21226-A-4-A	9/3/2016 19:48
320-21226-A-6-A 10X	9/3/2016 19:56
320-21226-A-10-A	9/3/2016 20:03
320-21226-A-13-A	9/3/2016 20:03
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RB	9/3/2016 20:41
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RB	9/3/2016 21:26
CCV L5	9/3/2016 21:33
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lcs 320-124066/2-a	9/3/2016 22:03
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320-21174-a-4-a	9/3/2016 22:33
320-21174-a-5-a	9/3/2016 22:41
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320-21190-a-2-a	9/3/2016 23:03
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CCV L4	9/3/2016 23:18
CCV L4 ADD ON	9/3/2016 23:26
RB	9/3/2016 23:33
320-21190-a-3-a	9/3/2016 23:41
320-21190-a-4-a	9/3/2016 23:48
320-21190-a-5-a	9/3/2016 23:56
320-21190-a-6-a	9/4/2016 0:03
320-21190-a-7-a	9/4/2016 0:11
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320-21190-a-8-b ms	9/4/2016 0:26
320-21190-a-8-c msd	9/4/2016 0:33
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320-21190-a-10-a	9/4/2016 0:48
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RB	9/4/2016 1:18
320-21190-a-11-a	9/4/2016 1:26
RB	9/4/2016 1:33
mb 320-124039/1-a	9/4/2016 1:41
lcs 320-124039/2-a	9/4/2016 1:48
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320-21139-a-1-c msd	9/4/2016 2:11
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320-21139-a-5-a	9/4/2016 2:41
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CCV L4	9/4/2016 2:56
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RB	9/4/2016 3:11
RB	9/4/2016 3:18
CCV L4	9/4/2016 3:26
CCV L4 ADD ON	9/4/2016 3:33
RB	9/4/2016 3:41
mb 320-125185/1-a	9/4/2016 3:48
ics 320-125185/2-a	9/4/2016 3:56
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320-21334-a-6-a	9/4/2016 4:33
320-21334-a-7-a	9/4/2016 4:41
320-21334-a-8-a	9/4/2016 4:48
320-21334-a-11-a	9/4/2016 4:56
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320-21334-a-12-a	9/4/2016 5:33
320-21334-a-15-a	9/4/2016 5:41
320-21334-a-17-a	9/4/2016 5:48
320-21334-a-18-a	9/4/2016 5:56
320-21334-a-19-b ms	9/4/2016 6:03
320-21334-a-19-c msd	9/4/2016 6:11
320-21334-a-19-c msu	9/4/2016 6:18
320-21334-a-21-a	9/4/2016 6:26
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RB	9/4/2016 6:56
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CCV L5 ADD ON	9/4/2016 7:18
RB	9/4/2016 7:26
mb 320-124878/1-a	9/4/2016 7:33
lcs 320-124878/2-a	9/4/2016 7:41
	9/4/2016 7:48
lcsd 320-124878/3-a 320-21289-a-1-a	9/4/2016 7:56
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320-21289-a-14-a 100X	9/4/2016 8:33
320-21289-a-15-a	9/4/2016 8:41
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RB	9/4/2016 9:11
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320-21289-a-14-a 10X	9/4/2016 9:26
RB	9/4/2016 9:33
mb 320-123332/1-a	9/4/2016 9:41
lcs 320-123332/2-a	9/4/2016 9:48
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320-21092-a-2-a 100X	9/4/2016 10:11
320-21092-a-3-a 10X	9/4/2016 10:18
320-21092-a-4-a 10X	9/4/2016 10:26
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mb 320-124922/1-a	9/4/2016 11:03
lcs 320-124922/2-a	9/4/2016 11:11
lcsd 320-124922/3-a	9/4/2016 11:18
320-21252-a-12-a 100X	9/4/2016 11:26
320-21252-a-13-a 100X	9/4/2016 11:33
320-21252-a-14-a 100X	9/4/2016 11:41
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RB	9/4/2016 12:11
RB	9/4/2016 12:18
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CCV L4 ADD ON	9/4/2016 12:33
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lcs 320-123451/2-a	9/4/2016 12:56
lcsd 320-123451/3-a	9/4/2016 13:03
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320-21044-a-4-a	9/4/2016 13:34
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320-21044-a-7-a	9/4/2016 13:56
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320-21080-a-4-a	9/4/2016 15:26
320-21084-a-1-a	9/4/2016 15:34
320-21084-a-2-a	9/4/2016 15:41
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320-21084-a-3-a	9/4/2016 16:19
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320-21084-a-5-a	9/4/2016 16:34
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320-21084-a-6-c msd	9/4/2016 16:56
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320-21084-a-8-a	9/4/2016 17:11
RB	9/4/2016 17:19
CCV L5	9/4/2016 17:26
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RB	9/4/2016 17:41
RB	9/4/2016 17:49
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mb 320-124980/1-a	9/4/2016 18:19
lcs 320-124980/2-a	9/4/2016 18:26
lcsd 320-124980/3-a	9/4/2016 18:34
320-21287-a-1-a	9/4/2016 18:41
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320-21287-a-5-a	9/4/2016 19:11
320-21287-a-6-a	9/4/2016 19:19
320-21287-a-7-a	9/4/2016 19:26
RB	9/4/2016 19:34
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CCV L4	9/4/2016 20:41
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RB	9/4/2016 20:56
RB	9/4/2016 21:04
CCV L4	9/4/2016 21:11
CCV L4 ADD ON	9/4/2016 21:19
RB	9/4/2016 21:26
mb 320-124801/1-a	9/4/2016 21:34
Ics 320-124801/2-a	9/4/2016 21:41
320-21226-a-2-a	9/4/2016 21:49
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320-21226-a-7-a	
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320-21226-a-9-a	9/4/2016 22:19
320-21226-a-11-a	9/4/2016 22:26
320-21226-a-12-a	9/4/2016 22:34
320-21226-a-12-b ms	9/4/2016 22:41
RB	9/4/2016 22:49
CCV L5	9/4/2016 22:56
CCV L5 ADD ON	9/4/2016 23:04
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320-21226-a-12-c msd	9/4/2016 23:19
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320-21226-a-14-a	9/4/2016 23:34
RB	9/4/2016 23:41
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lcsd 320-124556/3-a	9/5/2016 0:34
320-21264-a-1-a	9/5/2016 0:41
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320-21264-a-3-a	9/5/2016 0:56
320-21264-a-4-a	
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320-21264-a-5-a	9/5/2016 1:11
RB	9/5/2016 1:19
CCV L5	9/5/2016 1:26
CCV L5 ADD ON	9/5/2016 1:34
RB	9/5/2016 1:41
RB	9/5/2016 1:49
CCV L4	9/5/2016 1:56

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RB	9/5/2016 2:11
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320-21265-a-3-a	9/5/2016 2:49
320-21265-a-4-a	9/5/2016 2:56
320-21265-a-5-a	9/5/2016 3:04
320-21265-a-6-a	9/5/2016 3:11
RB	9/5/2016 3:19
CCV L5	9/5/2016 3:26
CCV L5 ADD ON	9/5/2016 3:34
RB	9/5/2016 3:41
320-21265-a-7-a	9/5/2016 3:49
320-21265-a-7-b ms	9/5/2016 3:56
320-21265-a-7-c msd	9/5/2016 4:04
320-21265-a-8-a	9/5/2016 4:11
320-21265-a-9-a	9/5/2016 4:19
RB	9/5/2016 4:26
CCV L4	9/5/2016 4:34
CCV L4 ADD ON	9/5/2016 4:41
RB	9/5/2016 4:49
RB	9/5/2016 4:56
RB	9/5/2016 5:04
RB	9/5/2016 5:11
RB	9/5/2016 5:19
RB	9/5/2016 5:26
RB	9/5/2016 5:34
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RB	9/5/2016 5:56
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RB	9/5/2016 6:11
RB	9/5/2016 6:19
RB	9/5/2016 6:26
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RB	9/5/2016 6:41
RB	9/5/2016 6:49
RB	9/5/2016 6:56
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RB	9/5/2016 7:11
RB	9/5/2016 7:19
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Sample Name	Injection Date & Time
RB	9/3/2016 14:56
RB	9/3/2016 15:03
RB_b	9/3/2016 15:11
L1_b	9/3/2016 15:18
L2_b	9/3/2016 15:26
L3_b	9/3/2016 15:33
L4_b	9/3/2016 15:41
L5_b	9/3/2016 15:48
L6_b	9/3/2016 15:56
L7_b	9/3/2016 16:03
RB_b	9/3/2016 16:11
ICV_b	9/3/2016 16:18
RB_b	9/3/2016 16:26
L1 ADD ON	9/3/2016 16:33
L2 ADD ON	9/3/2016 16:41
L3 ADD ON	9/3/2016 16:48
L4 ADD ON	9/3/2016 16:56
L5 ADD ON	9/3/2016 17:03
L6 ADD ON	9/3/2016 17:11
L7 ADD ON	9/3/2016 17:18
RB	9/3/2016 17:26
ICV ADD ON	9/3/2016 17:33
RB	9/3/2016 17:41
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LCS 320-125349/2-A	9/3/2016 18:11
LCSD 320-125349/3-A	9/3/2016 18:18
320-20838-B-5-A	9/3/2016 18:26
RB	9/3/2016 18:33
CCV L4	9/3/2016 18:41
CCV L4 ADD ON	9/3/2016 18:48
RB	9/3/2016 18:56
MB 320-124781/1-A	9/3/2016 19:03
LCS 320-124781/2-A	9/3/2016 19:11
320-21226-A-1-A	9/3/2016 19:18
320-21226-A-1-B MS	9/3/2016 19:26
320-21226-A-1-C MSD	9/3/2016 19:33
320-21226-A-3-A	9/3/2016 19:41
320-21226-A-4-A	9/3/2016 19:48
320-21226-A-6-A 10X	9/3/2016 19:56
320-21226-A-10-A	9/3/2016 20:03
320-21226-A-13-A	9/3/2016 20:11
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	3/3/2010 20.20

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RB	9/3/2016 20:41
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CCV L4 ADD ON	9/3/2016 21:11
RB	9/3/2016 21:18
RB	9/3/2016 21:26
CCV L5	9/3/2016 21:33
CCV L5 ADD ON	9/3/2016 21:41
RB	9/3/2016 21:48
mb 320-124066/1-a	9/3/2016 21:56
lcs 320-124066/2-a	9/3/2016 22:03
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320-21174-a-2-a	9/3/2016 22:18
320-21174-a-3-a	9/3/2016 22:26
320-21174-a-4-a	9/3/2016 22:33
320-21174-a-5-a	9/3/2016 22:41
320-21174-a-6-a	9/3/2016 22:48
320-21190-b-1-a	9/3/2016 22:56
320-21190-a-2-a	9/3/2016 23:03
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CCV L4	9/3/2016 23:18
CCV L4 ADD ON	9/3/2016 23:26
RB	9/3/2016 23:33
320-21190-a-3-a	9/3/2016 23:41
320-21190-a-4-a	9/3/2016 23:48
320-21190-a-5-a	9/3/2016 23:56
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320-21190-a-7-a	9/4/2016 0:11
320-21190-a-8-a	9/4/2016 0:18
320-21190-a-8-b ms	9/4/2016 0:26
320-21190-a-8-c msd	9/4/2016 0:33
320-21190-a-9-a	9/4/2016 0:41
320-21190-a-10-a	9/4/2016 0:48
RB	9/4/2016 0:56
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CCV L5 ADD ON	9/4/2016 1:11
RB	9/4/2016 1:18
320-21190-a-11-a	9/4/2016 1:26
RB	9/4/2016 1:33
mb 320-124039/1-a	9/4/2016 1:41
lcs 320-124039/2-a	9/4/2016 1:48
320-21139-a-1-a	9/4/2016 1:56
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320-21139-a-1-c msd	9/4/2016 2:03
320-21139-a-2-a	9/4/2016 2:11
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320-21139-a-3-a	9/4/2016 2:26
320-21139-a-4-a	9/4/2016 2:33
320-21139-a-5-a	9/4/2016 2:41
RB	9/4/2016 2:48
CCV L4	9/4/2016 2:56
CCV L4 ADD ON	9/4/2016 3:03
RB	9/4/2016 3:11
RB	9/4/2016 3:18
CCV L4	9/4/2016 3:26
CCV L4 ADD ON	9/4/2016 3:33
RB	9/4/2016 3:41
mb 320-125185/1-a	9/4/2016 3:48
lcs 320-125185/2-a	9/4/2016 3:56
320-21334-a-1-a	9/4/2016 4:03
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320-21334-a-3-a	9/4/2016 4:18
320-21334-a-4-a	9/4/2016 4:26
320-21334-a-6-a	9/4/2016 4:33
320-21334-a-7-a	9/4/2016 4:41
320-21334-a-8-a	9/4/2016 4:48
320-21334-a-11-a	9/4/2016 4:56
RB	9/4/2016 5:03
CCV L5	9/4/2016 5:11
CCV L5 ADD ON	9/4/2016 5:18
RB	9/4/2016 5:26
320-21334-a-12-a	9/4/2016 5:33
320-21334-a-15-a	9/4/2016 5:41
320-21334-a-17-a	9/4/2016 5:48
320-21334-a-18-a	9/4/2016 5:56
320-21334-a-19-a	9/4/2016 6:03
320-21334-a-19-b ms	9/4/2016 6:11
320-21334-a-19-c msd	9/4/2016 6:18
320-21334-a-20-a	9/4/2016 6:26
320-21334-a-21-a	9/4/2016 6:33
RB	9/4/2016 6:41
CCV L4	9/4/2016 6:48
CCV L4 ADD ON	9/4/2016 6:56
RB	9/4/2016 7:03
RB	9/4/2016 7:11
CCV L5	9/4/2016 7:18
CCV L5 ADD ON	9/4/2016 7:26
RB	9/4/2016 7:33
mb 320-124878/1-a	9/4/2016 7:41
lcs 320-124878/2-a	9/4/2016 7:48
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320-21289-a-15-a	9/4/2016 8:41
RB	9/4/2016 8:48
CCV L4	9/4/2016 8:56
CCV L4 ADD ON	9/4/2016 9:03
RB	9/4/2016 9:11
320-21289-a-6-a 10X	9/4/2016 9:18
320-21289-a-14-a 10X	9/4/2016 9:26
RB	9/4/2016 9:33
mb 320-123332/1-a	9/4/2016 9:41
lcs 320-123332/2-a	9/4/2016 9:48
lcsd 320-123332/3-a	9/4/2016 9:56
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320-21092-a-2-a 100X	9/4/2016 10:11
320-21092-a-3-a 10X	9/4/2016 10:18
320-21092-a-4-a 10X	9/4/2016 10:26
RB	9/4/2016 10:33
CCV L5	9/4/2016 10:41
CCV L5 ADD ON	9/4/2016 10:48
RB	9/4/2016 10:56
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lcs 320-124922/2-a	9/4/2016 11:11
Icsd 320-124922/3-a	9/4/2016 11:18
320-21252-a-12-a 100X	9/4/2016 11:26
320-21252-a-13-a 100X	9/4/2016 11:33
320-21252-a-14-a 100X	9/4/2016 11:41
RB	9/4/2016 11:48
CCV L4	9/4/2016 11:56
CCV L4 ADD ON	9/4/2016 12:03
RB	9/4/2016 12:11
RB	9/4/2016 12:18
CCV L4	9/4/2016 12:26
CCV L4 ADD ON	9/4/2016 12:33
RB	9/4/2016 12:41
mb 320-123451/1-a	9/4/2016 12:48
lcs 320-123451/2-a	9/4/2016 12:56
lcsd 320-123451/3-a	9/4/2016 13:03
320-21044-a-1-a	9/4/2016 13:11
320-21044-a-2-a	9/4/2016 13:18
320-21044-a-3-a	9/4/2016 13:26
320-21044-a-4-a	9/4/2016 13:34
320-21044-a-5-a	9/4/2016 13:41
320-21044-a-6-a	9/4/2016 13:48
320-21044-a-7-a	9/4/2016 13:56
RB	9/4/2016 14:04

CCV L5	9/4/2016 14:11
CCV L5 ADD ON	9/4/2016 14:19
RB	9/4/2016 14:26
320-21044-a-8-a	9/4/2016 14:34
RB	9/4/2016 14:41
mb 320-123937/1-a	9/4/2016 14:49
lcs 320-123937/2-a	9/4/2016 14:56
320-21080-a-1-a	9/4/2016 15:04
320-21080-a-2-a	9/4/2016 15:11
320-21080-a-3-a	9/4/2016 15:19
320-21080-a-4-a	9/4/2016 15:26
320-21084-a-1-a	9/4/2016 15:34
320-21084-a-2-a	9/4/2016 15:41
RB	9/4/2016 15:49
CCV L4	9/4/2016 15:56
CCV L4 ADD ON	9/4/2016 16:04
RB	9/4/2016 16:11
320-21084-a-3-a	9/4/2016 16:19
320-21084-a-4-a	9/4/2016 16:26
320-21084-a-5-a	9/4/2016 16:34
320-21084-a-6-a	9/4/2016 16:41
320-21084-a-6-b ms	9/4/2016 16:49
320-21084-a-6-c msd	9/4/2016 16:56
320-21084-a-7-a	9/4/2016 17:04
320-21084-a-8-a	9/4/2016 17:11
RB	9/4/2016 17:19
CCV L5	9/4/2016 17:26
CCV L5 ADD ON	9/4/2016 17:34
RB	9/4/2016 17:41
RB	9/4/2016 17:49
CCV L4	9/4/2016 17:56
CCV L4 ADD ON	9/4/2016 18:04
RB	9/4/2016 18:11
mb 320-124980/1-a	9/4/2016 18:19
lcs 320-124980/2-a	9/4/2016 18:26
lcsd 320-124980/3-a	9/4/2016 18:34
320-21287-a-1-a	9/4/2016 18:41
320-21287-a-2-a	9/4/2016 18:49
320-21287-a-3-a	9/4/2016 18:56
320-21287-a-4-a	9/4/2016 19:04
320-21287-a-5-a	9/4/2016 19:11
320-21287-a-6-a	9/4/2016 19:19
320-21287-a-7-a	9/4/2016 19:26
RB	9/4/2016 19:34
CCV L5	9/4/2016 19:41
CCV L5 ADD ON	9/4/2016 19:49
RB	9/4/2016 19:56

320-21287-a-8-a	9/4/2016 20:04
320-21287-a-9-a	9/4/2016 20:11
320-21287-a-10-a	9/4/2016 20:19
320-21287-a-11-a	9/4/2016 20:26
RB	9/4/2016 20:34
CCV L4	9/4/2016 20:41
CCV L4 ADD ON	9/4/2016 20:49
RB	9/4/2016 20:56
RB	9/4/2016 21:04
CCV L4	9/4/2016 21:11
CCV L4 ADD ON	9/4/2016 21:19
RB	9/4/2016 21:26
mb 320-124801/1-a	9/4/2016 21:34
lcs 320-124801/2-a	9/4/2016 21:41
320-21226-a-2-a	9/4/2016 21:49
320-21226-a-5-a	9/4/2016 21:56
320-21226-a-7-a	9/4/2016 22:04
320-21226-a-8-a	9/4/2016 22:11
320-21226-a-9-a	9/4/2016 22:19
320-21226-a-11-a	9/4/2016 22:26
320-21226-a-12-a	9/4/2016 22:34
320-21226-a-12-b ms	9/4/2016 22:41
RB	9/4/2016 22:49
CCV L5	9/4/2016 22:56
CCV L5 ADD ON	9/4/2016 23:04
RB	9/4/2016 23:11
320-21226-a-12-c msd	9/4/2016 23:19
RB	9/4/2016 23:26
320-21226-a-14-a	9/4/2016 23:34
RB	9/4/2016 23:41
RB	9/4/2016 23:49
CCV L4	9/4/2016 23:56
CCV L4 ADD ON	9/5/2016 0:04
RB	9/5/2016 0:11
mb 320-124556/1-a	9/5/2016 0:19
lcs 320-124556/2-a	9/5/2016 0:26
lcsd 320-124556/3-a	9/5/2016 0:34
320-21264-a-1-a	9/5/2016 0:41
320-21264-a-2-a	9/5/2016 0:49
320-21264-a-3-a	9/5/2016 0:56
320-21264-a-4-a	9/5/2016 1:04
320-21264-a-5-a	9/5/2016 1:11
RB	9/5/2016 1:19
CCV L5	9/5/2016 1:26
CCV L5 ADD ON	9/5/2016 1:34
RB	9/5/2016 1:41
RB	9/5/2016 1:49
	5,5,2510 1.45

CCV L4	9/5/2016 1:56
CCV L4 ADD ON	9/5/2016 2:04
RB	9/5/2016 2:11
mb 320-125105/1-a	9/5/2016 2:19
lcs 320-125105/2-a	9/5/2016 2:26
320-21265-a-1-a	9/5/2016 2:34
320-21265-a-2-a	9/5/2016 2:41
320-21265-a-3-a	9/5/2016 2:49
320-21265-a-4-a	9/5/2016 2:56
320-21265-a-5-a	9/5/2016 3:04
320-21265-a-6-a	9/5/2016 3:11
RB	9/5/2016 3:19
CCV L5	9/5/2016 3:26
CCV L5 ADD ON	9/5/2016 3:34
RB	9/5/2016 3:41
320-21265-a-7-a	9/5/2016 3:49
320-21265-a-7-b ms	9/5/2016 3:56
320-21265-a-7-c msd	9/5/2016 4:04
320-21265-a-8-a	9/5/2016 4:11
320-21265-a-9-a	9/5/2016 4:19
RB	9/5/2016 4:26
CCV L4	9/5/2016 4:34
CCV L4 ADD ON	9/5/2016 4:41

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-21044-1

SDG No.:

Batch Number: 123451 Batch Start Date: 08/22/16 13:34 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 08/24/16 20:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFCSU 00043	LCPFCSP 00053
MB 320-123451/1		3535, 537 (Modified)				500.00 mL	1.00 mL	50 uL	
LCS 320-123451/2		3535, 537 (Modified)				500.00 mL	1.00 mL	50 uL	40 uL
LCSD 320-123451/3		3535, 537 (Modified)				500.00 mL	1.00 mL	50 uL	40 uL
320-21044-A-1	FB081716	3535, 537 (Modified)	Т	595.61 g	44.52 g	551.1 mL	1.00 mL	50 uL	
320-21044-A-2	EB081716	3535, 537 (Modified)	Т	581.60 g	44.75 g	536.9 mL	1.00 mL	50 uL	
320-21044-A-3	MCFSMW-3_0816	3535, 537 (Modified)	Т	578.54 g	45.12 g	533.4 mL	1.00 mL	50 uL	
320-21044-A-4	46MW05_0816	3535, 537 (Modified)	Т	569.05 g	43.45 g	525.6 mL	1.00 mL	50 uL	
320-21044-A-5	46MW03_0816	3535, 537 (Modified)	Т	571.85 g	44.39 g	527.5 mL	1.00 mL	50 uL	
320-21044-A-6	MCFSMW-14_0816	3535, 537 (Modified)	Т	575.31 g	45.06 g	530.3 mL	1.00 mL	50 uL	
320-21044-A-7	MCFSMW-4_0816	3535, 537 (Modified)	Т	572.97 g	44.83 g	528.1 mL	1.00 mL	50 uL	
320-21044-A-8	MCFSMW-5_0816	3535, 537 (Modified)	Т	579.08 g	45.28 g	533.8 mL	1.00 mL	50 uL	

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.: 320-21044-1

SDG No.:

Batch Number: 123451 Batch Start Date: 08/22/16 13:34 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 08/24/16 20:30

	Batch Notes
Balance ID	QA-070
Batch Comment	0.1N NaOH:645197
H2O ID	8/22/16
Hexane ID	0000135581
Manifold ID	3, 4
Methanol ID	691859
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	ERW
Solvent Lot #	710114
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002736075A

Basis	Basis Description
Т	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.



West Sacramento

HPLC/LCMS Data Review Checklist

Job Number(s): 21044, 21080, 21084	Work List ID(s):	34269		
Extraction Batch: 123451, 123937	Analysis Batch(es)		ł	· -
Delivery Rank 4	Due Date:	9-10-16	,	
A. Calibration/Instrument Run QC		1 st Level	2 nd Level	N/A
ICAL locked in Chrom and TALS? ICAL Batch#	125915	-	/	
2. ICAL, CCV Frequency & Criteria met.			/	
 RF_{average} criteria appropriate for the method. 		V	1	
 Linear Regression criteria appropriate if required (r ≥ 0.995).	V	1	
 Quadratic fit criteria appropriate if required (r² ≥ 0. 				1
 For Linear Regression and Quadratic fit – Does th 		rt		
1/2 the reporting limit as described in CA-Q-S-005?	,			i
All curve points show calculated concentrations.			/	$\overline{}$
Peaks correctly ID'd by data system.			1	
5. Tune check frequency & criteria met and Tune check re	eport attached		~	
B QA/QC				1 2 10
Are all QC samples properly linked in TALS?	the state of the Paris State of the state of		1	
Method blank, LCS/LCSD and MS/SD frequencies met		1	-/	
LCS/LCSD and MB data are within control limits. If not		1./	-/	+
4. Are MS/MSD recoveries and RPD within control limits?		h /	nem	+
Holding Times were met for prep and analytical.	10 00	,,	VILAM	+
IS/Surrogate recoveries meet criteria or properly noted.				
C Sample Analysis				Re-seed.
Was correct analysis performed and were project instru			4	A Altonomic Control
Was correct analysis performed and were project institute If required, are compounds within RT windows?	ctions followed?			1.
If required, are compounds within KT windows? If required, are positive hits confirmed and >40% RPD to the confirmed and second and second are compounds within KT windows?	longod?			/
	lagged r			+
4. Manual Integrations reviewed and appropriate.	aastable etetus			₩
5. All analytes correctly reported. (Primary, secondary, ac				
Correct reporting limits used. (based on client request, dilutions)	prep ractors, and	1/		1
D Documentation				1801.55
Are all non-conformances documented/attached? NCM	W. Carl 1- A			10,000
	1# See below		V	-
2. Do results make sense (e.g. dilutions, etc.)?				
Have all flags been reviewed for appropriateness? For level 2 and 4 specific have formed and devided have				-
4. For level 3 and 4 reports, have forms and raw data bee	en reviewed?			-
5. Was QC Checker run for this job?				
*Upon completion of this checklist, the reviewer must scan 1st Level (Analyst):		9 - 19 - 10 10 - 10 13 16		
2 nd Level Reviewer:	Date:	123/16		
0 Crr17, C 10 1 1; 7 100 1 " 1" "				

q:\forms\checklists\qa-570_lcms_review ns 2012-09-25.doc

QA-570 Revised NS 9/25/2012

Page: 1

TestAmerica Laboratories Worklist QC Batch Report

Worklist Name: 03SEP2016E_PFC Worklist Number: 34269
Instrument Name: A8 Chrom Method: PFC_A8_Full

Data Directory: \\ChromNA\Sacramento\ChromData\A8\20160907-34269.b

QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC DOD ICAL	LC PFC ICAL	LC PFAS ICAL
4 *	Raw Batch: 126120	Raw Batch: 126121	Raw Batch, 126122
#1 RB		#1 RB	
#2 CCV L4	# 2 CCV L4	# 2 CCV L4	# 2 CCV L4
#3 CCV L4 Add-on	#3 CCV L4 Add-on 6.2 FTS 1	#3 CCV L4 Add-on	# 3 CCV L4 Add-on
#4 RB	#4 RB	#4 RB	
# 5 MB 320-123451/1-A	# 5 MB 320-123451/1-A		
# 6 LCS 320-123451/2-A	# 6 LCS 320-123451/2-A		
# 7 LCSD 320-123451/3-A	# 7 LCSD 320-123451/3-A		
# 8 320-21044-A-1-A	# 8 320-21044-A-1-A		
# 9 320-21044-A-2-A	# 9 320-21044-A-2-A		}
#10 320-21044-A-3-A		eds 2x	
#11 320-21044-A-4-A		ed 5 5x	
	#12 320-21044-A-5-A	-	
	#13 320-21044-A-6-A		
#14 320-21044-A-7-A	#14 320-21044-A-7-A		
		#15 RB	
#16 CCV L5	#16 CCV L5		#16 CCV L5
#17 CCV L5 Add-on		#17 CCV L5 Add-on	#17 CCV L5 Add-on
#18 RB		#18 RB	1
	#19 320-21044-A-8-A		i
#20 RB		#20 RB	
#21 MB 320-123937/1-A	#21 MB 320-123937/1-A		
#22 LCS 320-123937/2-A	#22 LCS 320-123937/2-A		
#23 320-21080-A-1-A	#23 320-21080-A-1-A		i
#24 320-21080-A-2-A	#24 320-21080-A-2-A		
	#25 320-21080-A-3-A		
#26 320-21080-A-4-A	#26 320-21080-A-4-A	A EX	
#27 320-21084-A-1-A	#27 320-21084-A-1-A ~~ Ne	eas >r	
#28 320-21084-A-2-A	#28 320-21084-A-2-A		
		#29 RB	
			#30 CCV L4
			#31 CCV L4 Add-on
		#32 RB	
#33 320-21084-A-3-A	#33 320-21084-A-3-A	-needs lox	
#34 320-21084-A-4-A	#34 320-21084-A-4-A	•	
	#35 320-21084-A-5-A	need	
	#36 320-21084-A-6-A	- 5X	
#37 320-21084-A-6-B MS		- D^	
#38 320-21084-A-6-C MSD	#38 320-21084-A-6-C MSD /		
#39 320-21084-A-7-A	#39 320-21084-A-7-A		1
	#40 320-21084-A-8-A		
		#41 RB	
			#42 CCV L5
			#43 CCV L5 Add-on
#44 RB	#44 RB	#44 RB	

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM Batch End: 8-25-16 12: 35 P.m

AS 9/4/16

Solid-Phase Extraction (SPE)

nput S	Input Sample Lab ID	SDG	GrossWt	GrossWt InitAmnt		PRs			Analytical	À	Comments	
(Analytica	(Analytical Method)	(# qof)	TareWt	FinAmnt	Rcvd	Adj1	Adj2	Due Date	TAT	Rank		Output Sample Lab ID
MB~32(MB~320-123937/1 N/A	N/A		500 mL				N/A	N/A	N/A		
				1.00 mL								MIM B 326-12363771-A
1 1 1 1 1 1	LCS~320-123937/2 N/A	N/A		500 mL				N/A	N/A	A/N		
				1.00 mL								IMILCS 3 Z 6 - 1 Z 3 9 3 7 / Z - A IMI
320-2 (PFC_II	320-21080-A-1 (PFC_IDA_DOD5)	N/A (320-21080-1)	551.80 g	508.1 mL				8/26/16	20_Days	4		
			43.71 g	1.00 mL								
320-2 (PFC_II	320-21080-A-2 (PFC_IDA_DOD5)	N/A (320-21080-1)	564.96 g	520.7 mL				8/26/16	20_Days	4		
			44.28 g	1.00 mL								
320-2 (PFC_I	320-21080-A-3 (PFC, IDA_DOD5)	N/A (320-21080-1)	553.70 g	510.8 mL				8/26/16	20 Days	4		
			42.94 g	1.00 mL								
320-2 (PFC_⊪	320-21080-A-4 (PFC_IDA_DOD5)	N/A (320-21080-1)	548.57 g	505.8 mL				8/26/16	20_Days	4		
			42.81 g	1.00 mL								
320-2 (PFC_II	320-21084-A-1 (PFC_IDA_DOD5)	N/A (320-21084-1)	554.24 g	509.8 mL				8/26/16	20 Days	4		
			14.44 g	1.00 mL								
320-2 (PFC_I	320-21084-A-2 (PFC_IDA_DOD5)	N/A (320-21084-1)	559.79 g	515.5 mL				8/26/16	20_Days	4		
			44.34 g	1.00 mL						1		
320-2 (PFC_I	320-21084-A-3 (PFC_IDA_DOD5)	N/A (320-21084-1)	558.18 g	514.3 mL				8/26/16	20_Days	4		
			43.93 g	1.00 mL								
320-2 (PFC_II	320-21084-A-4 (PFC_IDA_DOD5)	N/A (320-21084-1)	557.80 g	512.3 mL				8/26/16	20_Days	4		
() /	7 Colymn		45.53 g	1.00 mL								
7 } /	-											

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM

Method Code: 320-3535_IVWT-320	5_IVWT-320				Batch End:
320-21084-A-5	ΝΑ				The state of the s

המנטו בווע.												
	4		4		4		4		4		4	
	20_Days		20_Days		20_Days		20_Days		20_Days		20_Days	
	8/26/16		8/26/16		8/26/16		8/26/16		8/26/16		8/26/16	
				<u>.</u>		Γ,		Γ.		Γ,		Ι.
	503.2 mL	1.00 mL	529.9 mL	1.00 mL	507.6 mL	1.00 mL	502 mL	1.00 mL	521.6 mL	1.00 mL	488.4 mL	1.00 mL
	548.27 g	45.05 g	574.15 g	44.29 g	552.41 g	14.84 g	546.21 g	44.24 g	564.44 g	42.88 g	532.33 g	43.91 g
	N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)	
	320-21084-A-5 (PFC_IDA_DOD5)	2 Colymns	320-21084-A-6 (PFC_IDA_DOD5)		320-21084-A-6MS (PFC_IDA_DOD5)		320-21084-A-6-MSD (PFC_IDA_DOD5)		320-21084-A-7 (PFC_IDA_DOD5)		320-21084-A-8 (PFC_IDA_DOD5)	
•			12	_	13		4		15	Pa	59 59	10 0f

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM

Batch End:

	Batch Notes
Manifold ID 1,2	1,2
Methanol ID 691859	691859
Hexane ID	Hexane ID 0000135581
Sodium Hypochlorite ID NA	NA
First Start time	ĄN
First End time NA	NA
Balance ID QA-070	QA-070
SPE Cartridge Type WAXC 500mg	WAXC 500mg
Solid Phase Extraction Disk ID 002736075A	002736075A
H2O ID 8/23/16	8/23/16
Pipette ID MDO5306	MDO5306
Solvent Name	Solvent Name 0.3% NH4OH/MeOH
Solvent Lot # 710114	710114
Analyst ID - Reagent Drop JER	JER
Analyst ID - SU Reagent Drop JER	JER
Analyst ID - SU Reagent Drop	Ern
	NA
Acid ID	NA
Reagent ID NA	NA
Reagent Lot Number NA	NA
NaCI ID NA	NA

Page 3 of 6

TestAmerica Sacramento

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM

Batch End:

SOP Number WS-LC-0025

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Comment 0.1N NaOH/H2O: 645197

Comments	Q5Rev111213_StdVarApp_30day disposal	Method Comments: Q5Rev111213_StdVarApp_30day disposal	Q5Rev111213_StdVarApp_30day disposal											
	Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:					
320-21080-A-1	320-21080-A-2	320-21080-A-3	320-21080-A-4	320-21084-A-1	320-21084-A-2	320-21084-A-3	320-21084-A-4	320-21084-A-5	320-21084-A-6	320-21084-A-6~MS	320-21084-A-6~MSD	320-21084-A-7	320-21084-A-8	

Page 4 of 6

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	Ву	Witness
MB 320-123937/1	LCMPFCSU_00044	50 uL	1.00 mL	11/2/D(M)	91/h2/8 MUS
LCS 320-123937/2	LCMPFCSU_00044	50 nl.	1.00 mL		t
LCS 320-123937/2	LCPFCSP_00049	20 nL	1.00 mL		
320-21080-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-4	LCMPFCSU_00044	20 nF	1.00 mL		
320-21084-A-5	LCMPFCSU_00044	50 nL	1.00 mL		
320-21084-A-6	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCMPFCSU_00044	20 nF	1.00 mL		
320-21084-A-6 MS	LCPFCSP_00049	20 nF	1.00 mL		
320-21084-A-6 MSD	LCMPFCSU_00044	20 nF	1.00 mL		
320-21084-A-6 MSD	LCPFCSP_00049	20 nL	1.00 mL		
320-21084-A-7	LCMPFCSU_00044	50 nL	1.00 mL	\	P

Page 594 of 657

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM

Batch End:

Lot#: SKE 24/18 Other Reagents: 1.00 mL **Amount/Units** 50 uL LCMPFCSU_00044 320-21084-A-8 Reagent

Page 595 of 657

Printed 8/24/2016



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): Test:		
Earliest Holding Time: 8/25/16		
Sample List Tab	1 st Level	
Samples identified to the correct method	Reviewer	
All necessary NCMs filed (including holding time)	1 1	V
Method/sample/login/QAS checked and correct	+NH	NA
. Worksheef Tab	1 st Level	2 nd Level
All samples properly preserved	Reviewer	1.21,01101
Weights in anticipated range and not targeted	NA	NA_
All additional test requirements performed documented and unleaded TALO		J
(e.g. mai amount, initial amount, turbidity, and Cl Check)		1
The pH is transcribed correctly in TALS	NA	10.24
All additional information transcribed into TALS is correct and raw data is attached	////	/ A
Comments are transcribed correctly in TALS	//	-
Reagents Tab All necessary reagents not expired and entered into TALS	1 st Level Reviewer	2 nd Level Reviewer
All spike amounts correct and added to necessary samples and QC	/_	-/-
The state of the s		
Batch Information Date and time accurate and entered into TALS correctly	1 st Level Reviewer	2 nd Level Reviewer
All necessary batch information, and lettered into TALS correctly	7,	V
All necessary 'batch information' complete and entered into TALS correctly		
1 st Level Reviewer.	25_1E	2

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

AS 914/16

Batch Open: 8/22/2016 1:34:40PM Batch End: 8/24//6 26:35

Solid-Phase Extraction (SPE)

Output Sample Lab ID																				
Comments																				
DIv Rank	N/A		N/A		N/A		4		4		4		4		4		4		4	
Analytical TAT	N/A		N/A		N/A		20 Days		20 Days		20_Days									
Due Date	N/A		ΝΑ		N/A		8/25/16		8/25/16		8/25/16		8/25/16		8/25/16		8/25/16		8/25/16	
Adja																				
PHs Adj1																				
t Rcvd								ı										_		·
InitAmnt FinAmnt	500.00 mL	1.00 mL	500.00 ml.	1.00 mL	500.00 mL	1.00 mL	551.1 mL	1.00 mL	536.9 mL	1.00 mL	533.4 mL	1.00 mL	525.6 mL	1.00 mL	527.5 mL	1.00 mL	530.3 mL	1.00 mL	528.1 mL	1.00 mL
GrossWt InitAmnt TareWt FinAmnt							595.61 g	44.52 g	581.60 g	44.75 g	578.54 g	45.12 g	569.05 g	13.45 g	571.85 g	44.39 g	575.31 g	45.06 g	572.97 g	44.83 g
SDG (Job#)	N/A		N/A		N/A		N/A (320-21044-1)													
Input Sample Lab ID (Analytical Method)	MB~320-123451/1 N/A		LCS-320-123451/2 N/A		LCSD-320-123451/3 N/A		320-21044-A-1 (PFC_IDA_DOD5)		320-21044-A-2 (PFC_IDA_DOD5)		320-21044-A-3 (PFC_IDA_DOD5)		320-21044-A-4 (PFC_IDA_DOD5)		320-21044-A-5 (PFC_IDA_DOD5)		320-21044-A-6 (PFC_IDA_DOD5)		320-21044-A-7 (PFC_IDA_DOD5)	
	~	'	7		ო	Pa	ag ę 59	97 (of <u>6</u> 57	7	ဖ		7		- ∞		ര		6	

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:

	13 2 6 - 2 1 6 4 4 - A - B - A		
	4		
	20_Days		
:	8/25/16		
	7		
	533.8 mL	1.00 mL	
	579.08 g	45.28 g	
	N/A (320-21044-1)		
	320-21044-A-8 (PFC_IDA_DOD5)		

Page 598 of 657

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Open: 8/22/2016 1:34:40PM

Batch End:

	Batch Notes
Manifold ID 3, 4	3, 4
Methanol ID 691859	991859
Hexane ID 0000135581	0000135581
Sodium Hypochlorite ID NA	Y.
First Start time NA	Y7
First End time NA	Y?
Balance ID (QA-070
SPE Cartridge Type WAX 500mg	VAX 500mg
Solid Phase Extraction Disk ID 002736075A	002736075A
H2O ID 8/22/16	3/22/16
Pipette ID MD05306	AD05306
Solvent Name (Solvent Name 0.3% NH4OH/MeOH
Solvent Lot # 710114	10114
Analyst ID - Reagent Drop JER	IER
Analyst ID - SU Reagent Drop JER	IER
Analyst ID - SU Reagent Drop	ELL
Acid Name NA	AA.
Acid ID NA	YP.
Reagent ID NA	YP.
Reagent Lot Number NA	YF.
NaCLID NA	Y.

TestAmerica Sacramento

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:

SOP Number WS-LC-0025

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Comment 0.1N NaOH:645197

Comments	Q5Rev111213 StdVarApp 30day disposal	OSD 20111111 C43V/24A 11.	Corevilizio_sidvarApp_soday disposal	Q5Rev111213_StdVarApp_30day disposal	Method Comments: Q5Rev111213_StdVarApp_30day disposal	Method Comments: Q5Rev111213_StdVarApp_30day disposal	Q5Rev111213_StdVarApp_30day disposal	Method Comments: Q5Rev111213_StdVarApp_30day disposal	Method Comments: Q5Rev111213_StdVarApp_30day disposal
	Method Comments:			Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:	Method Comments:
	320-21044-A-1	320-21044-A-2	320-21044-A-3	320-21044-A-4	320-21044-A-5	320-21044-A-6	320-21044-A-7	320-21044-A-8	
<u> </u>				P	age 6	600 o	f 657		

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Open: 8/22/2016 1:34:40PM Batch End:

Reagent Additions Worksheet

					1		T	7	T	T		$\overline{}$	7
Witness	5 RV 8/2/16												V
Ву	Med & hallo												•
Final Amount	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL
Amount Added	20 nF	50 uL	40 uL	50 uL	40 uL	20 nL	50 uL	20 nF	50 uL	20 nF	50 nL	50 uL	50 uL
Reagent Code	LCMPFCSU_00043	LCMPFCSU_00043	LCPFCSP_00053	LCMPFCSU_00043	LCPFCSP_00053	LCMPFCSU_00043							
Lab ID	MB 320-123451/1	LCS 320-123451/2	LCS 320-123451/2	LCSD 320-123451/3	LCSD 320-123451/3	320-21044-A-1	320-21044-A-2	320-21044-A-3	320-21044-A-4	320-21044-A-5	320-21044-A-6	320-21044-A-7	320-21044-A-8
[!					Pag	ge 60	1 of 6	 657	<u> </u>			

TestAmerica Sacramento

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Lot#:			
Other Reagents: Amount/Units			
Reagent			

Page 6 of 6



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s):320-123451 Test: PFC-L		
Earliest Holding Time: 8/24/16		
Comple Lin4 To L	1st Level	2 nd Leve
Sample List Tab Samples identified to the correct method	Reviewe	
All necessary NCMs filed (including holding time)	V	
Method/sampie/login/QAS checked and correct	1	
, g and and confect	1	
Worksheet Tab	1 st Leve! Reviewer	
All samples properly preserved	1 1	7 12 1 10 17 07
Weights in anticipated range and not targeted	NA	MA
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount to did!)	-	
	i i	
The pH is transcribed correctly in TALS	1.11	1.44
All additional information transcribed into TALS is correct and raw data is attached	MA	NA.
Comments are transcribed correctly in TALS		
THE STATE OF THE S		
Descrit m.t.	1st Level	2 nd Level
All necessary reagents not expired and entered into TALS	Reviewer	Reviewer
All spike amounts correct and added to necessary samples and QC	V	
samples and QC	V	
	1 st Level	2 nd Level
Date and time accurate and extendition	Reviewer	Reviewer
Date and time accurate and entered into TALS correctly All necessary batch information	U	TOVICA
All necessary 'batch information' complete and entered into TALS correctly	1	
	- 0	
st Level Reviewer:	and a	
Level Reviewer	-7/16	
Date: N	5~16	
omments:		



West Sacramento

HPLC/LCMS Data Review Checklist

500 - 116565; 500-116566				
Job Number(s): 21084; 21044; 21174; 21190	Work List ID(s):	34702		
126349; (26038; 124066; Extraction Batch: 127219; 123451; 123437	Analysis Batch(es):_		128010	
Delivery Rank 4; 2	Due Date: 8/25/16			1/12/
A Calibration/Instrument Run QC		1 st Level	2 nd Level	N/A
ICAL locked in Chrom and TALS? ICAL Batch#	· · · ·			
2. ICAL, CCV Frequency & Criteria met.				
RF _{average} criteria appropriate for the method.				
 Linear Regression criteria appropriate if required (r > 0.995).	/		
 Quadratic fit criteria appropriate if required (r² ≥ 0. 	990).			_/
 For Linear Regression and Quadratic fit – Does th ½ the reporting limit as described in CA-Q-S-005? 	e y-intercept support	/		
All curve points show calculated concentrations.		-7		
Peaks correctly ID'd by data system.		-		
5. Tune check frequency & criteria met and Tune check re	eport attached	Ĭ,		
B QA/QC				_
Are all QC samples properly linked in TALS?	<u> </u>			
2. Method blank, LCS/LCSD and MS/SD frequencies met		1		
3. LCS/LCSD and MB data are within control limits. If not		Ź		
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 instru	ctions followed?	V		
2. If required, are compounds within RT windows?		V		
3. If required, are positive hits confirmed and >40% RPD	flagged?			~
Manual Integrations reviewed and appropriate.		/		
All analytes correctly reported. (Primary, secondary, ac				
6. Correct reporting limits used. (based on client request, dilutions)	prep factors, and	/		
D. Documentation				
 Are all non-conformances documented/attached? NCM 	/ #			
2. Do results make sense (e.g. dilutions, etc.)?				
3. Have all flags been reviewed for appropriateness?		V		
4. For level 3 and 4 reports, have forms and raw data bee	en reviewed?			
5. Was QC Checker run for this job?				
*Upon completion of this checklist, the reviewer must scan 1st Level (Analyst):	Date:		•	6
2 nd Level Reviewer:	Date:	1/25/14	,	
128009: 64476; 64584; 64586; 64588;	6459 64590			

q:\forms\checklists\qa-570_lcms_review ns 2012-09-25.doc

128010:64279;64598;64599;645600

QA-570 Revised NS 9/25/2012

Page: 1

TestAmerica Laboratories Worklist QC Batch Report

Worklist Name: 19SEP2016A_PFC

Worklist Number: 34702 Chrom Method: PFC A

34702 PFC_A8_Full

Instrument Name: A8

\\ChromNA\Sacramento\ChromData\A8\20160920-34702.b

Data Directory: QC Batching:

Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL	LC PFC ICAL	LC PFAS ICAL
GO Batch i	Raw Batch: 128009	Raw Batch: 128010	Raw Batch: 128011
#1 RB	# 1 RB	A A	TOW DUTCH 120011
#2 RB	#2 RB Inco Wint for p	1,4,9 TOR high #4 ICL1 #5 ICL2 #6 ICL3 #7 ICL4 #8 ICL5 #9 ICL6 #10 ICL7	
#3 RB	#2 RB [DA Wigh for B- #3 RB (CL1 6.2 FTS	1,4,7 NIM 64600	
#4 IC L1	#4 ICL1 6:2FT5	#4 1011	#4 ICL1
#5 IC L2	#5 IC12	#5 IC12	# 5 IC L2
#6 IC L3	#6 1013 21174-1,4,6,9	#6 IC 13	# 6 IC L3
#7 IC L4	#5 IC L2 #6 IC L3 21174-1,4,6,9 #7 IC L4 NCM64588	#7 ICIA HCM MS/MSD	# 7 IC L4
#8 IC L5	#8 IC L5	# 8 ICIS Waktamets	# 8 IC L5
#9 IC L6	#9 IC L6	#9 IC I6 (USAG	# 9 IC L6
#10 IC L7	#10 IC L7	#10 IC L7	#10 IC L7
#11 RB	#11 RB	#11 RB (CV out for	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
#12 ICV			
#13 RB	l e	#12 ICV 6:2 Ncm 6459° #13 RB	ļi [
#14 IC L1 Add-on			#14 IC L1 Add-on
#15 IC L2 Add-on			#15 IC L2 Add-on
#16 IC L3 Add-on	#16 IC L3 Add-on	#16 IC L3 Add-on	#16 IC L3 Add-on
#17 IC L4 Add-on	#17 IC L4 Add-on		#17 IC L4 Add-on
#18 IC L5 Add-on	#18 IC L5 Add-on	#18 IC L5 Add-on	#18 IC L5 Add-on
#19 IC L6 Add-on	#19 IC L6 Add-on NIAM		#19 IC L6 Add-on
#20 IC L7 Add-on			#20 IC L7 Add-on
#21 RB	#21 RB		
#22 ICV	#22 ICV - out for 6:2	#22 ICV P for	analytes
#23 RB	#23 RB FTS	WOO DD	
#24 TPFOA	#21 RB #22 ICV - out for 6:2 #23 RB #24 TPFOA	map batch 126349/1260 38	l l
#25 500-116565-A-1-A	lass hast	#25 500-116565-A-1-A	#25 500-116565-A-1-A
#26 500-116565-A-1-B MS	MS/MS1 /8:2		#26 500-116565-A-1-B MS
#27 500-116565-A-1-C MSD	I I I I I I I I I I	#27_500-116565-A-1-C MSD	#27 500-116565-A-1-C MSD
#28 500-116565-A-4-A	NCM 16:2, 8:2, PFOA		#28 500-116565-A-4-A
#29 500-116565-A-5-A	190	#29 500-116565-A-5-A	#29 500-116565-A-5-A
#30 500-116565-A-6-A	DO DO DO	#30 500-116565-A-6-A	#30 500-116565-A-6-A
#31 500-116565-A-7-A	1/17 42	#31 500_116565_A_7_A	#31 500-116565-A-7-A
#32 500-116565-A-9-A	POSA 412 92	#32 500-116565-A-9-A #33 500-116565-A-10-A #34 500-116565-A-13-A	#32 500-116565-A-9-A
#33 500-116565-A-10-A	PROPERTY A:2	#33 500-116565-A-10-A	#33 500-116565-A-10-A
#34 500-116565-A-13-A	JEOSA DECK and his	#34 500-116565-A-13-A	#34 500-116565-A-13-A
#35 RB	#35 RB		
#36 CCV L4		#36 CCV L4	
#37 CCV L4 Add-on		#37 CCV L4 Add-on	
#38 RB		#38 RB	#38 RB
#39 500-116565-A-14-A	√3:2		#39 500-116565-A-14-A
#40 500-116565-A-15-A	V6:2	#40 500-116565-A-15-A	#40 500-116565-A-15-A
#41 500-116565-A-16-A	√8:2		#41 500-116565-A-16-A
#42 500-116565-A-3-A			#42 500-116565-A-3-A
#43 320-21044-A-3-A	#43 320-21044-A-3-A PFHESV		-
#44 320-21044-A-4-A	#44 320-21044-A-4-A PFOS V		
#45 320-21084-A-1-A	#45 320-21084-A-1-A PFOS	Time stamp 64	179
#46 320-21084-A-3-A	#46 320-21084-A-3-A PFOS /		
#47 320-21084-A-6-A	#47 320-21084-A-6-A	s/-> 1.R high, LCS goo	[_t
#48 320-21084-A-6-B MS	#48 320-21084-A-6-B MS) PFO	sy -> 1.R high, LCS 900	1
#49 RB			#49 RB
#50 CCV L5			#50 CCV L5
#51 CCV L5 Add-on			#51 CCV L5 Add-on
#52 RB	#52 RB	_	
#53 320-21084-A-6-C MSD		X.R high for PFNA	l
#54 320-21174-A-1-A	#54 320-21174-A-1-A		l
#55 320-21174-A-2-A	#55 320-21174-A-2-A		
7.00 020 Z117-77-2-71	prod ozo z i i i marka		

QC Batch, 1	LC PFC_DOD ICAL	LC PFC ICAL	LC PFAS ICAL
	Raw Batch 128009	Raw Batch 128010	Raw Batch 128011
#56 320-21174-A-2-A	#56 320-21174-A-2-A - UNEC	SEAN DO - Plonzy	1
#57 320-21174-A-3-A	#57 320-21174-A-3-A	75500 7 000	P)
#58 320-21174-A-4-A	#58 320-21174-A-4-A	ladd "prom" calling &	-R-
#59 320-21174-A-5-A	#59 320-21174-A-5-A	Add "REDL" suffix for	{' - •
#60 320-21174-A-6-A	#60 320-21174-A-6-A	•	
#61 320-21190-B-1-A	#61 320-21190-B-1-A		
#62 320-21190-A-9-A	#62 320-21190-A-9-A		
#63 RB	#63 RB		
#64 CCV L4	#64 CCV L4	#64 CCV L4	
#65 CCV L4 Add-on	#65 CCV L4 Add-on	#65 CCV L4 Add-on	
#66 RB	#66 RB		
#67 320-21174-B-1-A	#67 320-21174-B-1-A		
#68 320-21174-B-4-A	#68 320-21174-B-4-A		
#69 320-21190-B-9-A	#69 320-21190-B-9-A		į
#70 RB	#70 RB		
#71 CCV L5	#71 CCV L5	#71 CCV L5	#71 CCV L5
#72 CCV L5 Add-on	#72 CCV L5 Add-on	#72 CCV L5 Add-on	#72 CCV L5 Add-on
#73 RB	#73 RB		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-Shake_Bath_14D-320

Batch Number: 320-126349

RR RS 9/19/16

Batch Open: 9/8/2016 4:26:38PM

Batch End: 1/12/16 21:00 #\$ 9/16/16

Shake Extraction with Ultrasonic Bath Extraction

	Output Sample Lab ID		V - V - 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0	1 0 2 3 4 9 7 2 9 4 9 7 2 9 4 9 9 7 2 9 9 4 9 9 7 2 9 9 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	4 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7						V	2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				
	Comments		3	iox 6:2 Fit roll of e		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			(0× 6.2, 8.2, PROR	(0x 8:2	100× Prox	10× 6:2,8:2 (RI Por		10x 6:2.8:2 (0)	100x Post, Pros, 9:2		
	Div	₹ Z	N/A	2	2	2	2	2	2	2	2	2	2	2	2	2	
	Analytical TAT	N/A	N/A	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	12_Days	
	Due Date	Α'N	ΚN	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	9/12/16	
	Final Amount	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	_
	Initial Amount	5.00 g	5.00 g	5.00 g	5.04 g	5.05 g	5.02 g	4.99 g	5.06 g	5.01 g	5.06 g	5.07 g	5.04 g	5.01 g	5.01 g	5.07 9	
	SDG (Job#)	N/A	N/A	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	N/A (500-116565-1)	
	Input Sample Lab ID (Analytical Method)	MB-320-126349/1 N/A	LCS~320-126349/2 N/A	500-116565-A-1 (PFC_IDA)	500-116565-A-1~MS (PFC_IDA)	500-116565-A-1~MSD (PFC_IDA)	500-116565-A-2 (PFC_IDA)	500-116565-A-3 (PFC_IDA)	eve-118585-A-4 (PFC_IDA)	500-116565-A-5 (PFC_IDA)	Sud-116565-A-6 (PFC_IDA)	500-116565-A-7 (PFC_IDA)	500-116565-A-8 (PFC_IDA)	500-116565-A-9 (PFC_IDA)	500-116565-A-10 (PFC_IDA)	500-116565-A-11 (PFC_IDA)	_
_		-	7	n	4	Page	607 c	ofr€57	- σο	o	₽ -	Έ	5	<u>€</u>	<u>4</u>	- 5	_

Printed: 9/8/2016

TestAmerica Sacramento

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

1eth	Method Code: 320-Shake Bath 14D-320	e Bath 14D-320							MILOSON'S STATE ASSOCIATION AS
500 4	SOO 116565 A 12	21, -1, -1						Batch End:	
(F)	(PFC_IDA)	(500-116565-1)	5.03 g	1.00 mL	9/12/16	12_Days	2		
900-1- (PI	500-116565-A-13 (PFC_IDA)	N/A (500-116565-1)	5.00 g	1.00 mL	9/12/16	12_Days	2	10×62282 1000	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
1-00c (Pi	500-116565-A-14 (PFC_IDA)	N/A (500-116565-1)	5.03 g	1.00 mL	9/12/16	12_Days	2	10×8:2	<
1-00c (P)	500-116565-A-15 (PFC_IDA)	N/A (500-116565-1)	5.02 g	1.00 mL	9/12/16	12_Days	2	10x 6:2 Rt Pr6:2) 11 11 11 11 11 11 11 11 11 11 11 11 11	V - V - V - V - V - V - V - V - V - V -
I-00e	50U-116565-A-16 (PFC_IDA)	N/A (500-116565-1)	5.03 g	1.00 mL	9/12/16	12_Days	2	10× 6,2	
							•		1811V . D V . D. D

Page 2 of 7

TestAmerica Sacramento

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349 Method Code: 320-Shake_Bath_14D-320

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

Batch Notes	Balance ID QA-070	Blank Sand Lot # 156690	Filter ID NA	Millipore Water Dispense Date 9/06/16	Analyst ID - Reagent Drop Witness $\in \mathcal{A} \mathcal{V}$	SPE Cartridge ID 016236116A	SPE Cartridge Type WAX 150mg	Hexane ID 0000135581	Methanol ID 691859	Ammonium Hydroxide/MeOH ID 720542	Sodium Hydroxide ID 722525	Methanolic Potassium Hydroxide ID: 681019	Manifold ID 5, 6	Interference check solution ID NA	Acetic Acid ID 429065	Batch Comment PIPETTE: MDO5306	
		Blank		Millipore Water Disp	Analyst ID - Reagent Dr	SPEC				Ammonium Hydroxid		Methanolic Potassium Hy		Interference check	Ace	Batch	

Page 3 of 7

TestAmerica Sacramento

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Method Code: 320-Shake_Bath_14D-320

Batch Number: 320-126349

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM Batch End:

Comments

Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly	Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly
500-116565-A-1 500-116565-A-1~MS	500-116565-A-1~MSD	500-116565-A-2	500-116565-A-3	500-116565-A-4	500-116565-A-5	500-116565-A-6	500-116565-A-7	500-116565-A-8	500-116565-A-9	500-116565-A-10	500-116565-A-11	500-116565-A-12	500-116565-A-13	500-116565-A-14	500-116565-A-15	500-116565-A-16	

Page 4 of 7

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Method Code: 320-Shake_Bath_14D-320

Batch Number: 320-126349

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-126349/1	LCMPFC2SU_00008	50 uL	1.00 mL	Willes of other	Cnv c/6/11
MB 320-126349/1	LCMPFCSU_00045	50 uL	1.00 mL	2110	ı
LCS 320-126349/2	LCMPFC2SU_00008	50 uL	1.00 mL		
LCS 320-126349/2	LCMPFCSU_00045	50 uL	1.00 mL		
LCS 320-126349/2	LCPFC2SP_00016	40 uL	1.00 mL		
LCS 320-126349/2	LCPFCSP_00053	40 uf.	1.00 mL		
500-116565-A-1	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-1	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-1 MS	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-1 MS	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-1 MS	LCPFC2SP_00016	40 uL	1.00 mL		
500-116565-A-1 MS	LCPFCSP_00053	40 uL	1.00 mL		
500-116565-A-1 MSD	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-1 MSD	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-1 MSD	LCPFC2SP_00016	40 nL	1.00 mL		
500-116565-A-1 MSD	LCPFCSP_00053	40 nL	1.00 mL		
500-116565-A-2	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-2	LCMPFCSU_00045	50 uL	1.00 mL		1
				1	0

Page 611 of 657

TestAmerica Sacramento

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Analyst: Reed, Jonathan E

Batch Open: 9/8/2016 4:26:38PM

Method Code: 320-Shake_Bath_14D-320	D-320		<u>.</u>	Batch End:	Batch End:
500-116565-A-3	LCMPFC2SU_00008	50 uL	1.00 mL	11.0 91.1.	11/3/20195
500-116565-A-3	LCMPFCSU_00045	50 uL	1.00 mL	110011	7,707, 27,7
500-116565-A-4	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-4	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-5	LCMPFC2SU_00008	50 ut.	1.00 mL		
500-116565-A-5	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-6	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-6	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-7	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-7	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-8	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-8	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-9	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-9	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-10	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-10	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-11	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-11	LCMPFCSU_00045	50 uL	1.00 mL		
500-116565-A-12	LCMPFC2SU_00008	50 uL	1.00 mL		
500-116565-A-12	LCMPFCSU_00045	50 uL.	1.00 mL		
500-116565-A-13	LCMPFC2SU_00008	50 uL	1.00 mL	7	<i>D</i>

Page 6 of 7

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-126349

Analyst: Reed. Jonathan F

hake_Bath_14D-320 5-A-13	Caron (1991) 020-120343	Analys	Analyst: Keed, Jonathan E		Batch	Batch Open: 9/8/2016 4:26:38PM	4.26.38PM
13 LCMPFCSU_00045 50 uL 1.00 mL // / /	Method Code: 320-Shake_Bath_14	ID-320			200	. .	
5-A-13					מפוני		
	500-116565-A-13	LCMPFCSU_00045	50 uL	1.00 mL	11.00	SRU	9/6/11

	\neg		_	_			_
5RU 9/6/11	4, 101,					\	-
14.0 01.16.	1080 108110	-				2	>
1.00 mL							
50 uL							
LCMPFCSU_00045	LCMPFC2SU_00008	LCMPFCSU_00045	LCMPFC2SU_00008	LCMPFCSU_00045	LCMPFC2SU_00008	LCMPFCSU_00045	
500-116565-A-13	500-116565-A-14	500-116565-A-14	500-116565-A-15	500-116565-A-15	500-116565-A-16	500-116565-A-16	

· r				 	
		Lot#:			
	Other Reagents:	Amount/Units			
Pa	ge (Reagent	 7		



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): /26349 Test: PFC-S	-	
Earliest Holding Time: 2/04/06		
	481	- ad
Sample List Tab	1* Level Reviewer	
Samples identified to the correct method	IVEALENE	Reviewe
All necessary NCMs filed (including holding time)	+ + + + + + + + + + + + + + + + + + + +	+->-
Method/sample/login/QAS checked and correct		+
. Worksheet Tab	1 st Level	2 nd Level
All samples properly preserved	Reviewer	
Weights in anticipated range and not targeted	MA	NA
All additional test requirements performed documents	V	
Land anoung initial amount, turbidity and Ci Checki	1	
The pH is transcribed correctly in TALS	1111	1110
All additional information transcribed into TALS is correct and raw data is attached	NA	NA
Comments are transcribed correctly in TALS	•	
The solution of the solution o	/	
Decreed T /	1st Level	2 nd Level
All necessary reagents not expired and entered into TALS	Reviewer	Reviewer
All spike amounts correct and added to necessary samples and QC	V	
contest and added to necessary samples and QC	V	
Potob Into	1 st Level	2 nd Level
Date and time accurate and entered into TALS correctly		Reviewer
All necessary 'batch information' complete and entered into TALS correctly		
complete and entered into TALS correctly		
	1748	
Level Reviewer. Date: 9/12	100	
Level Reviewer. H3A	2-11	
omments:	376	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-126038

RR AS 9/19/16 5 T Batch Open: 9/7/2016 11:17:08AM Batch End: 9-8-16 15:05 X8 9//6/16

Solid-Phase Extraction (SPE)

	1		1		Ī		1		I		Į	
Output Sample Lab ID				WII. C. I. V. D.								
Comments											PFNA	101 MAY 62
Div	Α/N		N/A		N/A		7		2		2	
Analytical TAT	V/N		N/A		N/A		12_Days		12_Days		12_Days	
Due Date	N/A		N/A		N/A		9/12/16		9/12/16		9/12/16	
PHs Adj1 Adj2												
PHs Adj1												
Rcvd												
GrossWt InitAmnt TareWt FinAmnt Rcvd	250 mL	0.5 mL	250 mL	0.5 mL	250 mL	0.5 mL	291.6 mL	0.5 mL	250.9 mL	0.5 mL	250.9 mL	0.5 mL
GrossWt TareWt							319.86 g	28.26 g	294.45 g	43.60 g	294.18 g	13.25 g
SDG (Job#)	N/A		N/A		NA		N/A (500-116566-1)		N/A (500-116566-1)		N/A (500-116566-1)	
Input Sample Lab ID (Analytical Method)	MB~320-126038/1 N/A		LCS~320-126038/2 N/A		LCSD~320-126038/3 N/A		500-116566-A-1 (PFC_IDA)		500-116566-A-2 (PFC_IDA)		500-116566-A-3 (PFC_IDA)	
	-		7		က	Pa	agę 6′	15 (of 657	,	ဖ	

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-126038

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Batch Notes	Manifold ID 6	Methanol ID 713786	Hexane ID 0000135581	Sodium Hypochlorite ID NA	First Start time NA	First End time NA	Balance ID QA-070	SPE Cartridge Type WAX 500mg	Solid Phase Extraction Disk ID 002736075A	H2O ID 9-06-16	Pipette ID MD05306, MG05455	Solvent Name 0.3% NH4OH/MeOH	Solvent Lot # 720542	Analyst ID - Reagent Drop HJA	Analyst ID - SU Reagent Drop HJA) - SU Reagent Drop ERW	Acid Name NA	Acid ID NA	Reagent ID NA	Reagent Lot Number NA	NaCI ID NA	
	Manife	Methar	Неха	Sodium Hypochlor	First Start	First End	Balan	SPE Cartridge	Solid Phase Extraction Di	H2	Pipel	Solvent N	Solvent	Analyst ID - Reagent	Analyst ID - SU Reagent	Analyst ID - SU Reagent Drop	Acid N	Ac	Reage	Reagent Lot Nu	Na	

Printed: 9/7/2016

Page 2 of 5

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Batch Comment 0.1% NaOH/H2O: 722528 SOP Number WS-LC-0025

Method Code: 320-3535_IVWT-320

Batch Number: 320-126038

Comments

Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly 500-116566-A-2 500-116566-A-1

Method Comments: 6:2 FtS and 8:2 FtS included - spike accordingly

6:2 FtS and 8:2 FtS included - spike accordingly Method Comments:

500-116566-A-3

Page 617 of 657

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-126038

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Reagent Additions Worksheet

Witness	5/KU 9/7/11															
Ву	HSA 9-7-16				7											9
Final Amount	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL
Amount Added	25 uL	25 uf.	25 uL	25 uL	20 uL	20 uL	25 uL	25 uL	20 uL	20 nL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL
Reagent Code	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044	LCPFC2SP_00016	CPFCSP_00053	LCMPFC2SU_00007	LCMPFCSU_00044	LCPFC2SP_00016	CPFCSP_00053	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044
Lab ID	MB 320-126038/1	MB 320-126038/1	LCS 320-126038/2	LCS 320-126038/2	LCS 320-126038/2	LCS 320-126038/2	LCSD 320-126038/3	LCSD 320-126038/3	LCSD 320-126038/3	LCSD 320-126038/3	500-116566-A-1	500-116566-A-1	500-116566-A-2	500-116566-A-2	500-116566-A-3	500-116566-A-3

Page 618 of 657

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-126038

Batch Open: 9/7/2016 11:17:08AM

Batch End:

Lot#:			
Other Reagents: Amount/Units			
Reagent			



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): 320-126038 Test: PF(-L		
Earliest Holding Time: 9-8-16		
	1 st Level	2 nd Leve
Sample List Tab	Reviewe	
Samples identified to the correct method	1.10 (7) (2.17 (2.1	1/c lewe
All necessary NCMs filed (including holding time)		-
Method/sample/login/QAS checked and correct	+-/-	+
		-
Worksheet Tab	1 st Level	
All samples properly preserved	Reviewer	10 17 17 10
Weights in anticipated range and not targeted	NA	NA
All additional test requirements performed documented and in lead to the		
correctly (e.g. final amount, initial amount, turbidity, and Cl Check)		
The pH is transcribed correctly in TALS	7/10	- A
All additional information transcribed into TALS is correct and raw data is	M	INH
attached		
Comments are transcribed correctly in TALS	 	
	 	
Reagents Tab	1 st Level	2 nd Level
All necessary reagents not expired and entered into TALS	Reviewer	Reviewer
All spike amounts correct and added to necessary samples and QC		
2 2 2 2 2 10 Ticcessary samples and QC		
*	1 st Level	2 nd Level
Batch Information	Reviewer	Reviewer
Date and time accurate and entered into TALS correctly		1.07.0.10
All necessary 'batch information' complete and entered into TALS correctly		
Level Reviewer: H5A	·	
	5-16	
nd Level Reviewer. VPM Date: 9	-08-10	
omments:		

410

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

7/3/16

AB 9/12/16

Batch Open: 8/25/2016 9:13:11AM

Batch End: 8-3 (p-10 | (0:25)

RP 9/19/16

Solid-Phase Extraction (SPE)

	Output Sample Lab ID														3 2 6 - 2 1 1 7 4 - A - 5 - A				
Comments				RI		91/11/10/10	001	AA/TX	XX / 602	, 2,	(<u>{</u>	I PETER	1	100	<u> </u>	(Š	7	š
À	Rank	Υ/N	<u>.</u>	ĕ.		4		4		4		4		4		4		4	
Analytical	TAT	A/N		N/A		12_Days		12_Days		12 Days		12_Days		12_Days		12_Days		12 Days	
Due Date		N/A	_	N/A		8/29/16		8/29/16		8/29/16	,	8/29/16		8/29/16		8/29/16		8/30/16	
	Adj2								_										
	Adji									-		<u> </u>							
	t Rcvd		1		_		т-		_		I						_		_
InitAmn	FinAmnt	250 mL	0.5 mL	250 mL	0.5 mL	267.3 mL	0.5 mL	253.1 mL	0.5 mL	266.6 mL	0.5 mL	256.7 mL	0.5 mL	250 mL	0.5 mL	263 mL	0.5 mL	287.8 mL	1110
GrossWt InitAmnt	larewt					295.65 g	28.35 g	280.64 g	27.50 g	294.17 g	27.53 g	283.88 g	27.17 g	277.43 g	27.48 g	290.42 g	27.41 g	815.62 g	57 83 c
SDG	(# goc)	V.		N/A		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21190-1)	
Input Sample Lab ID	MR~320-124066/4	N/A	6,000,000	LC3~320-124066/2 N/A		320-21174-A-1 (PFC_IDA_DOD5)		320-21174-A-2 (PFC_IDA_DOD5)		320-21174-A-3 (PFC_IDA_DOD5)		320-21174-A-4 (PFC_IDA_DOD5)		320-21174-A-5 (PFC_IDA_DOD5)		320-211/4-A-6 (PFC_IDA_DOD5)		320-21190-B-1 (PFC_IDA_DOD5)	
.		-		7		က	Pa	ige 62	21-	of 657 ທ		ω	_1	^		- ω	1	6	

Printed: 8/25/2016

12_Days

8/30/16

284.3 mL 0.5 mL

\$12.31 g 7.98 g

(320-21190-1)

(PFC_IDA_DOD5) 320-21190-A-2

9

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Batch Number: 320-124066

Batch Open: 8/25/2016 9:13:11AM

Batch End:		3 2 8 - 2 1 1 9 8 - A 3 - A							Rt.					A A B B B B B B B B B B B B B B B B B B		S C C C C C C C C C C C C C C C C C C C				18.3.2.8.1.2.1.4.9.8.1.4.4.1.4.1.4.1.4.1.4.1.4.1.4.1.4.1.4		
	4		4		4		4		4		4	•	4		4		4		4		4	
	12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days	
	8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16	
								_														
	293.6 mL	0.5 mL	294.9 mL	0.5 mL	280.2 mL	0.5 mL	281,4 mL	0.5 mL	278.2 mL	0.5 mL	277.7 mL	0.5 mL	274.8 mL	0.5 mL	276.4 mL	0.5 mL	275.1 mL	0.5 mL	276.9 mL	0.5 mL	232.1 mL	0.5 mL
	321.78 g	28.22 g	322.63 g	27.69 g	307.88 g	27.73 g	309.01 g	27.59 g	307.12 g	28.97 g	305.72 g	28.04 g	302.95 g	28.15 g	304.44 g	28.01 g	302.73 g	27.68 g	304.55 g	27.68 g	259.70 g	27.61 g
5_IVWT-320	N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)	
Method Code: 320-3535_IVWT-320	320-21190-A-3 (PFC_IDA_DODS)		320-21190-A-4 (PFC_IDA_DOD5)		320-21190-A-5 (PFC_IDA_DOD5)	220 24400 4	(PFC_IDA_DODS)	200 04400	(PFC_IDA_DOD5)	30770	(PFC_IDA_DOD5)	000 04700 4.00	(PFC_IDA_DODS)		320-21190-A-8-MSD (PFC_IDA_DOD5)		320-21190-A-9 (PFC_IDA_DOD5)	60,140	(PFC_IDA_DOD5)	200 04400	(PFC_IDA_DOD5)	
≥	Ξ		12	1	<u>£</u>		4		15	Pa	ge 62	22 0	of 657 -	[18		61		8		7	

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Batch Notes		691859	0000135581	NA	NA	NA	QA-070	WAXC 500mg		UUZ/36U/5A	8/24/16	MDO5306, M605455	0.3% NH4OH/MeOH	710111	10114	HJA	НЈА	VPM	NA	NA	NA	NA	NA	
	Manifold ID 1	Methanol ID 691859	Hexane ID 0	Sodium Hypochlorite ID NA	First Start time NA	First End time NA	Balance ID QA-070	SPE Cartridoe Type WAXC 500mg	off: Spring Could bild	Solid Fliase Extraction Disk ID 002/360/5A	H2O ID 8	Pipette ID N	Solvent Name 0	C # to travior	Suveril Lot # 710114	Analyst ID - Reagent Drop HJA	Analyst ID - SU Reagent Drop HJA		witness —— Acid Name NA	Acid ID NA	Reagent ID N	Reagent Lot Number NA	NaCI ID NA	

Page 623 of 657

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-124066

Analyst: Arauz, Horacio J

Batch Open: 8/25/2016 9:13:11AM

Batch End:

SOP Number WS-LC-0025 Method Code: 320-3535_IVWT-320

Batch Comment 0.1N NaOH/H2O: 690327

Page 4 of 9

Printed 8/25/2016

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments) Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Comments

Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes	Samples from AFB - use caution, screen sample, include extra spikes
Method Comments:																	
320-21174-A-1 320-21174-A-2	320-21174-A-3	320-21174-A-4	320-21174-A-5	320-21174-A-6		ಕ್ಷಿ ೧ 320-21190-A-2			320-21190-A-5	320-21190-A-6	320-21190-A-7	320-21190-A-8	320-21190-A-8~MS	320-21190-A-8~MSD	320-21190-A-9	320-21190-A-10	320-21190-A-11

Page 625 of 657

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Samples from AFB - use caution, screen sample, include extra spikes

Method Comments:

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Page 6 of 9

Printed: 8/25/2016

(To Accompany Samples to Instruments)

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Reagent Additions Worksheet

ļ																		
Witness	0-75-110	7-04-0					-											+>
	Man	-																
	77 70																	
By	H SA 8-3E 16		-	-				 										\
Final Amount	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL
Amount Added	25 uL	25 uL	25 uL	25 uL	20 uL	20 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL
Reagent Code	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044	LCPFC2SP_00012	LCPFCSP_00053	LCMPFC2SU_00007	LCMPFCSU_00044										
Lab ID	MB 320-124066/1	MB 320-124066/1	LCS 320-124066/2	LCS 320-124066/2	LCS 320-124066/2	LCS 320-124066/2	320-21174-A-1	320-21174-A-1	320-21174-A-2	320-21174-A-2	320-21174-A-3	320-21174-A-3	320-21174-A-4	320-21174-A-4	320-21174-A-5	320-21174-A-5	320-21174-A-6	320-21174-A-6
	Page 627 of 657																	

Printed: 8/25/2016

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Open: 8/25/2016 9:13:11AM

Batch End:

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

	25-16		-																		->
pater End:	MdA																				
השמי	HSA 8-25-16																				•
	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL														
	25 uL	25 uL	25 uL	25 uL	20 uL	20 uL	25 uL														
	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044	LCPFC2SP_00012	LCPFCSP_00053	LCMPFC2SU_00007														
	320-21190-B-1	320-21190-B-1	320-21190-A-2	320-21190-A-2	320-21190-A-3	320-21190-A-3	320-21190-A-4	320-21190-A-4	320-21190-A-5	320-21190-A-5	320-21190-A-6	320-21190-A-6	320-21190-A-7	320-21190-A-7	320-21190-A-8	320-21190-A-8	320-21190-A-8 MS	320-21190-A-8 MS	320-21190-A-8 MS	320-21190-A-8 MS	320-21190-A-8 MSD

Page 8 of 9

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Open: 8/25/2016 9:13:11AM Batch End:

Analyst: Arauz, Horacio J

Method Code: 320-3535_IVWT-320

Batch Number: 320-124066

		7					_	т	
	VPM RIJE	-							
į	AD/	-							
	45A 8-35-16								7
	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL	0.5 mL
	25 uL	20 uL	20 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL
	LCMPFCSU_00044	LCPFC2SP_00012	LCPFCSP_00053	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044	LCMPFC2SU_00007	LCMPFCSU_00044
	320-21190-A-8 MSD	320-21190-A-8 MSD	320-21190-A-8 MSD	320-21190-A-9	320-21190-A-9	320-21190-A-10	320-21190-A-10	320-21190-A-11	320-21190-A-11

nts:	is Lot#:		
Other Reagents:	Reagent Amount/Units		



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s):320-124066 Test: PFC_bob:	5-L	
Earliest Holding Time: 8-26-16		
		1 .
Sample Liet Tab	1 st Level	
Sample List Tab Samples identified to the correct method	Reviewer	Reviewer
All necessary NCMs filed (including holding time)		
Method/sample/login/QAS checked and correct		
	1 st Level	2 nd Level
Worksheef Tab	Reviewer	Reviewer
All samples properly preserved	NA	NA
Weights in anticipated range and not targeted	177	104
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 correctly in TALS	NA	NIA
All additional information transcribed into TALS is correct and raw data is	7	IVE
attached		
Comments are transcribed correctly in TALS	V	
	1st Level	2 nd Level
Reagents Tab	Reviewer	2 Level Reviewer
All necessary reagents not expired and entered into TALS	1 VCVICVE	Reviewei
All spike amounts correct and added to necessary samples and QC	/	
Detail later O	1st Level	2 nd Level
Batch Information Date and time accurate and entered into TALS correctly	Reviewer	Reviewer
All necessary 'batch information' complete and entered into TALS correctly	/	
2		
!st Level Reviewer: \underline{SRC} Date: $\underline{8/5}$	1/1	
	76/16	
2 nd Level Reviewer. VPM Date: 8/2	2U/14)
Comments:	,	

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

(S)

AS 9/15/16
PP AB 9/19/16
Batch Open: 9/14/2016 3:45:00PM
Batch End: 9-15-16 14:40 Pm

Solid-Phase Extraction (SPE)

								_			ı	_	ı		ı		ı	_			
1/16	Output Sample Lab ID																	3 2 0 - 2 1 1 9 0 B B B B B B B B B B B B B B B B B B		3 2 5	
case 4- sacalialis	Comments					12 10X		大十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十十		3/14/2 XOT -10		DI_ 10X		9/1/16/16 1/14		5/21/6 XOT A		DT 17 9/19/16	‡ }	-	
4	DIv Rank	Ϋ́		N/A/A		4		4		4		4		4		4	à	4		4	
Solid-Phase Extraction (SPE)	Analytical TAT	N/A		N/A		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days	
e Extract	Due Date	N/A		V/A		8/29/16		8/29/16		8/29/16		8/29/16		8/29/16		8/29/16		8/30/16		8/30/16	
Phas	Adj2																				
Solid	PHs Adj1															ļ 					
	Rcvd			_			,						_							_	
	InitAmnt FinAmnt	250.00 mL	0.50 mL	250.00 mL	0.50 mL	261.9 mL	0.50 mL	258.2 mL	0.50 mL	269.9 mL	0.50 mL	251 mL	0.50 mL	269 mL	0.50 mL	250.7 mL	0.50 mL	253.9 mL	0.50 mL	265.7 mL	0.50 mL
	GrossWt InitAmnt TareWt FinAmnt					289.60 g	27.75 g	285.37 g	27.19 g	297.72.g	27.79 g	277.07 g	26.07 g	296.97 g	27.94 g	278.16 g	27.46 g	281.60 g	27.73 g	293.56 g	27.84 g
	SDG (1ob#)	N/A		N/A		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21174-1)		N/A (320-21190-1)		N/A (320-21190-1)	
	Input Sample Lab ID (Analytical Method)	MB~320-127219/1 N/A		LCS~320-127219/2 N/A		320-21174-B-1 (PFC_IDA_DOD5)		320-21174-B-2 (PFC_IDA_DOD5)		320-21174-B-3 (PFC_IDA_DOD5)		320-21174-B-4 (PFC_IDA_DOD5)		320-21174-B-5 (PFC_IDA_DOD5)		320-21174-B-6 (PFC_IDA_DOD5)		320-21190-B-2 (PFC_IDA_DOD5)		320-21190-B-3 (PFC_IDA_DOD5)	
L		-		74		ю	Рa	ig <u>ę</u> 63	31 6	of <u>6</u> 57		9		7		ω		<u></u> თ		10	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Batch End:																	AS SURPRIME TO THE TATE OF THE PROPERTY OF THE			
	4		4	·	4		4		4		4		4		4		4		4	
	12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days		12_Days	
	8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16		8/30/16	
				_																
																	_			
								1						-		_				_
	267.6 mL	0.50 mL	268.2 mL	0.50 mL	219.1 mL	0.50 mL	235.8 mL	0.50 mL	256 mL	0,50 mL	259.2 mL	0.50 mL	242.6 mL	0.50 mL	255.3 mL	0.50 mL	256.1 mL	0.50 mL	261.7 mL	0.50 mL
	295.38 g	27.78 g	295.98 g	27.82 g	246.79 g	27.65 g	262.25 g	26.47 g	283.41 g	27.44 g	286.60 g	27.39 g	270.65 g	28.05 g	283.11 g	27.77 g	283.81 g	27.69 g	289.72 g	28.06 g
5_IVWT-320	N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)		N/A (320-21190-1)									
Method Code: 320-3535_IVWT-320	320-21190-B-4 (PFC_IDA_DOD5)		320-21190-B-5 (PFC_IDA_DOD5)		320-21190-B-6 (PFC_IDA_DOD5)		326-21190-B-7 (PFC_IDA_DOD5)		320-21190-B-8 (PFC_IDA_DOD5)		320-21190-B-8~MS (PFC_IDA_DOD5)		320-21190-B-8-MSD (PFC_IDA_DOD5)		320-21190-B-9 (PFC_IDA_DOD5)		320-21190-B-10 (PFC_IDA_DOD5)		320-21190-B-11 (PFC_IDA_DOD5)	
Σ	<u></u>		72		£ I——		<u>‡</u>		5	Pa	ig <u>ę</u> 63	32 c	of <u>6</u> 57		<u>&</u>		19		20	

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Batch End:

Batch Notes	ID 2,7	ID 728234	Hexane ID 000135581	ID NA	ne NA	ne NA	Balance ID QA-070	pe WAX 500mg	ID 002736075A	H2O ID 9/14/16	Pipette ID MD05306	Solvent Name 0.3% NH4OH/MeOH	t# 729513	op JER	op JER	EDW	ne NA	Acid ID NA	ID NA	ber NA		
	Manifold ID 2, 7	Methanol ID 728234	Hexane ID	Sodium Hypochlorite ID NA	First Start time NA	First End time NA	Balance IE	SPE Cartridge Type WAX 500mg	Solid Phase Extraction Disk ID 002736075A	H20 II	Pipette II	Solvent Name	Solvent Lot # 729513	Analyst ID - Reagent Drop JER	Analyst ID - SU Reagent Drop JER	Analyst ID - SU Reagent Drop	Acid Name NA	Acid IL	Reagent ID NA	Reagent Lot Number NA	NaCI ID NA	

Page 633 of 657

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch End:

Batch Comment 0.1N NaOH/H2O: 722525

SOP Number WS-LC-0025

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Page 4 of 9

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Batch End:

Comments	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes		Rework Comments: LCS High Add-on analytes Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes Method Comments: Samples from AFB - use caution, screen sample, include extra spikes		Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes
	Method Comm Rework Comm	Method Comm Rework Comm Method Comm	Rework Comm Method Comm Rework Comm	Method Comm Rework Comm	Method Comr Rework Comr	Method Comm Rework Comm	Method Comm Rework Comm Method Comm	Rework Comm Method Comm Rework Comm	Method Comm Rework Comm	Method Comm Rework Comm
	320-21174-B-1	320-21174-B-3	320-21174-B-4	320-21174-B-5	320-21190-B-2	320-21190-B-3	320-21190-B-4	320-21190-B-5	320-21190-B-6	320-21190-B-8

Page 635 of 657

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Batch End:

Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes	Method Comments: Samples from AFB - use caution, screen sample, include extra spikes Rework Comments: LCS High Add-on analytes	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes	Samples from AFB - use caution, screen sample, include extra spikes LCS High Add-on analytes
Method Comments: Rework Comments:	Method Comments: Rework Comments:	Method Comments: Rework Comments:	Method Comments: Rework Comments:	Method Comments: Rework Comments:	Method Comments: Rework Comments:
	320-21190-B-8~MS	Jew-9-0-113-0-56	320-21190-15-9	220-2-130-5-10	320-Z-130-D-11

Page 636 of 657

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Batch End:

Reagent Additions Worksheet

Witness	5RU 9/14/16	J																Ð
BÅ	11/2/2/1416																	Z
Final Amount	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL
Amount Added	25 uL	72 nF	25 uL	25 uL	20 nL	20 nL	25 uL	25 uL										
Reagent Code	LCMPFC2SU_00008	LCMPFCSU_00045	LCMPFC2SU_00008	LCMPFCSU_00045	LCPFC2SP_00016	CPFCSP_00058	LCMPFC2SU_00008	LCMPFCSU_00045										
Lab ID	MB 320-127219/1	MB 320-127219/1	LCS 320-127219/2	LCS 320-127219/2	LCS 320-127219/2	LCS 320-127219/2	320-21174-B-1	320-21174-B-1	320-21174-B-2	320-21174-B-2	320-21174-B-3	320-21174-B-3	320-21174-B-4	320-21174-B-4	320-21174-B-5	320-21174-B-5	320-21174-B-6	320-21174-B-6

Page 637 of 657

TestAmerica Sacramento Page 7 of 9 Printed: 9/14/2016

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

Batch Open: 9/14/2016 3:45:00PM

Batch End:

9//山/6 S. 185 $0.50\,\mathrm{mL}$ 0.50 mL 25 uL 20 uL 20 uL 25 uL LCMPFC2SU 00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFC2SU_00008 LCMPFCSU_00045 LCMPFCSU_00045 LCMPFCSU_00045 LCMPFCSU_00045 LCMPFCSU_00045 LCMPFCSU_00045 LCMPFCSU_00045 LCMPFCSU_00045 LCPFC2SP_00016 LCPFCSP_00058 320-21190-B-8 MSD 320-21190-B-8 MS 320-21190-B-8 MS 320-21190-B-8 MS 320-21190-B-8 MS 320-21190-B-2 320-21190-B-2 320-21190-B-3 320-21190-B-5 320-21190-B-6 320-21190-B-3 320-21190-B-4 320-21190-B-5 320-21190-B-6 320-21190-B-8 320-21190-B-8 320-21190-B-4 320-21190-B-7 320-21190-B-7

Page 638 of 657

D

0.50 mL

20 uL

LCPFC2SP_00016

0.50 mL

25 uL

LCMPFCSU_00045

320-21190-B-8 MSD

320-21190-B-8 MSD

Printed: 9/14/2016

(To Accompany Samples to Instruments)

Batch Open: 9/14/2016 3:45:00PM

Batch End:

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-127219

31/h1/6 W83						7
1Mw) 9/4/16					/	>
0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL	0.50 mL
20 uL	25 uL	25 uL	25 uL	25 uL	25 uL	25 uL
LCPFCSP_00058	LCMPFC2SU_00008	LCMPFCSU_00045	LCMPFC2SU_00008	LCMPFCSU_00045	LCMPFC2SU_00008	LCMPFCSU_00045
320-21190-B-8 MSD	320-21190-B-9	320-21190-B-9	320-21190-B-10	320-21190-B-10	320-21190-B-11	320-21190-B-11

	Lot#:			
Other Reagents:	Amount/Units			
	Reagent			

Page 639 of 657

Printed: 9/14/2016



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): /272/7 Test: Pre-L		
Earliest Holding Time: \$\\26\/(C		
0	1st Level	2 nd Leve
Sample List Tab Samples identified to the correct method	Reviewer	
All necessary NCMs filed (including holding time)	1	/
Method/sample/login/QAS checked and correct		
the correct and correct		
	1 st Level	2 nd Level
Worksheet Tab All samples properly preserved	Reviewer	Reviewer
Weights in anticipated range and not targeted	M	INCOME
All additional test requirements and not targeted	1	 ///-
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and Cl Check)	1	
The pH is transcribed correctly in TALS	V	
All additional information transcribed into TALS is correct and raw data is	NA	NA
		-
Comments are transcribed correctly in TALS		
Reagents Tab	1st Level	2 nd Level
All necessary reagents not expired and entered into TALS	Reviewer	Reviewer
All spike amounts correct and added to necessary samples and QC	V	
and the samples and the		
Batch Information	1st Level	2 nd Level
Date and time accurate and entered into TALS correctly	_ [Reviewer
All necessary 'batch information' complete and entered into TALS correctly	V	//
complete and entered into TALS correctly		
Level Reviewer: Date:	E//	
Level Reviewer	7 6	
omments: Date:	<u> 10-16</u>	1
		_

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments) Analyst: Reed, Jonathan E

AS 914/16 PR 19/19/16

Batch Open: 8/22/2016 1:34:40PM Batch End: 8/14//6 26:35

Solid-Phase Extraction (SPE)

Output Sample Lab iD		M. M. B 3. 2. 8. 4. 5. 4. 5. 4. 1. 4. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		LCS 320-123451/2-A										HM 3 2 6 - 2 1 8 4 4 - A - 4 - A H		3 2 8 - 2 4 8 4 - A - 5 - A		144 3 2 8 - 2 4 8 4 4 - A 6 - A		3. 2. 8 2. 1. 8 .4 4
Comments											PFHXS		Es Pros	\						
DIv Rank	N/A		ΑŅ		A/A		4		4		4		4		4		4		4	
Analytical TAT	N/A		N/A		N/A		20_Days		20_Days		20_Days		20_Days		20_Days		20_Days		20_Days	
Due Date	A/A		N/A		ΝΑ		8/25/16		8/25/16		8/25/16		8/25/16		8/25/16		8/25/16		8/25/16	
Adj2																				
PHs Adj1	L																			
t t Rcvd		_		7		T	<u> </u>	_		т—				т—						
InitAmnt FinAmnt	500.00 mL	1.00 mL	500.00 mL	1.00 mL	500.00 mL	1.00 mL	551.1 mL	1.00 mL	536.9 mL	1.00 mL	533.4 mL	1.00 mL	525.6 mL	1.00 mL	527.5 mL	1.00 mL	530.3 mL	1.00 mL	528.1 mL	1.00 mL
GrossWt InitAmnt TareWt FinAmnt							895.61 g	44.52 g	581.60 g	44.75 g	578.54 g	45.12 g	569.05 g	‡3.45 g	571.85 g	44.39 g	575.31 g	45.06 g	572.97 g	44.83 g
SDG (Job#)	ΥN		Y.N		¥N N		N/A (320-21044-1)		NA (320-21044-1)		N/A (320-21044-1)		N/A (320-21044-1)		N/A (320-21044-1)		N/A (320-21044-1)	*77.4	N/A (320-21044-1)	
Input Sample Lab ID (Analytical Method)	MB~320-123451/1 N/A	9727907 000	LC3~320-123451/2 N/A	000	LCSD~320-123451/3 N/A		320-21044-A-1 (PFC_IDA_DOD5)		320-21044-A-2 R (PFC_IDA_DOD5)		320-21044-A-3 (PFC_IDA_DOD5)		320-21044-A-4 (PFC_IDA_DOD5)		320-21044-A-5 (PFC_IDA_DOD5)	0 - 77070	(PFC_IDA_DOD5)	250 24044 A F	(PFC_IDA_DOD5)	
ج ء			7			Pa	ge 6 -	11 	of 657			_								

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(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:		10832 0 - 2 1 0 4 4 - A - 6 - A 1 1 1
	4	
	20_Days	
	8/25/16	
		-
	533.8 mL	1.00 mL
	579.08 g 533.8 mL	15.28 g
5_IVWT-320	N/A (320-21044-1)	
Method Code: 320-3535_IVWT-320	(PFC_IDA_DOD5)	

Batch Number: 320-123451

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Open: 8/22/2016 1:34:40PM

Batch End:

Batch Notes	D 3, 4	D 691859	Hexane ID 0000135581	D NA	e NA	e NA	Balance ID QA-070	e WAX 500mg	D 002736075A	H2O ID 8/22/16	Pipette ID MD05306	Solvent Name 0.3% NH4OH/MeOH	# 710114	p JER	p JER	5 EKW	e NA	D NA	D NA	or NA	D NA	
	Manifold ID 3, 4	Methanol ID 691859	Hexane II	Sodium Hypochlorite ID NA	First Start time NA	First End time NA	Balance II.	SPE Cartridge Type WAX 500mg	Solid Phase Extraction Disk ID 002736075A	H20 IC	Pipette II.	Solvent Name	Solvent Lot # 710114	Analyst ID - Reagent Drop JER	Analyst ID - SU Reagent Drop JER	Analyst ID - SU Reagent Drop Witness	Acid Name NA	Acid ID NA	Reagent ID NA	Reagent Lot Number NA	NaCLID	

Page 643 of 657

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 8/22/2016 1:34:40PM

Batch End:

SOP Number WS-LC-0025

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Comment 0.1N NaOH:645197

Comments	Method Comments: Q5Rev111213_StdVarApp_30day disposal	Q5Rev111213_StdVarApp_30day disposal						
	Method Comments:	Method Comments:	Method Comments: Q5Rev11121	Method Comments: Q5Rev11121	Method Comments:	Method Comments:	Method Comments:	Method Comments:
	320-21044-A-1	320-21044-A-3	320-21044-A-4	320-21044-A-5	320-21044-A-6	G 320-21044-A-7	320-21044-A-8	

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Open: 8/22/2016 1:34:40PM

Batch End:

Reagent Additions Worksheet

5ku 8/22/11												r
INVA & halle												>
1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL	1.00 mL
50 uL	50 uL	40 uL	50 uL	40 uL	50 uL	50 uL	50 uL	50 uL	50 uL	50 uL	50 uL	50 uL
LCMPFCSU_00043	LCMPFCSU_00043	LCPFCSP_00053	LCMPFCSU_00043	LCPFCSP_00053	LCMPFCSU_00043	LCMPFCSU_00043	LCMPFCSU_00043	LCMPFCSU_00043	LCMPFCSU_00043	LCMPFCSU_00043	LCMPFCSU_00043	LCMPFCSU_00043
MB 320-123451/1	LCS 320-123451/2	LCS 320-123451/2	LCSD 320-123451/3	LCSD 320-123451/3	320-21044-A-1	320-21044-A-2	320-21044-A-3	320-21044-A-4	320-21044-A-5	320-21044-A-6	320-21044-A-7	320-21044-A-8
	LCMPFCSU_00043 50 uL 1.00 mL ////2 /2 //	LCMPFCSU_00043 50 uL LCMPFCSU_00043 50 uL	LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCPFCSP_00053 40 uL 1.00 mL 1.00 mL	LCMPFCSU_00043 50 uL 1.00 mL MMR/12/lb LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCPFCSP_00053 40 uL 1.00 mL 1.00 mL	LCMPFCSU_00043 50 uL 1.00 mL MMA/10/lb LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCPFCSP_00053 40 uL 1.00 mL 1.00 mL LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL	MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00053 40 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL	MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL <th>MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCPFCSP_00053 40 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSP_00053 40 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL</th> <th>LCMPFCSU_00043 50 uL 1.00 mL MARATA LCMPFCSU_00043 50 uL 1.00 mL 7.00 mL LCPFCSP_00053 40 uL 1.00 mL 7.00 mL LCMPFCSU_00043 50 uL 1.00 mL 7.00 mL</th> <th>MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCPFCSP_00053 40 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL</th> <th>MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/3 LCMPFCSP_00053 40 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL J20-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-4 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL</th> <th>MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-4 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-6 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL</th>	MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCPFCSP_00053 40 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSP_00053 40 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL	LCMPFCSU_00043 50 uL 1.00 mL MARATA LCMPFCSU_00043 50 uL 1.00 mL 7.00 mL LCPFCSP_00053 40 uL 1.00 mL 7.00 mL LCMPFCSU_00043 50 uL 1.00 mL 7.00 mL	MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCPFCSP_00053 40 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL	MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/3 LCMPFCSP_00053 40 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL J20-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-4 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL	MB 320-123451/1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCS 320-123451/2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL LCSD 320-123451/3 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-1 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-2 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-4 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-5 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL 320-21044-A-6 LCMPFCSU_00043 50 uL 1.00 mL 1.00 mL

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123451

Batch Open: 8/22/2016 1:34:40PM

Batch End:

Lot#: Other Reagents: **Amount/Units** Reagent



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): 320-12345 Test: PFC-L		
Earliest Holding Time: 8/24/16		
Sample List Tab	1st Level	
Samples identified to the correct method	Reviewe	r Reviewe
All necessary NCMs filed (including holding time)	1	
Method/sample/login/QAS checked and correct	1	+
	1 st Level	2 nd Leve
Worksheet Tab All samples properly preserved	Reviewer	
Weights in anticipated	NA	MA
Weights in anticipated range and not targeted	V	
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	V	-
The pH is transcribed correctly in TALS	 	
All additional information transcribed into TALS is correct and raw data is	M	NA
	V	
Comments are transcribed correctly in TALS		
	1 st Level	2 nd Level
Reagents Tab	Reviewer	Reviewer
All necessary reagents not expired and entered into TALS	5/	TOVIEWE
All spike amounts correct and added to necessary samples and QC	V	
	1 st Level	ond .
Batch Information	Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly	V	Keviewer
All necessary 'batch information' complete and entered into TALS correctly		
Level Reviewer: Date: 6/5	24/16	
Level Reviewer. H3A Date: 8-25	5~16	 _
omments:		

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

AB 9/4/16
P. AB 9/19/16
Batch Open: 8/24/2016 2:17:53PM
Batch End: 8-25-16 (2: 35 P. m.

Solid-Phase Extraction (SPE)

	7		_	_																
Output Sample Lab ID		MAN M B 3 2 B - 1 2 3 9 3 7 7 7 1 1 1 A		LCS 3.28 -12383" 12 - A		M 3 2 8 - 2 1 9 8 8 - 4 - 1 - All		M 3 2 8 - 2 1 6 8 8 - A - 2 - A M		May 3 2 6 - 2 1 8 8 - A - 3 - A MIII		188 3 2 6 - 2 1 8 6 - A - 4 - 7		mr3 2 6 - 2 1 8 8 4 - A - 1 - A M		1884-A-1884-A-2-A-188		III 3 2 8 - 2 1 8 8 4 - A - 3 - A IIII		MAII 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4
Comments								•					5× PPBS				10 x PFOS	\ \ \ \		
Dlv Rank	ΑN		ΑN		4		4		4		4		4		4		4		4	
Analytical TAT	N/A		N/A		20_Days		20_Days		20_Days		20_Days		20_Days		20_Days		20_Days		20_Days	
Due Date	NA		N/A		8/26/16		8/26/16		8/26/16		8/26/16		8/26/16		8/26/16		8/26/16		8/26/16	
Adj2																				
PHs Adj1	_																			
Rcvd										_		_		_		T				T
InitAmnt FInAmnt	500 mL	1.00 mL	500 mL	1.00 mL	508.1 mL	1.00 mL	520,7 mL	1.00 mL	510.8 mL	1.00 mL	505.8 mL	1.00 mL	509.8 mL	1.00 mL	515.5 mL	1.00 mL	514.3 mL	1.00 mL	512.3 mL	1.00 mL
GrossWt InitAmnt TareWt FinAmnt					551.80 g	43.71 g	564.96 g	44.28 g	553.70 g	12.94 g	548.57 g	12.81 g	554.24 g	14.44 g	g 62.659	14.34 g	558.18 g	43.93 g	557.80 g	15.53 g
SDG (Jop #)	N/A		∀ /Z		N/A (320-21080-1)		N/A (320-21080-1)		N/A (320-21080-1)		N/A (320-21080-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)	
Input Sample Lab ID (Analytical Method)	MB~320-123937/1 N/A		LCS~320-123937/2 N/A		320-21080-A-1 (PFC_IDA_DOD5)		320-21080-A-2 (PFC_IDA_DOD5)		320-21080-A-3 (PFC_IDA_DOD5)		320-21080-A-4 (PFC_IDA_DOD5)		320-21084-A-1 (PFC_IDA_DOD5)		320-21084-A-2 (PFC_IDA_DOD5)		320-21084-A-3 (PFC_IDA_DOD5)		320-21084-A-4 (PFC_IDA_DOD5)	2 Column
	_	1	7		ო	P	age 6	48	of 65	 7	9		7		ω		<u>ი</u>		₽ 	

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM

Batch End:

		IMI 3 2 8 - 2 1 8 8 4 - A - 5 - A IMI						•		1981 3 2 6 - 2 1 8 8 4 - A - 7 - A 1 1 1 1			
	4		4		4		4		4		4		
	20_Days		20_Days		20_Days		20_Days		20_Days		20_Days		
	8/26/16		8/26/16		8/26/16		8/26/16		8/26/16		8/26/16		
	503.2 mL	1.00 mL	529.9 mL	1.00 mL	507.6 mL	1.00 mL	502 mL	1.00 mL	521.6 mL	1.00 mL	488.4 mL	1.00 mL	
	548.27 g	45.05 g	574.15 g	44.29 g	552.41 g	14.84 g	546.21 g	14.24 g	564.44 g	12.88 g	532.33 g	43.91 g	
	N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		N/A (320-21084-1)		
-	320-21084-A-5 (PFC_IDA_DOD5)	2 Colymns	320-21084-A-6 (PFC_IDA_DOD5)		320-21084-A-6-MS (PFC_IDA_DOD5)		320-21084-A-6~MSD (PFC_IDA_DOD5)		320-21084-A-7 (PFC_IDA_DOD5)		320-21084-A-8 (PFC_IDA_DOD5)		
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(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM

Batch End:

Batch Notes		691859	0000135581	NA	NA	NA	QA-070	WAXC 500mg	002736075A	8/23/16	MDO5306	0.3% NH4OH/MeOH	710114	JER	JER	ERE	NA	NA	NA	NA	NA NA	
	Manifold ID 1,2	Methanol ID 691859	Hexane ID 00	Sodium Hypochlorite ID NA	First Start time NA	First End time NA	Balance ID QA-070	SPE Cartridge Type WAXC 500mg	Solid Phase Extraction Disk ID 002736075A	H20 ID 8/	Pipette ID MDO5306	Solvent Name 0.	Solvent Lot # 710114	Analyst ID - Reagent Drop JER	Analyst ID - SU Reagent Drop JER	Analyst ID - SU Reagent Drop Witness	Acid Name NA	Acid ID NA	Reagent ID NA	Reagent Lot Number NA	NaCLID NA	

Page 650 of 657

Page 3 of 6

TestAmerica Sacramento

Page 4 of 6

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Method Code: 320-3535_IVWT-320 Batch Number: 320-123937

Analyst: Reed, Jonathan E

Batch Open: 8/24/2016 2:17:53PM Batch End:

Batch Comment 0.1N NaOH/H2O: 645197 SOP Number WS-LC-0025

Comments 320-21080-A-1 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21080-A-3 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-1 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-2 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-3 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-4 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-5 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-5 Method Comments: Q5Rev111213_StdVarApp_30day disposal 320-21084-A-5 Method Comments: Q5Rev111213_StdVarApp_30day disposal	
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(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Method Code: 320-3535_IVWT-320

Batch Number: 320-123937

than E

Batch End:

Batch Open: 8/24/2016 2:17:53PM

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-123937/1	LCMPFCSU_00044	50 uL	1.00 mL	Mr. Onle She	5RU 8/24/16
LCS 320-123937/2	LCMPFCSU_00044	50 uL	1.00 mL		
LCS 320-123937/2	LCPFCSP_00049	20 uL	1.00 mL		
320-21080-A-1	LCMPFCSU_00044	50 uL	1.00 ml.		
320-21080-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21080-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-1	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-2	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-3	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-4	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-5	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MS	LCPFCSP_00049	20 uL	1.00 mL		
320-21084-A-6 MSD	LCMPFCSU_00044	50 uL	1.00 mL		
320-21084-A-6 MSD	LCPFCSP_00049	20 nL	1.00 mL		
320-21084-A-7	LCMPFCSU_00044	50 uL	1.00 mL		7

Page 652 of 657

Printed: 8/24/2016

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E Method Code: 320-3535_IVWT-320 Batch Number: 320-123937

Batch Open: 8/24/2016 2:17:53PM

Batch End:

1840 dade 5kw 8/4/11		:Hot#:			
1.00 mL	Other Reagents:	Amount/Units			
50 uL	Other	Amo			
LCMPFCSU_00044					
320-21084-A-8		Reagent			

Page 653 of 657



Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): Test:		
Earliest Holding Time: 8/25/16		
	1 st Leve	1 2 nd Lev
Sample List Tab Samples identified to the correct method	Reviewe	
Ail pecessary NCMs fled (networks)		, I (CV)Ey
Ail necessary NCMs filed (including holding time) Method/sample/login/QAS checked and correct	MA	NA
Method/sample/logit/QAS checked and correct	1	1
	4.51	
Worksheet Tab	1 st Level Reviewer	
All samples properly preserved	1 A C A	
Weights in anticipated range and not targeted	+ 1 1 1 ·	NA
All additional test requirements performed, documented, and uploaded to TALS	+	+
(and Cl Check)		
The pH is transcribed correctly in TALS	100	1 14
All additional information transcribed into TALS is correct and raw data is attached	1-/1/	NA
Comments are transcribed correctly in TALS		
TALIS WALLS		7
	1 ^{sl} Level	2 nd Level
All pecessary massaches Tab	Reviewer	Reviewer
All necessary reagents not expired and entered into TALS	1101101101	
All spike amounts correct and added to necessary samples and QC		-
	481	- Del
Batch Information	1 st Level Reviewer	2 nd Level
Date and time accurate and entered into TALS correctly	Neviewel	Reviewer
All necessary 'batch information' complete and entered into TALS correctly	/	/- -
1st Level Reviewer 1.54	ما نوم	
1 st Level Reviewer.	20-16	>
	5/16	
Comments:	-/	

Shipping and Receiving Documents

S - H2SO4 T - TSP Dodecahydrate U - Acetone **TestAmerica** Company Special Instructions/Note: Z - other (specify) M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2SO3 Months Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Month Preservation Codes: 280-48902-18075.1 500 - Ascorbic Acid - HCL - NaOH - Zn Acetate - Nitric Acid - NaHSO4 - MeOH Page: Page 1 of 3 J - DI Water K - EDTA - Amchior Archive For Total Number of containers 22 Field Services Edison Method of Shipment 320-21044 Chain of Custody Analysis Requested Cooler Temperature(s) C and Other Remarks. Special Instructions/QC Requirements michelle.johnston@testamericainc.com Return To Client Received by. Lab PM: Johnston, Michelle A Chain of Custody Record 3 Preservation Code: 3 Matrix Lesinsk, 10.M.11ch (С=сомр, G=grab) Type Radiological 0 9 0 0 0 9 9 1218 1106 8-17-16/1023 Purchase Order Requested Sample 1331 8-17-16 095 8-17-16 113 Time Date: TAT Requested (days): Onknown Due Date Requested: 8-17-16 8-17-16 8-17-16 8-17-16 8-1-16 Sample Date Project #. 28014493 WO# Poison B 9180 MC13MW-14_0816 0816 08160 46mW 03 _ 0816 yemmos 0810 Custody Seal No. Phone (916) 373-5600 Fax (303) 467-7248 TestAmerica Sacramento West Sacramento, CA 95605-1500 Possible Hazard Identification Ensafe-NWS - Earle, NJ PFCs MCFSMW-4 MCFSMW-3 MCFSMV-S mdryden@earthtoxics.com Custody Seals Intact. F8081715 56081716 Sample Identification

FB 08 1716

PC 508 1716

MCFS IN W Deliverable Requested Client Information 880 Riverside Parkway Non-Hazard Empty Kit Relipd Earth Toxics, Inc. elinquished by: PO BOX 3382 Mike Dryden Groundwater State, Zip. UT, 84321 Logan hone

Login Sample Receipt Checklist

Client: Earth Toxics, Inc Job Number: 320-21044-1

Login Number: 21044 List Source: TestAmerica Sacramento

List Number: 1

Creator: Turpen, Troy

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	N/A	
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.	True	Preservation labels on samples match COC
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	

1927-195-15 PC_0B_0 2007-15 PC_0B_0	Sample	Sample Name	Specific Method	CAS Number	Analyte	Result	Units	Qualifier	Limit	Reports To	Dilution	Result Basis	Batch	Sampled	Prepared	Analyzed	Analysis
1802.09.14 PROC. 79.16 PROC. 20.00 PROC. 19.16 PROC. 19.10 P	320-21044-1	FB081716	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	ng/L	U	0.83	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
1902.1354 1902.135	320-21044-1	FB081716	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	2.4	ng/L		0.73	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
19.201641 Filter	320-21044-1	FB081716	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.4	ng/L		0.79	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
1932-1044 Fight Fight Fight Fight Fight Fight Fight Fight Figh F	320-21044-1	FB081716	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.8	ng/L	U	0.59	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
1983 1984 1985	320-21044-1	FB081716	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9	ng/L	J M	1.2	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
19.20.1141-6 19.20.1146 1	320-21044-1	FB081716	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	2.7	ng/L	М	0.68	MDL	1.0	Total	126120	8/17/2016 10:20 AM	8/22/2016 1:34 PM	9/4/2016 1:31 PM	Perfluorinated Hydrocarbons
19.00.17.56 19.00.17.56 19.00.00.00.00.00.00.00.00.00.00.00.00.00	320-21044-2	EB081716	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	ng/L	U	0.85	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
1922-1914-1915 Formation Processing	320-21044-2	EB081716	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	ng/L	U	0.75	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
19.00.1145.2 Politifies P	320-21044-2	EB081716	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.9	ng/L	U	0.81	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
19.00.11.00.11.00.00.00.00.00.00.00.00.00.	320-21044-2	EB081716	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.9	ng/L	U M	0.61	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
202220442 SCSWW3 (BIG) FC, De, DOS 257-36 Perfuserotemental professor and PFRAS) 12 mg/L 0.56 MOL 1.0 Total 1262.00 872/2006 1240 MM 972/2006 1240 MM 972/	320-21044-2	EB081716	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.3	ng/L	J M	1.2	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	
20271043 MCSMW-2_6816 PC_1DA_20015 77-8-9 Perfluorinespersor (6794pA) 66 PgL 0.75 MOL 1.0 draft 252100 M17/2016 1198 AM 37/2016	320-21044-2	EB081716	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	1.9	ng/L	U M	0.70	MDL	1.0	Total	126120	8/17/2016 10:23 AM	8/22/2016 1:34 PM	9/4/2016 1:38 PM	Perfluorinated Hydrocarbons
2007-2014-2014-2014-2014-2014-2014-2014-2014	320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	ng/L		0.86	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
302-1264-3 MCSAN-W-2,016 PC, CAR, DODS 27-95-1 Perfusions consequence (PPA) A	320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	26	ng/L		0.75	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
302-1019-3 MC78MW-3 918 PTC, IDA, D005 375-37-3 Perfluence del PROS) 950 ng/L 1.2 MDL 1.0 Total 128:220 817/2019 1.98 MM 872/2018 1.98 PM 97/2018 1.	320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	790	ng/L	D	1.6	MDL	2.0	Total	128009	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/19/2016 8:40 PM	Perfluorinated Hydrocarbons
320-2104-3 MCPSMW-3 916 PFC_IDA_DODS 335-67-1 Perfunence and IPFCAI 90 M 0.70 MDL 10 Total 128210 817/7016 1216 PM Perfunence and IPFCAI 10 10 Total 128210 817/7016 1216 PM Perfunence and IPFCAI Perfunence and IPFCAI 10 NDL 10 Total 128210 817/7016 1216 PM Perfunence and IPFCAI Perfunence and IPFCAI NDL 10 Total 128210 817/7016 1216 PM Perfunence and IPFCAI Perfunence and IPFCAI NDL 10 Total 128210 817/7016 1216 PM Perfunence and IPFCAI Perfunence and IPFCAI Perfunence and IPFCAI NDL 10 Total 128210 817/7016 1216 PM Perfunence and IPFCAI Perfunen	320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	8.7	ng/L	M	0.61	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
329-21044-4 46WWG, 5816 PF, CIR, D.005 375-59-1 Perfluence betamerate in processor and pressure in the control of the control	320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	650	ng/L		1.2	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
329-1344-4 46M/WTG, 9616 PFC, DAD, DOSS 375-85-9 Perfluorheader-sidering cold (PFHs) 1.0 0.75 MOL 1.0 Total 1.9170 81/17/2018-1216 PM 9/2/2018-134 PM 9/2/2018-2018 PM 9/2/2018-134 PM 9/2/2018-2018 PM 9/2/2018-201	320-21044-3	MCFSMW-3_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	100	ng/L	М	0.70	MDL	1.0	Total	126120	8/17/2016 11:06 AM	8/22/2016 1:34 PM	9/4/2016 1:46 PM	Perfluorinated Hydrocarbons
2302-2104-4 SAMWB, 9615 PC, DB, D005 355-84-4 Perfluonomanos cald (PMA) 10 0.2 MDL 10 101al 18202 \$17/72016 1216 PM \$22/2016 1314 PM 94/2016 1314	320-21044-4	46MW05_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	47	ng/L		0.87	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
302-2104-4 6M/WG, 918 6 PC, IDA, DOS 37-95-1 Perfluoronoamel caid (PFNA) 1 0.62 MDL 1.0 Total 12800 317/2018-1216 PM 8/21/2018-134 PM 91/2018-134 PM 91/2018	320-21044-4	46MW05_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	18	ng/L		0.76	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
320-21044-4 (MMVS) 818	320-21044-4	46MW05_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	520	ng/L		0.83	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
302-1044-4 6M/W03 6816 PF. CIAD. DOS 33-57-13 Perfluoroctanocia cold (PriA) 22 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016-131-PM 9/4/2016-131-PM 9/4/2016-131-	320-21044-4	46MW05_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.0	ng/L	J	0.62	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-37-5 Perfluorobetraesulfonic acid [PFRS] 1.9 ng/L U 0.87 MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluorobetraebors 230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-54-6 Perfluorobetraesulfonic acid [PFHS] 3.4 ng/L U 0.87 MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluorobetraebors 230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-54-1 Perfluoromonomic acid [PFHS] 3.4 ng/L U 0.87 MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluoromotrae del (PFNS) 230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-54-1 Perfluoromotrae acid [PFOS] 6.1 ng/L U MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluoromotrae acid [PFOS] 6.1 ng/L U MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluoromate del (PFOS) 4.5 Ng/L U MDL	320-21044-4	46MW05_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1300	ng/L	D	6.1	MDL	5.0	Total	128009	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/19/2016 8:48 PM	Perfluorinated Hydrocarbons
230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-37-5 Perfluorobetraesulfonic acid [PFRS] 1.9 ng/L U 0.87 MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluorobetraebors 230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-54-6 Perfluorobetraesulfonic acid [PFHS] 3.4 ng/L U 0.87 MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluorobetraebors 230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-54-1 Perfluoromonomic acid [PFHS] 3.4 ng/L U 0.87 MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluoromotrae del (PFNS) 230-21044-5 66MW03 (3816 PC, [10A, DOIS 375-54-1 Perfluoromotrae acid [PFOS] 6.1 ng/L U MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluoromotrae acid [PFOS] 6.1 ng/L U MDL 1.0 Total 126120 \$1/77/051-513 MM \$72/2016-134 PM 94/2016-201 PM Perfluoromate del (PFOS) 4.5 Ng/L U MDL	320-21044-4	46MW05_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	82	ng/L	М	0.71	MDL	1.0	Total	126120	8/17/2016 12:16 PM	8/22/2016 1:34 PM	9/4/2016 1:54 PM	Perfluorinated Hydrocarbons
392-21044-5 46MW03_0816 PFC_IDA_DODS 375-95-1 Perfluoronateal (PFHS) 3.4 mg/L U 0.62 MDL 1.0 Total 126120 \$/17/2016-131 PM 9/2/2016-134 PM 9/4/2016-201 PM Perfluorinated Hydrocarbons 320-21044-5 46MW03_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 6.1 mg/L U 0.62 MDL 1.0 Total 126120 \$/17/2016-131 PM 9/2/2016-134 PM 9/4/2016-201 PM Perfluorinated Hydrocarbons 320-21044-5 46MW03_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 6.1 mg/L U 0.7 MDL 1.0 Total 126120 \$/17/2016-131 PM 8/22/2016-134 PM 9/4/2016-201 PM Perfluorinated Hydrocarbons 230-21044-5 46MW03_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 6.1 mg/L U 0.7 MDL 1.0 Total 126120 \$/17/2016-131 PM 8/22/2016-134 PM 9/4/2016-201 PM Perfluorinated Hydrocarbons 230-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 1.0 mg/L U 0.7 MDL 1.0 Total 126120 \$/17/2016-131 PM 8/22/2016-134 PM 9/4/2016-201 PM Perfluorinated Hydrocarbons 230-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 1.0 mg/L U 0.7 MDL 1.0 Total 126120 \$/17/2016-951 AM 8/22/2016-134 PM 9/4/2016-201 PM Perfluorinated Hydrocarbons 230-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 1.0 mg/L U 0.62 MDL 1.0 Total 126120 \$/17/2016-951 AM 8/22/2016-134 PM 9/4/2016-2018 PM Perfluorinated Hydrocarbons 230-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 1.0 mg/L U 0.62 MDL 1.0 Total 126120 \$/17/2016-951 AM 8/22/2016-134 PM 9/4/2016-2018 PM Perfluorinated Hydrocarbons 230-21044-7 MCFSMW-14_0816 PFC_IDA_DODS 175-32-1 Perfluoronateal residence and (PFNS) 1.1 mg/L 1.0 mg/L 1.0 Total 126120 \$/17/2016-951 AM 8/22/2016-134 PM 9/4/2016-2018 PM Perfluorinated Hydrocarbons 230-21044-7 MCFSMW-14_0816 PFC_IDA_DODS 175-35-9 Perfluorinated Hydrocarbons 230-21044-7 MCFSMW-14_0816 PFC_IDA_DODS 175-35-9 Perfluorinated Hydrocarbons 230-21044-7 MCFSMW-14_0816 PFC_IDA_DODS 175-35-9 PERFluorinated Hydrocarbons 230-21044-8 MCFSMW-14_0816 PFC_IDA_DO		46MW03_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	ng/L	U	0.87	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
302-11044-5 46MW30_3016 PFC_IDA_DODS 375-95-1 Perfluorocataeside (PRA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 131 PM 8/22/2016 134 PM 9/4/2016 2:01 PM Perfluorinated Hydrocarbons 302-11044-5 46MW30_3016 PFC_IDA_DODS 375-33-1 Perfluorocataeside (PRA) 1.9 ng/L U M 0.71 MDL 1.0 Total 126120 8/17/2016 131 PM 8/22/2016 134 PM 9/4/2016 2:01 PM Perfluorinated Hydrocarbons 302-11044-5 MCFSMW-14_0816 PFC_IDA_DODS 375-35-5 Perfluorocataeside (PFA) 1.9 ng/L U 0.76 MDL 1.0 Total 126120 8/17/2016 131 PM 8/22/2016 134 PM 9/4/2016 2:01 PM Perfluorinated Hydrocarbons 302-11044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-85-9 Perfluorocataeside (PFA) 1.9 ng/L U 0.76 MDL 1.0 Total 126120 8/17/2016 9:13 MM 8/22/2016 134 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 302-11044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-85-9 Perfluorocataeside (PFA) 1.9 ng/L U 0.76 MDL 1.0 Total 126120 8/17/2016 9:13 MM 8/22/2016 134 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 9/4/2016 2:08 PM P	320-21044-5	46MW03_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	ng/L	U	0.76	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-5 46MW03_0816 PFC_IDA_DODS 1763-23-1 Perfluoroctanos acid (PFO) I.1 ng/L MD 1.2 MDL 1.0 Total 126120 8/17/2016 1:31 PM 8/22/2016 1:34 PM 9/4/2016 2:01 PM Perfluoroctanos acid (PFO) I.1 ng/L U M 0.71 MDL 1.0 Total 126120 8/17/2016 1:31 PM 8/22/2016 1:34 PM 9/4/2016 2:01 PM Perfluoroctanos acid (PFO) I.1 ng/L U 0.75 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:01 PM Perfluoroctanos acid (PFO) I.1 ng/L U 0.75 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.75 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.75 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.75 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.75 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.65 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.65 MDL 1.0 Total 126120 8/17/2016 9:1 MM 8/22/2016 1:34 PM 9/4/2016 2:00 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 1:3 MM 8/22/2016 1:3 PM 9/4/2016 2:1 PM Perfluorinated hydrocarbons I.2 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 1:3 MM 8/22/2016 1:3 PM 9/4/2016 2:1 PM Perfluorinated	320-21044-5	46MW03_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.4	ng/L	M	0.82	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
200-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 335-67-1 Perfluoronation acid (PFDA) 1.9 ng/L U 0.87 MDL 1.0 Total 126120 8/17/2016 9:13 MM 8/22/2016 1:34 PM 9/4/2016 2:05 PM Perfluorinated Hydrocarbons 200-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-85-9 Perfluoronation acid (PFHAS) 1.9 ng/L U 0.76 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 300-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-85-9 Perfluoronation acid (PFHAS) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 300-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-85-9 Perfluoronationated Hydrocarbons 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 300-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 1763-22+1 Perfluoronationated Hydrocarbons 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 9:34 PM 9/4/2016 2:08 PM Perfluorinated Hydro	320-21044-5	46MW03_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.9	ng/L	U	0.62	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-32-5 Perfluorobutanesulfonic acid (PFBS) 1.9 ng/L U 0.87 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 375-85-9 Perfluoronancia cid (PFHA) 1.9 ng/L U 0.76 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-86-4 Perfluoronancia cid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-85-1 Perfluoronancia cid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-95-1 Perfluoronancia cid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-95-1 Perfluoronancia cid (PFHA) 1.1 ng/L J M 0.71 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-67-1 Perfluoronancia cid (PFHA) 1.1 ng/L J M 0.71 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-67-1 Perfluoronancia cid (PFHA) 1.1 ng/L J M 0.71 MDL 1.0 Total 126120 \$/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-67-1 Perfluoronancia cid (PFHA) 7 ng/L J M 0.71 MDL 1.0 Total 126120 \$/17/2016 9:13 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 355-64 Perfluoronancia cid (PFHA) 7 ng/L 0.58 MDL 1.0 Total 126120 \$/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 375-85-9 Perfluoronancia cid (PFHA) 2 ng/L 0.62 MDL 1.0 Total 126120 \$/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 375-95-1 Perfluoronancia cid (PFHA) 9 ng/L 0.62 MDL 1.0 Total 126120 \$/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons PFC_IDA_DODS 3	320-21044-5	46MW03_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.1	ng/L	M	1.2	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-85-9 Perfluoronheyanoic acid (PFHA) 1.9 ng/L U 0.76 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PrC_IDA_DODS 375-95-1 Perfluoronheyanoic acid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PrC_IDA_DODS 375-95-1 Perfluoronheyanoic acid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PrC_IDA_DODS 375-95-1 Perfluoronheyanoic acid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PrC_IDA_DODS 375-95-1 Perfluorocarbonic acid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PrC_IDA_DODS 375-95-1 Perfluorocarbonic acid (PFHA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons PrC_IDA_DODS 375-95-1 Perfluorocarbonic acid (PFHA) 1.0 Ng/L U 0.7 Ng/L	320-21044-5	46MW03_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	1.9	ng/L	U M	0.71	MDL	1.0	Total	126120	8/17/2016 1:31 PM	8/22/2016 1:34 PM	9/4/2016 2:01 PM	Perfluorinated Hydrocarbons
320-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 355-46-4 Perfluoronanoic acid (PFHxS) 5.0 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorine Hydrocarbons 9/4/2016 2:08 PM Perfluoranonanoic acid (PFNx) 1/M 1.2 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorine Hydrocarbons 9/4/2016 2:08 PM Perfluorane Hydrocarbons 9/4/2016 2:08 PM Pe	320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	ng/L	U	0.87	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-95-1 Perfluoronocanoic acid (PFNA) 1.9 ng/L U 0.62 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 20-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanoic acid (PFOA) 1.1 ng/L J M 1.2 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-14_0816 PFC_IDA_DODS 375-35- Perfluorootanoic acid (PFNA) 77 ng/L 0.87 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-9 Perfluorobetanesulfonic acid (PFNA) 77 ng/L 0.87 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-9 Perfluorobetanesulfonic acid (PFNA) 77 ng/L 0.82 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-9 Perfluorobetanesulfonic acid (PFNA) 20 ng/L 0.82 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFNA) 32-21 ng/L MD 0.71 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 20-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-9 Perfluorobatanesulfonic acid (PFNA) 32-21 ng/L MD 0.75 MDL 1.0 Total 126120 8/17/2016 1:34 PM 9/4/2016 2:34 PM 9/4/2016 2:34 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobatanes	320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	ng/L	U	0.76	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6 MCFSMW-14_0816 PFC_IDA_DODS 1763-23-1 Perfluoroctanesulfonic acid (PFOS) 2.5 ng/L J M 1.2 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-73-5 Perfluoroctancic acid (PFOS) 2.6 ng/L 0.087 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 9/4/2016 1:34 PM 9/4	320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.0	ng/L		0.82	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-6 MCFSMW-4_0816 PFC_IDA_DODS 335-67-1 Perfluorootanoic acid (PFOA) 1.1 ng/L J M 0.71 MDL 1.0 Total 126120 8/17/2016 9:51 AM 8/22/2016 1:34 PM 9/4/2016 2:08 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-73-5 Perfluorobutanesulfonic acid (PFHS) 77 ng/L 0.82 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-9 Perfluorobutanesulfonic acid (PFHS) 200 ng/L 0.82 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFHS) 200 ng/L 0.82 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFOA) 160 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFOA) 160 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-35 Perfluorooctanesulfonic acid (PFOA) 160 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorooctanesulfonic acid (PFNA) 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFNA) 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfonic acid (PFNA) 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorooctanesulfoni	320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	1.9	ng/L	U	0.62	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-375 Perfluorobutanesulfonic acid (PFBS) 26 ng/L 0.87 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-9 Perfluorobexanesulfonic acid (PFHA) 21 ng/L 0.82 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 40 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFOA) 160 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-35-5 Perfluorobutanesulfonic acid (PFNA) 13 ng/L 0.86 MDL 1.0 Total 126120 8/17/2016 11:31 AM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobenasulfonic acid (PFNA) 45 ng/L 0.86 MDL 1.0 Total 126120 8/17/2016 11:6 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 0.92 ng/L 1 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoroonanoic acid (PFNA) 0.92 ng/L 1 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perf	320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.5	ng/L	J M	1.2	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-9 Perfluorohexanesulfonic acid (PFHpA) 77 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-86-4 Perfluoronocanic acid (PFHpA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 1763-23-1 Perfluorocatanesulfonic acid (PFOS) 69 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-85-1 Perfluorocatanesulfonic acid (PFOS) 69 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobatanesulfonic acid (PFOS) 13 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobatanesulfonic acid (PFHpA) 13 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorohexanesulfonic acid (PFHpA) 13 ng/L M 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFHpA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Per	320-21044-6	MCFSMW-14_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	1.1	ng/L	J M	0.71	MDL	1.0	Total	126120	8/17/2016 9:51 AM	8/22/2016 1:34 PM	9/4/2016 2:08 PM	Perfluorinated Hydrocarbons
320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFHXS) 200 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluoroctanosic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluoroctanosic acid (PFOS) 69 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-75-5 Perfluoroctanoic acid (PFOA) 160 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobetanoic acid (PFHAS) 12 ng/L 0.86 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobetanoic acid (PFHAS) 13 ng/L 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobenaesulfonic acid (PFHAS) 45 ng/L 0.81 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoroctanosic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoroctanosic acid (PFNA) 0.92 ng/L J 0.61 M	320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	26	ng/L		0.87	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 21 ng/L 0.62 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 375-95-1 Perfluoroctanesulfonic acid (PFOA) 160 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 1:131 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-73-5 Perfluorobutanesulfonic acid (PFDA) 13 ng/L 0.81 MDL 1.0 Total 126120 8/17/2016 1:15 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorobetanesulfonic acid (PFNA) 13 ng/L 0.81 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorobetanesulfonic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorononanoi	320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	77	ng/L		0.76	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 1763-23-1 Perfluoroctanesulfonic acid (PFOS) 69 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-35 Perfluorobutanesulfonic acid (PFNA) 13 ng/L 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobutanesulfonic acid (PFNA) 13 ng/L 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobutanesulfonic acid (PFNA) 13 ng/L 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorobutanesulfonic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNA) 0.92 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNA) Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNA) 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 PERfluorootanesulfonic acid (PFNA) PPRINCADA 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/	320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	200	ng/L		0.82	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-7 MCFSMW-4_0816 PFC_IDA_DODS 335-67-1 Perfluoroctanoic acid (PFOA) 160 ng/L M 0.71 MDL 1.0 Total 126120 8/17/2016 1:31 AM 8/22/2016 1:34 PM 9/4/2016 2:16 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-35 Perfluorobtanesulfonic acid (PFBS) 12 ng/L 0.86 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluorobtanesulfonic acid (PFHA) 13 ng/L 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorobtanesulfonic acid (PFHXS) 45 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluorootanesulfonic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorootanesulfonic acid (PFNS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 PERFLUORDO	320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	21	ng/L		0.62	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-73-5 Perfluorobutanesulfonic acid (PFBS) 12 ng/L 0.86 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-85-9 Perfluoroheptanoic acid (PFHpA) 13 ng/L 0.75 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 355-46-4 Perfluorohexanesulfonic acid (PFHxS) 45 ng/L 0.81 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 375-95-1 Perfluoronanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DODS 1763-23-1 Perfluorooctanesulfonic acid (PFOS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 9/4/2016 2:54 PM Perf	320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	1763-23-1	Perfluorooctanesulfonic acid (PFOS)	69	ng/L	M	1.2	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 375-85-9 Perfluoroheptanoic acid (PFHpA) 13 ng/L 0.81 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 375-95-1 Perfluoronanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 375-95-1 Perfluoronanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 1763-23-1 Perfluoroctanesulfonic acid (PFOS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 9	320-21044-7	MCFSMW-4_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	160	ng/L	M	0.71	MDL	1.0	Total	126120	8/17/2016 11:31 AM	8/22/2016 1:34 PM	9/4/2016 2:16 PM	Perfluorinated Hydrocarbons
320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 355-46-4 Perfluoroneanic acid (PFHxS) 45 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 375-95-1 Perfluoroneanic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 1763-23-1 Perfluoroctanesulfonic acid (PFOS) 22 ng/L MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 9/4/2016 2:54 PM Perflu	320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	375-73-5	Perfluorobutanesulfonic acid (PFBS)	12	ng/L		0.86	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 1763-23-1 Perfluoroctanesulfonic acid (PFOS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 9/4/2016 2:54 PM Perfluorinated Hydrocarbons	320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	375-85-9	Perfluoroheptanoic acid (PFHpA)	13	ng/L		0.75	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons
320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 375-95-1 Perfluorononanoic acid (PFNA) 0.92 ng/L J 0.61 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 1763-23-1 Perfluoroctanesulfonic acid (PFNA) 22 ng/L MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons 9/4/2016 2:54 PM Perfluorinated Hydrocarbons	320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	355-46-4	Perfluorohexanesulfonic acid (PFHxS)	45			0.81	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	-
320-21044-8 MCFSMW-5_0816 PFC_IDA_DOD5 1763-23-1 Perfluorooctanesulfonic acid (PFOS) 22 ng/L M 1.2 MDL 1.0 Total 126120 8/17/2016 1:16 PM 8/22/2016 1:34 PM 9/4/2016 2:54 PM Perfluorinated Hydrocarbons	320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	375-95-1	Perfluorononanoic acid (PFNA)	0.92		J	0.61	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	
	320-21044-8	MCFSMW-5_0816		1763-23-1		22		M	1.2	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	_ · ·	
	320-21044-8	MCFSMW-5_0816	PFC_IDA_DOD5	335-67-1	Perfluorooctanoic acid (PFOA)	27	ng/L	М	0.70	MDL	1.0	Total	126120	8/17/2016 1:16 PM	8/22/2016 1:34 PM	9/4/2016 2:54 PM	Perfluorinated Hydrocarbons



Naval Installation Restoration Information Solution (NIRIS) Environmental Restoration Program (ERP) Records Transmittal Form

Purpose

Complete one copy of this form to accompany the paper and electronic versions of Environmental Restoration Program (ERP) records submitted for inclusion to NIRIS.

Name:	
Organization:	
Email:	Phone:
rd Information:	
Installation:	
Program: ERN	BRAC Supporting: MRP LUC RAD PC
Document Title:	
AOC, SITE, SWMU, UST, UXO:	
Sample Delivery Groups (SDGs):	
Document Date:	Number of Pages:
Contract Number:	CTO/DO Number:
Author/Affiliation:	
Distribution/Availa	bility Statement: A B C D E
Sensitive Content	Yes No Cite Pages:
Recommended File	Type: Administrative Record Post Decision Site Fil
 s:	



DATA VALIDATION REPORT

Site Name: Naval Weapons Station Earle, Colts Neck, New Jersey, Site 46 —

Military Sealift Command Firefighting School

Sample Date: 17 and 18 August 2016

Laboratory: Test America, Sacramento, California

Sample Delivery Groups: 320-21044-1, 320-21084-1, and 320-21080-1

Matrix: Groundwater and Potable Water Data Quality Level: Stage 4, Electronic and Manual

Analysis: Select Perfluorinated Compounds (PFCs) via Method 537 Modified

This report summarizes data review findings for groundwater and potable water samples collected in August 2016 using the following reference documents:

- Internal Draft Perfluorinated Compound Groundwater Investigation Sampling and Analysis Plan, Site 46 Military Sealift Command, Naval Weapons Station Earle Newport, Colts Neck, New Jersey, Resolution Consultants. (December 2015).
- Laboratory standard operating procedure (SOP) Perfluorinated Compounds (PFCs) in Water, Soils, Sediments, and Tissue [Method 37 Modified], Test America, Sacramento, California, WS-LC-0025, Revision 1.9. (May 2016).
- Contract Laboratory Program National Functional Guidelines for Chlorinated Dioxin/Furan Data review, United States Environmental Protection Agency. (September 2011).
- Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0. (July 2013).

Validation was performed on groundwater and potable water and quality control (QC) samples, summarized in Attachment A, Table A-1. Samples discussed in this validation report were analyzed and reported as definitive data. A full deliverable data packages, QC summaries and raw data, were submitted for data review.

The data were evaluated based on the following review elements:

- * Data completeness
- * Sample receipt and preservation
- * Initial calibration
- * Initial calibration verification
- * Continuing calibration verification
- Laboratory control sample/laboratory control sample duplicate results
- * Holding times
- * Isotope dilution recoveries
- Laboratory method blanks
 Blanks (equipment and field)
- * Field duplicate precision
 - Matrix spike/matrix spike duplicates (MS/MSDs)
- * Sample result transcriptions/recalculations

Acceptable data parameters for which all criteria were met or not qualified, as indicated above with an asterisk (*), are not discussed further.



Blanks

Blanks help determine how much, if any, contamination was introduced in the laboratory or the field. All results associated with a particular blank were evaluated to determine whether there was an inherent variability in the data, or if a problem was an isolated occurrence that did not affect the data. For this project, equipment blanks were collected by transferring laboratory-supplied water over a cleaned sampling device to assess potential cross-contamination that could potentially affect the quality of the associated samples. Field blanks were collected to assess potential ambient condition cross-contamination that could potentially affect the quality of the associated samples. The field blanks consisted of laboratory blank water bottles that were opened in the field and transferred into another container at each sampling location.

All laboratory blanks were free from contamination.

Equipment Blanks

EB081716 contained perfluorooctanesulfonic acid (PFOS) at a concentration of 1.3 nanograms per liter (ng/L). PFOS was detected below the limit of quantitation (LOQ) in MCFSMW-14_0816 and was qualified undetected "U" due to potential cross-contamination.

Field Blanks

FB081716 contained perfluorohexanesulfonic acid (PFHxS), PFOS, and perfluorooctanoic acid (PFOA) at concentrations of 2.4 ng/L, 2.9 ng/L, and 2.7 ng/L; respectively. PFOS was detected below the LOQ and were qualified as undetected "U" in groundwater sample MCFSMW-14_0816 due to potential cross-contamination. PFOA was detected below the LOQ and was qualified as undetected "U" in groundwater sample MCFSMW-14_0816 due to potential cross-contamination.

Matrix Spikes/Matrix Spike Duplicates

MS/MSDs are generated to provide information about the effect of each sample matrix on the sample preparation and the measurement methodology. MS/MSD percent recoveries (%Rs) assess the effect of the sample matrix on the accuracy of the analytical results. %Rs above the laboratory control limit could indicate a potential high result bias while %Rs below QC limits could indicate a potential low result bias. The relative percent difference (RPD) between the MS and MSD results is evaluated to assess sample precision. All RPDs were within QC limits.

Groundwater sample MCFSMW-16_0816 was spiked by the laboratory to assess accuracy and precision. PFOA (148%), PFOS (223%), and PFHxS (156%) %Rs was outside the 60-140% QC limit, indicating a potential high result bias. PFOA was qualified estimated "J" in MCFSMW-16_0816. PFOS and PFHxS groundwater sample result was greater than four times the added spike amount; therefore, no qualification was performed. MS/MSD qualifications performed were limited to the native (unspiked) sample and not the entire matrix batch.

Overall Assessment

The data from SDG 320-21044-1, 320-21084-1 and 320-21080-1 were reviewed independently from the laboratory to assess data quality. Results qualified as estimated may be high or low, but the data are usable for their intended purpose. The remaining results were acceptable without qualification; therefore, the data are usable for their intended purpose, according to U.S. Environmental Protection Agency and Department of Defense guidelines. Attachment B provides final results after data review.

Attachment A Sample and Analysis Summary

Table A-1 Sample Summary

Sample Delivery					
Group	Lab ID	Sample ID	Location	Sample Date	Matrix
320210441	320-21044-1	FB081716		8/17/2016	Field Blank
320210441	320-21044-2	EB081716		8/17/2016	Equipment Blank
320210441	320-21044-3	MCFSMW-3_0816	MCFSMW03	8/17/2016	Groundwater
320210441	320-21044-4	46MW05_0816	46MW05	8/17/2016	Groundwater
320210441	320-21044-5	46MW03_0816	46MW03	8/17/2016	Groundwater
320210441	320-21044-6	MCFSMW-14_0816	MCFSMW14	8/17/2016	Groundwater
320210441	320-21044-7	MCFSMW-4_0816	MCFSMW04	8/17/2016	Groundwater
320210441	320-21044-8	MCFSMW-5_0816	MCFSMW05	8/17/2016	Groundwater
320210841	320-21084-1	46MW04_0816	46MW04	8/18/2016	Groundwater
320210841	320-21084-2	46MW02_0816	46MW02	8/18/2016	Groundwater
320210841	320-21084-3	46MW01_0816	46MW01	8/18/2016	Groundwater
320210841	320-21084-4	MCFSMW-17_0816	MCFSMW17	8/18/2016	Groundwater
320210841	320-21084-5	MCFSMW-17_0816DUP	MCFSMW17	8/18/2016	Duplicate of MCFSMW-17_0816
320210841	320-21084-6	MCFSMW-16_0816	MCFSMW16	8/18/2016	Groundwater
320210841	320-21084-7	FB081816		8/18/2016	Field Blank
320210841	320-21084-8	EB081816		8/18/2016	Equipment Blank
320210801	320-21080-1	PWSB2_0816	PWSB2	8/18/2016	Potable Water
320210801	320-21080-2	POSTTB2_0816	POSTTB2	8/18/2016	Potable Water
320210801	320-21080-3	PWSF1_0816	PWSF1	8/18/2016	Potable Water
320210801	320-21080-4	POSTTF1_0816	POSTTF1	8/18/2016	Potable Water

Notes:

All samples were analyzed via laboratory standard operating procedure *Perfluorinated Compounds (PFCs) in Water, Soils, Sediments, and Tissue [Method 37 Modified],* Test America, Sacramento, California, WS-LC-0025, Revision 1.9, (May 2016) for the following select list of analytes: Perfluorobutanesulfonic Acid (PFBS), Perfluoroheptanoic Acid (PFHA), Perfluorooctane Sulfonic Acid (PFOS), and Perfluorooctanoic Acid (PFOA).

Attachment B
Final Validated Results after Data Review

Table B-1
Perfluorinated Compound Results: Groundwater – August 2016

	Sam	Group	3	320210441			320	210441		320210441					
			Lab ID	32	20-21044-1		320	0-21044	-2	320-21044-3			320-21044-4		4
	F	B081716		El	B08171	5	MCFSN	/IW-3_0	816	46MW05_0816		16			
	8	3/17/2016		8/	/17/201	6	8/17/2016			8/17/2016					
	е Туре	F	ield Blank		Equip	320-21044-2 EB081716 8/17/2016 Equipment Blank esult Qual RC 1.9 U 1.9 U 1.9 U 1.9 U 1.9 U 1.9 J			Groundwater			Groundwater			
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	1.8	U		1.9	U		31			47		
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	2.4			1.9	U		26			18		
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	2.4			1.9	U		790			520		
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	1.8	U		1.9	U		8.7			1	J	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	2.9	J		1.3	J		650			1300		
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	2.7			1.9	U		100			82		

	Sam	ple Delivery	Group	3	20210441		32	021044	1	320210441			320210441		
			Lab ID	32	20-21044-5	5	320	0-21044	-6	320-21044-7			320-21044-8		8
	461	MW03_081	6	MCFSI	MW-14_	_0816	MCFSN	/W-4_0	816	MCFSMW-5_0816		816			
	8	3/17/2016		8/	17/201	6	8/1	17/2016		8/17/2016					
	Gr	oundwate	r	Gro	320-21044-6 320 MCFSMW-14_0816 MCFS 8/17/2016 8/ Groundwater Gro esult Qual RC Result 1.9 U 26 1.9 U 77 5 200 1.9 U 21 2.8 U be,bf 69			undwate	er	Grou	roundwater				
Method	Analyte	CAS No Units		Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	1.9	U		1.9	U		26			12	1	
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	1.9	U		1.9	U		77			13	1	
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	3.4			5			200			45	1	
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	1.9	U		1.9	U		21			0.92	J	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	6.1			2.8	U	be,bf	69			22	1	
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	335-67-1 NG L		U		1.9	U	bf	160			27	1	

	Sam	Group	3:	20210841		320210841			320210841			320210841			
			Lab ID	32	0-21084-1	l	320)-21084	-2	320-21084-3			320-21084-4		4
	46N	/IW04_081	6	46M	W02_08	316	46MV	V01_08	16	MCFSMW-17_0816		1816			
		8	/18/2016		8/	18/201	6	8/1	8/2016		8/18/2016				
	е Туре	Gr	oundwate	r	Gro	320-21084-2 46MW02_0816 8/18/2016 Groundwater ult Qual RC I		Groundwater			Groundwater		er		
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	27			41			6.8			4.1		
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	16			22			0.95	J		11		
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	500			190			110			23		
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	21			13			3.9			2.2	J	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	1763-23-1 NG_L			·	300			2900			36		
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)			42			47			1.9	J		41		

Table B-1 Perfluorinated Compound Results: Groundwater - August 2016 (continued)

	Sam	Group	32	20210841		320	210841		320210841			320210841			
	Lab ID						320-	-21084-	6	320-21084-7			320-21084-8		
	MCFSM\	N-17_0816	DUP	MCFSM	W-16_0	816	FB	081816		EB081816					
	8.	/18/2016		8/1	8/2016		8/18/2016			8/18/2016					
	Duplicate of	MCFSMW-	17_0816	Grou	undwate	er	Field Blank			Equipment Blank					
Method	Analyte	CAS No	Units	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC	Result	Qual	RC
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	3.9			22			1.9	U		2	U	
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	10			22			1.9	U		2	U	
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	26			190			1.9	U		2	U	
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	1.9	J		5			1.9	U		2	U	
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	32			1700	J		2.8	J		1.6	J	
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1 NG_L		41			110	J	m	1.9	U		2	U	

Notes:

NG_L = Nanograms per liter

Qual = Final qualifier

RC = Data qualification reason code
U = Undetected — The parameter was analyzed but undetected.

= **EstImated Value**—One or more quality control parameters were outside control limits or the analyte concentration was less than the limit of quantitation.

Qualification Reason Codes

Result qualified as undetected due to field-derived blank results.
 Results qualified as undetected due to equipment blank results.

be

= Results qualified as estimated due to matrix spike/matrix spike duplicate.

Table B-2
Perfluorinated Compound Results: Potable Water – August 2016

		very Group	320210801	320210801	320210801	320210801	
			Lab ID	320-21080-1	320-21080-2	320-21080-3	320-21080-4
		PWSB2_0816	POSTTB2_0816	PWSF1_0816	POSTTF1_0816		
		imple Date	8/18/2016	8/18/2016	8/18/2016	8/18/2016	
		Potable Water	Potable Water	Potable Water	Potable Water		
Method	Analyte	CAS No	Units				
TA_WS-LC-0025	PERFLUOROBUTANESULFONIC ACID (PFBS)	375-73-5	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUOROHEPTANOIC ACID (PFHPA)	375-85-9	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUOROHEXANESULFONIC ACID (PFHXS)	355-46-4	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUORONONANOIC ACID (PFNA)	375-95-1	NG_L	2 U	1.9 U	2 U	2 U
TA_WS-LC-0025	PERFLUOROOCTANE SULFONIC ACID (PFOS)	1763-23-1	NG_L	3 U	2.9 U	2.9 U	3 U
TA_WS-LC-0025	PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	NG_L	2 U	1.9 U	2 U	2 U

Notes:

NG_L = Nanograms per liter

U = Undetected — The parameter was analyzed but undetected.

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYP	LOCATION_TYPE_DESC	COORD_X CC	ORD_Y CONTRACT_ID	DO_CTO_	NUMBER CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE ANALYTICAL_METHOD_GRP_E
MID_ATLANTIC	EARLE_NWS	320210441			_	_		_	N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	wq	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961 N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961 N62470-11-D-8013	WE09	RESOLUTION CON	46MW05_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001 N62470-11-D-8013	WE09	RESOLUTION CON	46MW03_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821 N62470-11-D-8013	WE09		MCFSMW-4_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013	_	RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716 N62470-11-D-8013			MCFSMW-3_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013	_	RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001 N62470-11-D-8013		RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013		RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855 N62470-11-D-8013			MCFSMW-5_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013		RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606				MCFSMW-5_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716 N62470-11-D-8013	_		MCFSMW-3_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855 N62470-11-D-8013	_		MCFSMW-5_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961 N62470-11-D-8013	_	RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716 N62470-11-D-8013	_		MCFSMW-3_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855 N62470-11-D-8013	_		MCFSMW-5_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821 N62470-11-D-8013	_		MCFSMW-4_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001 N62470-11-D-8013	_	RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013	WEU9	RESOLUTION CON	EB081/16	WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID ATLANTIC	EARLE NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332 N62470-11-D-8013	WEOO	DECOLUTION CON	MCFSMW-14 0816	we	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE NWS	320210441	3112 00040	3111 00040	IVICESIVIVV 14	VVLIVI	Worldoning wen	3/3318	N62470-11-D-8013 N62470-11-D-8013		RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961 N62470-11-D-8013		RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE NWS	320210441	3112 00040	3112 00040	401414403	W LIVI	Worldoning well	373024.0001	N62470-11-D-8013	_	RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013		RESOLUTION CON		WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID ATLANTIC	EARLE NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001 N62470-11-D-8013		RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID ATLANTIC	EARLE NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001 N62470-11-D-8013		RESOLUTION CON	_	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
_	_														
MID ATLANTIC	EARLE NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-14 0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID ATLANTIC	EARLE NWS	320210441	SITE 00046	SITE 00046	46MW03	WLM	Monitoring well	575968.0001	509073.0001 N62470-11-D-8013	WE09	RESOLUTION CON	46MW03 0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013	WE09	RESOLUTION CON	FB081716	WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW04	WLM	Monitoring well	575468	508821 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-4_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW03	WLM	Monitoring well	575579	508716 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-3_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332 N62470-11-D-8013	_		MCFSMW-14_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961 N62470-11-D-8013		RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441							N62470-11-D-8013	WE09	RESOLUTION CON	EB081716	WQ	Water for QC samples	17-Aug-16 Perfluoroalkyl Compounds
												1			
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332 N62470-11-D-8013	_		MCFSMW-14_0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	46MW05	WLM	Monitoring well	575824.0001	508961 N62470-11-D-8013	_	RESOLUTION CON		WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	508855 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-5_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
	54 D. 5 AUA/6	220240444	SITE 00046	CITE OCCAS				F7	500222	=					47.4 . 46.2 . 9
MID_ATLANTIC	EARLE_NWS	320210441	SITE 00046	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332 N62470-11-D-8013	WE09	RESOLUTION CON	MCFSMW-14_0816	WG	Ground water	17-Aug-16 Perfluoroalkyl Compounds
MAID ATI ANTIC	EARLE NIME	220210444	SITE 00046	CITE 0004C	NACECNAMA A	\A/I B/I	Manitoring well	F7FF40	E00222 NC2470 44 E 2212	WEGG	DECOLUTION: SS	MACECRANAL 4.4 OCAC	WC	Cround water	17 Aug 16 Dorft
MID_ATLANTIC	EARLE_NWS	320210441 320210441	311E UUU4b	SITE 00046	MCFSMW14	WLM	Monitoring well	575518	509332 N62470-11-D-8013			MCFSMW-14_0816	WQ	Ground water Water for QC samples	17-Aug 16 Perfluoroalkyl Compounds
MID_ATLANTIC	EARLE_NWS EARLE NWS	320210441	SITE 00046	SITE 00046	MCFSMW05	WLM	Monitoring well	575606	N62470-11-D-8013 508855 N62470-11-D-8013		RESOLUTION CON	MCFSMW-5 0816		Ground water	17-Aug-16 Perfluoroalkyl Compounds 17-Aug-16 Perfluoroalkyl Compounds
MID_ATLANTIC	LANLE_INVV3	320210441	311E 00040	311E UUU40	IVICESIVIVVUS	VV LIVI	wioriitoring well	3/5606	3U0033 Nb24/U-TT-D-8U13	WEU9	KESULUTION CON	inicipilini-2_0810	WG	Ground water	17-Aug-16 Pernuoroalkyi Compounds