TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-107269-1

Job Description: FAY-2018 Residential Sampling

For:
Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, DE 19713

Attention: Michael Aucoin

Approved for release.
Michelle A Johnston
Project Manager II
3/21/2018 1:09 PM

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03/21/2018

cc: Barbara McGraw
Kelly Rinehimer

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.

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Glossary

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

CASE NARRATIVE
Client: The Chemours Company FC, LLC
Project: FAY-2018 Residential Sampling
Report Number: 280-107269-1

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.

For samples requiring analysis at a dilution, the dilution factor has been multiplied by the Method Detection Limit (MDL) for each analyte and evaluated versus the project-specific reporting limit (PSRL). If the obtained value is below the PSRL, then the PSRL is preserved as the reporting limit for the diluted result, otherwise, the obtained value becomes the reporting limit. This is done in order to maintain the PSRL to meet project requirements at the request of the client and to report the lowest possible RL for each analyte.

Receipt
The samples were received on 3/10/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

Receipt Exceptions
There was no custody seal present on the cooler at sample receipt. It can be noted that the shipping tape was fully intact and there was no evidence of tampering with the sample volume during transit. The client was notified on 3/12/2018.

No other anomalies were observed during sample receipt.

Standards
Analytical standards were prepared using the acid form of the compound Perfluoro(2-propoxypropanoic) acid (HFPO-DA).

The surrogate compound, 13C3 HFPO-DA was introduced at the extraction step and was used as an internal standard for quantitation of HFPO-DA. The concentration of the surrogate spike is 0.2ug/L in water samples or 50ug/kg in soil samples.

Sample Extraction and Analysis
The samples presented in this report were extracted for the target analyte by TestAmerica Denver's SOP DV-OP-0019, Rev. 8 and analyzed for the target analyte by TestAmerica Denver's SOP DV-LC-0012, Rev. 14, with the exceptions of the items indicated in the DuPont QAS.

For water samples a 250mL aliquot of each sample is extracted using solid phase extraction technique with methanol conditioned Weak Anion Exchange cartridges. Each sample is spiked with the internal standard/surrogate, prior to extraction. After the sample is passed through the cartridge, the analytes are eluted with 2%Formic Acid, 6mLs of HPLC grade MeOH and then with 4mL of 10% ammonium hydroxide in methanol. The final volume is brought to 5mL using reagent water and the extract is analyzed by LC/MS/MS.

The target analyte is separated from other components on a high-performance liquid chromatography (HPLC) C18 column with a mobile phase mixture of water containing 0.1% ammonium acetate and methanol. The mass spectrometer detector is operated in the electrospray (ESI) negative ion mode. The instrument is calibrated at 7 concentration levels (0.2, 0.5, 1.0, 2.0, 5.0, 10 and 20ug/L). The target analyte is detected as the perfluoro(2-propoxypropanoic) acid with the parent ion of 328.8 amu. The daughter ions used for analysis by LC/MS/MS are at 284.8 amu. The ratio of the peak areas to the two ions must be ±20% of the ion ratios in the mid-point ICAL for qualitative identification. Sample results are quantitated using the internal standard dilution.

Tuning and Calibration
The instrument is tuned with a solution of the target analyte such that mass assignments are within ±0.5 amu of the daughter ions. The instrument is calibrated with seven concentration levels from 0.2ug/L to 20ug/L. Linear regression ($y=ax+b$) or quadratic functions (y=ax+cx2+b) are used with a correlation coefficient or coefficient of determination ≥0.990.
Following initial calibration (ICAL), an initial calibration blank (ICB) is tested, which consists of methanol spiked with the surrogate. The result for the target analyte must be less than one half the reporting limit (RL) to proceed.

Next an initial calibration verification (ICV) standard is tested. This is a mid-level concentration standard from a different vendor from the ICAL standard. If a different vendor is not available then, a different lot number from the same vendor is used. The ICV must be within 80-120% of the true value.

The quantitation limit verification standard is a standard from the same source as the ICAL tested run at the RL level to determine accuracy near the detection limit. This recovery must be within 70-130%.

Continuing calibration verification (CCV) standards are tested every 10 injections and are from the same source as the ICAL and are at mid-level concentration. The recovery of the CCVs must be 70-130% or recalibration is necessary.

Method QC Samples

The Method Blank is processed reagent water spiked with internal standard and prepared with each batch of 20 samples of the same matrix. All samples in the batch are processed at the same time and with the same reagents. The method blank must be less than the LOD or associated batch samples must be re-extracted and reanalyzed.

Each batch is prepared with a low- and a mid-level concentration spike Laboratory Control Samples (LCS). The recoveries of these samples must be within 70-130% or associated batch samples must be re-extracted and reanalyzed. If the recovery is biased high and samples are non-detect, results can be reported without re-extraction.

Calculations

Sample Result Calculation

For internal standard quantitation,
HFPO-DA Response = Area of HFPO-DA * 13C3 HFPO-DA concentration / area of 13C3 HFPO-DA

Concentration in waters, ug/L = (Cex Vt)/(Vo)

Where:
Cex = Concentration measured in sample extract from the target analyte response (ng/mL)
Vt = Volume of total extract (mL)
Vo = Volume of water extracted (mL)

2. Percent Recovery Calculation

Spike Recovery = (SSR-SR)/(SA)x100%

Where:
SSR = Spike sample result
SR = Sample result
SA = Spike added

3. Relative Percent Difference Calculation

RPD = (SR - DR)/(1/2(SR+DR))x100

Where:
SR = Sample result
DR = Duplicate result

HFPO-DA Analysis Anomalies

Samples FAY-D-FB-030918 (280-107269-1), FAY-D-5712MRSHR-W1-1-030918 (280-107269-2), FAY-D-5712MRSHR-W1-2-030918 (280-107269-3), FAY-D-3818HEART-W1-1-030918 (280-107269-4) and FAY-D-3818HEART-W1-2-030918 (280-107269-5) were analyzed for Perfluorinated Hydrocarbons (HFPO-DA) in accordance with SOP DV-LC-0012. The samples were prepared on 03/13/2018 and analyzed on 03/19/2018.

Calibration 9 (STD125) has been included in the raw data, but was not used in the Initial Calibration (ICAL).

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

The project required MS and Sample Duplicate could not be performed for prep batch 280-407780, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Fluorochemical Characterization of Water Samples
Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-FB-030918	280-107269-1	3/9/2018 8:03	3/10/2018	3/19/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.
< = less than the stated value
** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:
Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:
For samples analyzed in duplicate:
If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries: Acceptable Range: 70%-130%
The project required MS and Sample Duplicate could not be performed for prep batch 280-407780, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

SUBMITTED BY:

Michelle A. Johnston, Project Manager — Date 3/21/2018

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Fluorochemical Characterization of Water Samples
Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-5712MRSHR-W1-1-030918	280-107269-2	3/9/2018 8:27	3/10/2018	3/19/2018	0.10

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.
< = less than the stated value
** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:
Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:
For samples analyzed in duplicate:
If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries: Acceptable Range: 70%-130%
The project required MS and Sample Duplicate could not be performed for prep batch 280-407780, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

SUBMITTED BY:

Michelle A. Johnston, Project Manager 3/21/2018 Date

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Fluorochemical Characterization of Water Samples
Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-5712MRSHR-W1-2-030918	280-107269-3	3/9/2018 8:28	3/10/2018	3/19/2018	0.12

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.
< = less than the stated value
** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:
Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:
For samples analyzed in duplicate:
If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries: Acceptable Range: 70%-130%
The project required MS and Sample Duplicate could not be performed for prep batch 280-407780, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

SUBMITTED BY:

Michelle A. Johnston, Project Manager 3/21/2018 Date

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Fluorochemical Characterization of Water Samples
Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-3818HEART-W1-1-030918	280-107269-4	3/9/2018 8:52	3/10/2018	3/19/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.
< = less than the stated value
** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:
Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:
For samples analyzed in duplicate:
If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries: Acceptable Range: 70%-130%
The project required MS and Sample Duplicate could not be performed for prep batch 280-407780, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

SUBMITTED BY:

Michelle A. Johnston, Project Manager — 3/21/2018 Date

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Fluorochemical Characterization of Water Samples
Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-3818HEART-W1-2-030918	280-107269-5	3/9/2018 8:52	3/10/2018	3/19/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.
< = less than the stated value
** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:
Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:
For samples analyzed in duplicate:
If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries: Acceptable Range: 70%-130%
The project required MS and Sample Duplicate could not be performed for prep batch 280-407780, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable low-level LCS and mid-level LCS/LCSD analyses data.

SUBMITTED BY:

Michelle A. Johnston, Project Manager — 3/21/2018 Date

Executive Summary

Client: Chemours Company FC, LLC The | Job Number: 280-107269-1

8321A : HFPO-DA

Lab Sample ID	Client Sample ID	Analyte	Individual Result (ug/L)	Final Result (ug/L)	RL
280-107269-1	FAY-D-FB-030918	HFPO-DA	<0.010	<0.010	0.010
280-107269-2	FAY-D-5712MRSHR-W1-1-030918	HFPO-DA	0.10	0.10	0.010
280-107269-3	FAY-D-5712MRSHR-W1-2-030918	HFPO-DA	0.12	0.12	0.010
280-107269-4	FAY-D-3818HEART-W1-1-030918	HFPO-DA	<0.010	<0.010	0.010
280-107269-5	FAY-D-3818HEART-W1-2-030918	HFPO-DA	<0.010	<0.010	0.010

(a) Method 8321A

(b) DUP or REP indicates a laboratory duplicate.

(c) If the sample and laboratory duplicate are both greater than 5X the RL and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher of the sample and laboratory duplicate value is reported. If the sample and/or laboratory duplicate are less than 5X the RL, and the absolute difference between the sample and laboratory duplicate is less than the RL, the average value is reported. If the absolute difference is greater than the RL, the higher of the sample and laboratory duplicate value is reported. If either the sample or the duplicate result is greater than or equal to the RL and the other is less than the RL, then the higher of the two is reported.

(d) Moisture Determined by ASTM D2216.

(e) Reporting Limit (RL) = The concentration equivalent to the low calibration standard.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-FB-030918 — Lab Sample ID: 280-107269-1

No Detections.

Client Sample ID: FAY-D-5712MRSHR-W1-1-030918 — Lab Sample ID: 280-107269-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HFPO-DA	0.10		0.010		ug/L	1		8321A	Total/NA

Client Sample ID: FAY-D-5712MRSHR-W1-2-030918 — Lab Sample ID: 280-107269-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HFPO-DA	0.12		0.010		ug/L	1		8321A	Total/NA

Client Sample ID: FAY-D-3818HEART-W1-1-030918 — Lab Sample ID: 280-107269-4

No Detections.

Client Sample ID: FAY-D-3818HEART-W1-2-030918 — Lab Sample ID: 280-107269-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-FB-030918

Lab Sample ID: 280-107269-1

Date Collected: 03/09/18 08:03
Date Received: 03/10/18 09:20

Matrix: Water

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010		0.010		ug/L		03/13/18 17:53	03/19/18 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*64*		*50 - 200*	*03/13/18 17:53*	*03/19/18 15:50*	*1*

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-5712MRSHR-W1-1-030918

Lab Sample ID: 280-107269-2

Date Collected: 03/09/18 08:27
Date Received: 03/10/18 09:20

Matrix: Water

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	**0.10**		0.010		ug/L		03/13/18 17:53	03/19/18 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*61*		*50 - 200*	*03/13/18 17:53*	*03/19/18 15:53*	*1*

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-5712MRSHR-W1-2-030918

Lab Sample ID: 280-107269-3

Date Collected: 03/09/18 08:28
Date Received: 03/10/18 09:20

Matrix: Water

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	**0.12**		0.010		ug/L		03/13/18 17:53	03/19/18 16:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*55*		*50 - 200*	*03/13/18 17:53*	*03/19/18 16:00*	*1*

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-3818HEART-W1-1-030918

Lab Sample ID: 280-107269-4

Date Collected: 03/09/18 08:52
Date Received: 03/10/18 09:20

Matrix: Water

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010		0.010		ug/L		03/13/18 17:53	03/19/18 16:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*62*		*50 - 200*	*03/13/18 17:53*	*03/19/18 16:03*	*1*

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-3818HEART-W1-2-030918

Lab Sample ID: 280-107269-5

Date Collected: 03/09/18 08:52
Date Received: 03/10/18 09:20

Matrix: Water

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010		0.010		ug/L		03/13/18 17:53	03/19/18 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*64*		*50 - 200*	*03/13/18 17:53*	*03/19/18 16:06*	*1*

Default Detection Limits

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Method: 8321A - HFPO-DA

Prep: 3535

Analyte	RL	MDL	Units	Method
HFPO-DA	0.010	0.0051	ug/L	8321A

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Method: 8321A - HFPO-DA

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

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	**Client Sample ID**	**HFPODA (50-200)**						
280-107269-1	FAY-D-FB-030918	64						
280-107269-2	FAY-D-5712MRSHR-W1-1-0309	61						
280-107269-3	FAY-D-5712MRSHR-W1-2-0309	55						
280-107269-4	FAY-D-3818HEART-W1-1-0309	62						
280-107269-5	FAY-D-3818HEART-W1-2-0309	64						
DLCK 280-404345/13	Lab Control Sample	104						
LCS 280-407780/2-A	Lab Control Sample	64						
LCSD 280-407780/3-A	Lab Control Sample Dup	68						
LLCS 280-407780/4-A	Lab Control Sample	64						
MB 280-407780/1-A	Method Blank	62						

Surrogate Legend

HFPODA = 13C3 HFPO-DA

Method: 8321A - HFPO-DA

Lab Sample ID: DLCK 280-404345/13 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 404345

Analyte			Spike Added	DLCK Result	DLCK Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.250	<0.50		ug/L		90	70 - 130		

Surrogate	*DLCK %Recovery*	*DLCK Qualifier*	*Limits*
13C3 HFPO-DA	*104*		*50 - 200*

Lab Sample ID: MB 280-407780/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 408339 — **Prep Batch: 407780**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010		0.010		ug/L		03/13/18 17:53	03/19/18 14:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*62*		*50 - 200*	*03/13/18 17:53*	*03/19/18 14:46*	*1*

Lab Sample ID: LCS 280-407780/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 408339 — **Prep Batch: 407780**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.200	0.219		ug/L		110	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*64*		*50 - 200*

Lab Sample ID: LCSD 280-407780/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 408339 — **Prep Batch: 407780**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.200	0.221		ug/L		111	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*68*		*50 - 200*

Lab Sample ID: LLCS 280-407780/4-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 408339 — **Prep Batch: 407780**

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0200	0.0210		ug/L		105	70 - 130		

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C3 HFPO-DA	*64*		*50 - 200*

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

LCMS

Analysis Batch: 404345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-404345/13	Lab Control Sample	Total/NA	Water	8321A	

Prep Batch: 407780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-107269-1	FAY-D-FB-030918	Total/NA	Water	3535	
280-107269-2	FAY-D-5712MRSHR-W1-1-030918	Total/NA	Water	3535	
280-107269-3	FAY-D-5712MRSHR-W1-2-030918	Total/NA	Water	3535	
280-107269-4	FAY-D-3818HEART-W1-1-030918	Total/NA	Water	3535	
280-107269-5	FAY-D-3818HEART-W1-2-030918	Total/NA	Water	3535	
MB 280-407780/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-407780/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 280-407780/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
LLCS 280-407780/4-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 408339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-107269-1	FAY-D-FB-030918	Total/NA	Water	8321A	407780
280-107269-2	FAY-D-5712MRSHR-W1-1-030918	Total/NA	Water	8321A	407780
280-107269-3	FAY-D-5712MRSHR-W1-2-030918	Total/NA	Water	8321A	407780
280-107269-4	FAY-D-3818HEART-W1-1-030918	Total/NA	Water	8321A	407780
280-107269-5	FAY-D-3818HEART-W1-2-030918	Total/NA	Water	8321A	407780
MB 280-407780/1-A	Method Blank	Total/NA	Water	8321A	407780
LCS 280-407780/2-A	Lab Control Sample	Total/NA	Water	8321A	407780
LCSD 280-407780/3-A	Lab Control Sample Dup	Total/NA	Water	8321A	407780
LLCS 280-407780/4-A	Lab Control Sample	Total/NA	Water	8321A	407780

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: FAY-D-FB-030918 — Lab Sample ID: 280-107269-1

Date Collected: 03/09/18 08:03
Date Received: 03/10/18 09:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.7 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 15:50	AGCM	TAL DEN

Client Sample ID: FAY-D-5712MRSHR-W1-1-030918 — Lab Sample ID: 280-107269-2

Date Collected: 03/09/18 08:27
Date Received: 03/10/18 09:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258.6 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 15:53	AGCM	TAL DEN

Client Sample ID: FAY-D-5712MRSHR-W1-2-030918 — Lab Sample ID: 280-107269-3

Date Collected: 03/09/18 08:28
Date Received: 03/10/18 09:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.3 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 16:00	AGCM	TAL DEN

Client Sample ID: FAY-D-3818HEART-W1-1-030918 — Lab Sample ID: 280-107269-4

Date Collected: 03/09/18 08:52
Date Received: 03/10/18 09:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.8 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 16:03	AGCM	TAL DEN

Client Sample ID: FAY-D-3818HEART-W1-2-030918 — Lab Sample ID: 280-107269-5

Date Collected: 03/09/18 08:52
Date Received: 03/10/18 09:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.5 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 16:06	AGCM	TAL DEN

Client Sample ID: Method Blank — Lab Sample ID: MB 280-407780/1-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 14:46	AGCM	TAL DEN

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Client Sample ID: Lab Control Sample — Lab Sample ID: DLCK 280-404345/13

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8321A		1			404345	02/08/18 13:38	AGCM	TAL DEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 280-407780/2-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 14:49	AGCM	TAL DEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 280-407780/3-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 14:53	AGCM	TAL DEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LLCS 280-407780/4-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	407780	03/13/18 17:53	AAH	TAL DEN
Total/NA	Analysis	8321A		1			408339	03/19/18 14:56	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
North Carolina (WW/SW)	State Program	4	358	12-31-18

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

Analysis Method	Prep Method	Matrix	Analyte
8321A	3535	Water	HFPO-DA

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Method	Method Description	Protocol	Laboratory
8321A	HFPO-DA	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107269-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-107269-1	FAY-D-FB-030918	Water	03/09/18 08:03	03/10/18 09:20
280-107269-2	FAY-D-5712MRSHR-W1-1-030918	Water	03/09/18 08:27	03/10/18 09:20
280-107269-3	FAY-D-5712MRSHR-W1-2-030918	Water	03/09/18 08:28	03/10/18 09:20
280-107269-4	FAY-D-3818HEART-W1-1-030918	Water	03/09/18 08:52	03/10/18 09:20
280-107269-5	FAY-D-3818HEART-W1-2-030918	Water	03/09/18 08:52	03/10/18 09:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Instrument ID: LC_LCMS7 Analysis Batch Number: 390728

Lab Sample ID: STD001 280-390728/3 IC Client Sample ID:

Date Analyzed: 10/10/17 09:35 Lab File ID: hfpo717J10026.d GC Column: Synergi Hydro ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	0.89	Baseline	meyera	10/10/17 11:50

8321A

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Instrument ID: LC_LCMS7 Analysis Batch Number: 404345

Lab Sample ID: STD001 280-404345/3 IC Client Sample ID:

Date Analyzed: 02/08/18 13:05 Lab File ID: hfpo718B08034.d GC Column: Synergi Hydro ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Assign Peak	meyera	02/08/18 15:19

Lab Sample ID: STD002 280-404345/4 IC Client Sample ID:

Date Analyzed: 02/08/18 13:08 Lab File ID: hfpo718B08035.d GC Column: Synergi Hydro ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:19

Lab Sample ID: DLCK 280-404345/13 Client Sample ID:

Date Analyzed: 02/08/18 13:38 Lab File ID: hfpo718B08044.d GC Column: Synergi Hydro ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:20

8321A

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
.13C3 HFPO-DA_00010	03/06/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
.HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-0_00032	02/22/18	02/08/18	PFC_Dill_Solvent, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
HFPO_CAL-1_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	0.5 uL	HFPO-DA	0.25 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-1_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	0.5 uL	HFPO-DA	0.25 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-2_00032	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	1 uL	HFPO-DA	0.5 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-2_00033	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	1 uL	HFPO-DA	0.5 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-3_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	2 uL	HFPO-DA	1 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-3_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	2 uL	HFPO-DA	1 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-4_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					HFPO Spike_00003	4 uL	HFPO-DA	2 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-4_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	4 uL	HFPO-DA	2 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-5_00070	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	10 uL	HFPO-DA	5 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-5_00080	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	10 uL	HFPO-DA	5 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
HFPO_CAL-5_00084	04/02/18	03/19/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00010	20 uL	13C3 HFPO-DA	10 ug/L
					HFPO Spike_00005	10 uL	HFPO-DA	5 ug/L
.HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00010	03/06/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00005	03/07/19	03/07/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00005	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00005	03/07/19	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-6_00070	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	20 uL	HFPO-DA	10 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-6_00080	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	20 uL	HFPO-DA	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-6_00084	04/02/18	03/19/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00010	20 uL	13C3 HFPO-DA	10 ug/L
					HFPO Spike_00005	20 uL	HFPO-DA	10 ug/L
.HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00010	03/06/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00005	03/07/19	03/07/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00005	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00005	03/07/19	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-7_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	50 uL	HFPO-DA	25 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-7_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	50 uL	HFPO-DA	25 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-8_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00003	100 uL	HFPO-DA	50 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-8_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	100 uL	HFPO-DA	50 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-9_00001	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
					HFPO Spike_00004	200 uL	HFPO-DA	100 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
							13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_ICV_00032	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
					HFPO Spike_00003	4 uL	HFPO-DA	2 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPODA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_ICV_00034	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
					HFPO ICV_00001	10 uL	HFPO-DA	1.95009 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO ICV_00001	11/03/18	11/03/17	Methanol, Lot 12345	100 mL	HFPO SS stock_00002	20 uL	HFPO-DA	0.195009 ug/mL
..HFPO SS stock_00002	11/03/18	11/03/17	Methanol, Lot 12345	500 mL	HFPO SS_00003	0.5026 g	HFPO-DA	975.044 ug/mL
...HFPO SS_00003	05/23/21	Synquest Laboratories, Lot Q141-128			(Purchased Reagent)		HFPO-DA	97 %

Reagent

13C3 HFPO-DA_00004

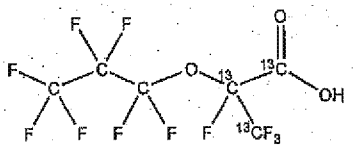
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA **LOT NUMBER:** M3HFPODA0616

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	06/25/2016		
EXPIRY DATE: (mm/dd/yyyy)	06/25/2019		
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.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

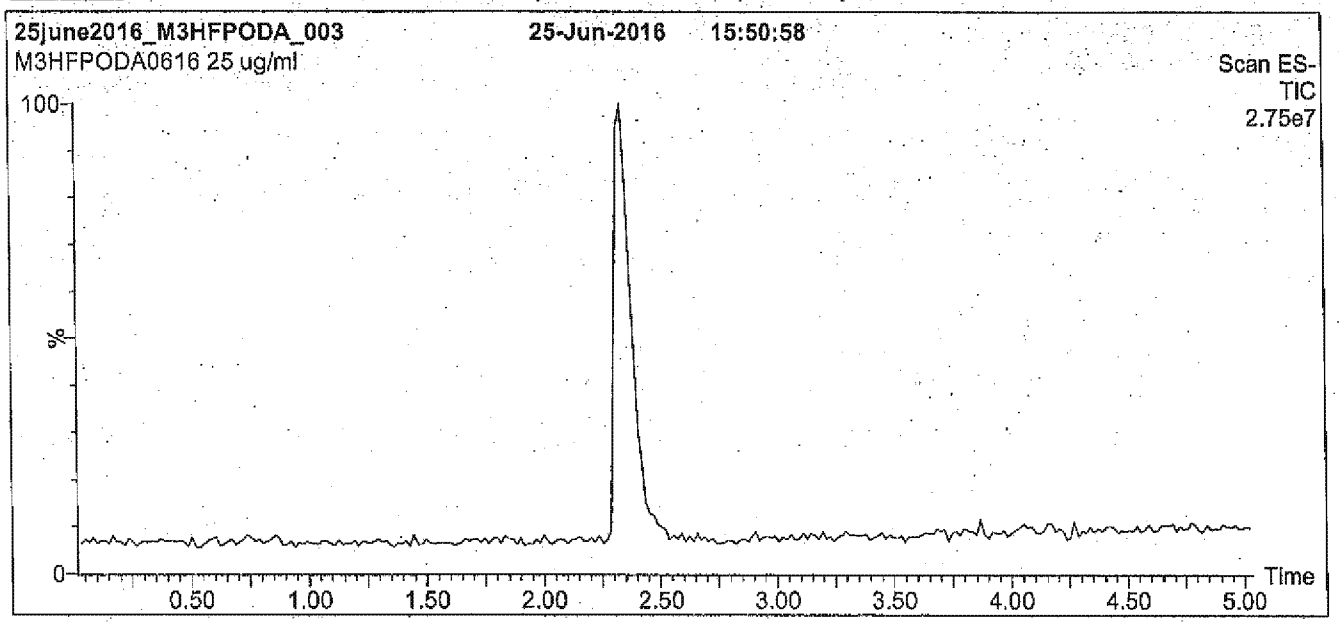
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

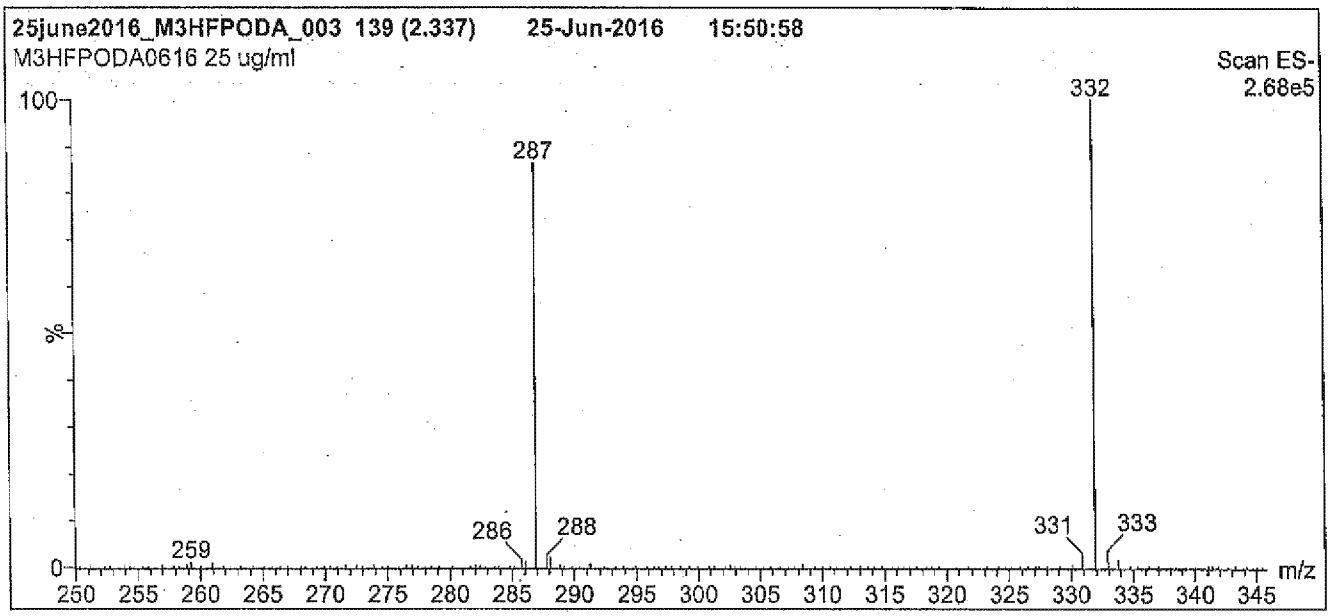
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

Figure 1: **M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

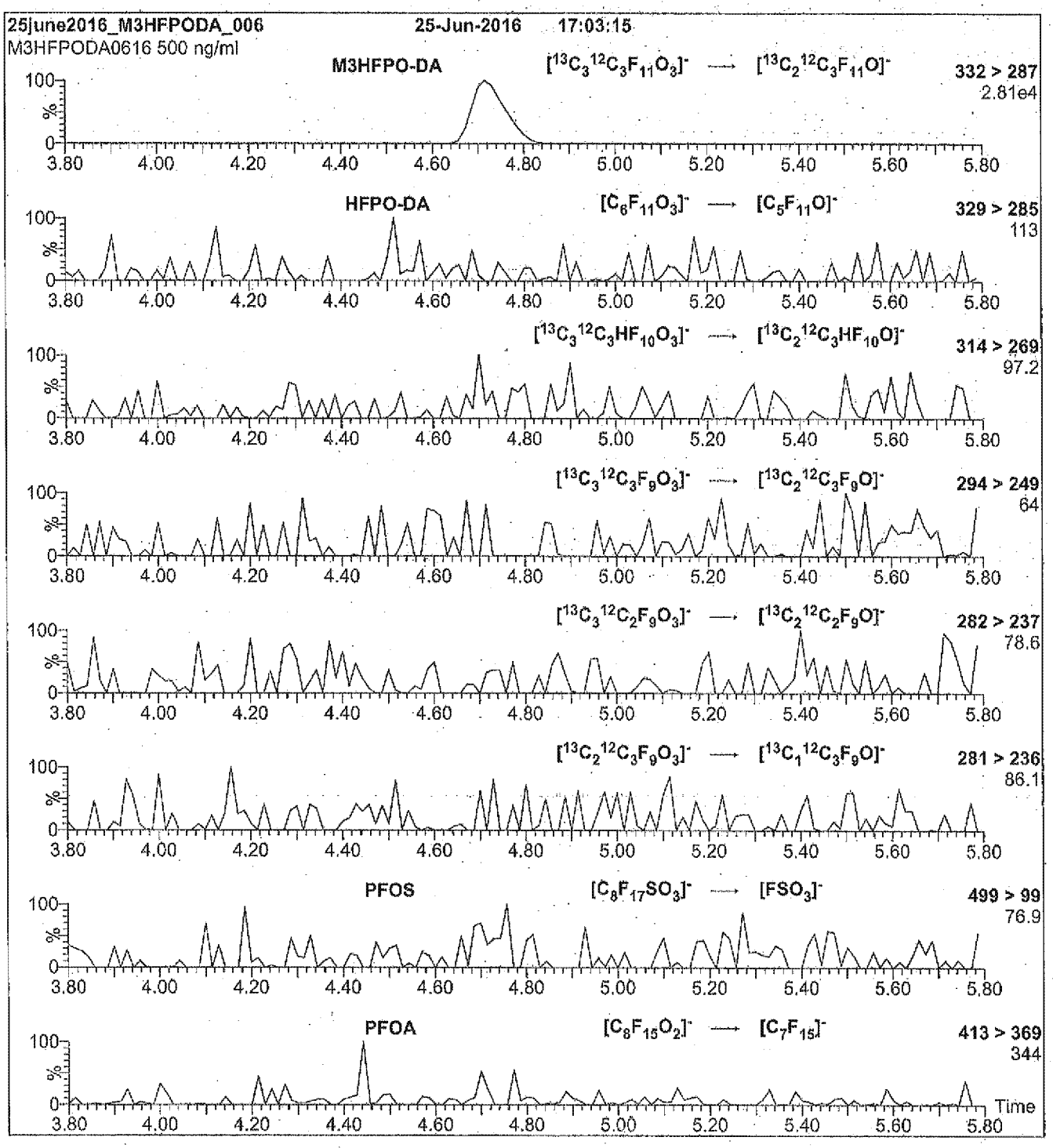
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 9.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3HFPO-DA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 5

Reagent

13C3 HFPO-DA_00008

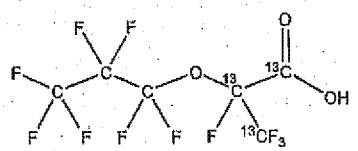
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA **LOT NUMBER:** M3HFPODA0817

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	08/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	08/17/2020		
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 ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/25/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

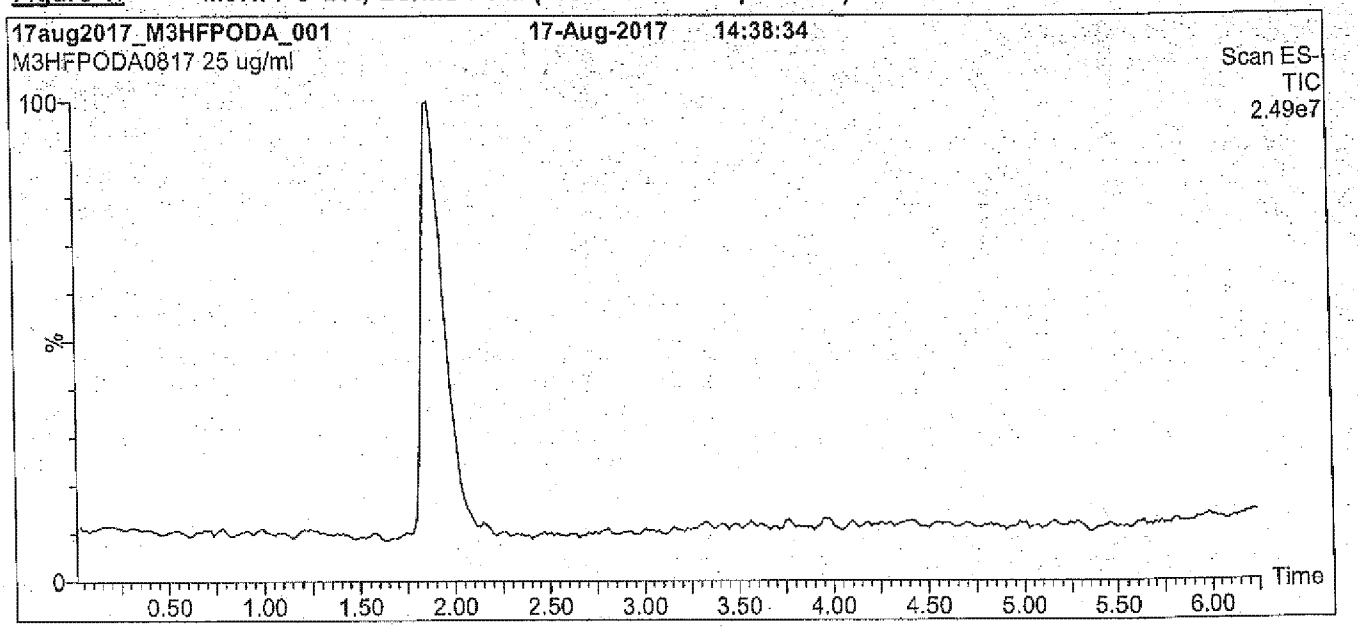
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

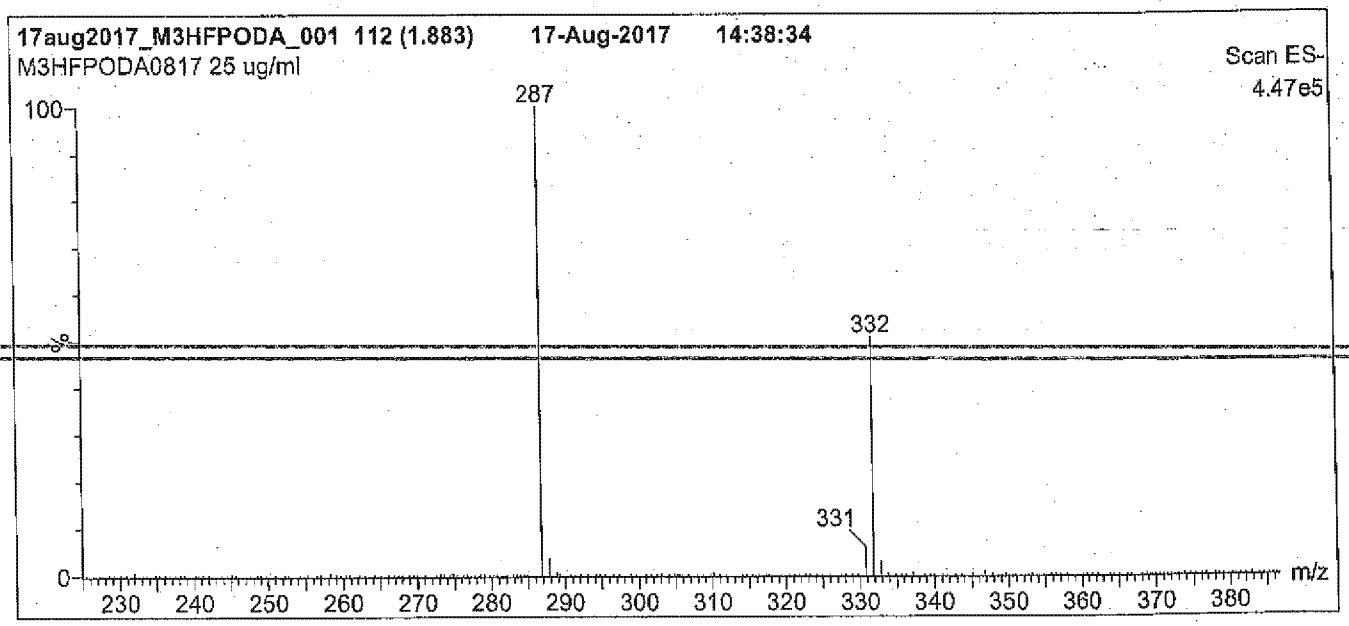
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

Figure 1: **M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

Time: 10 min

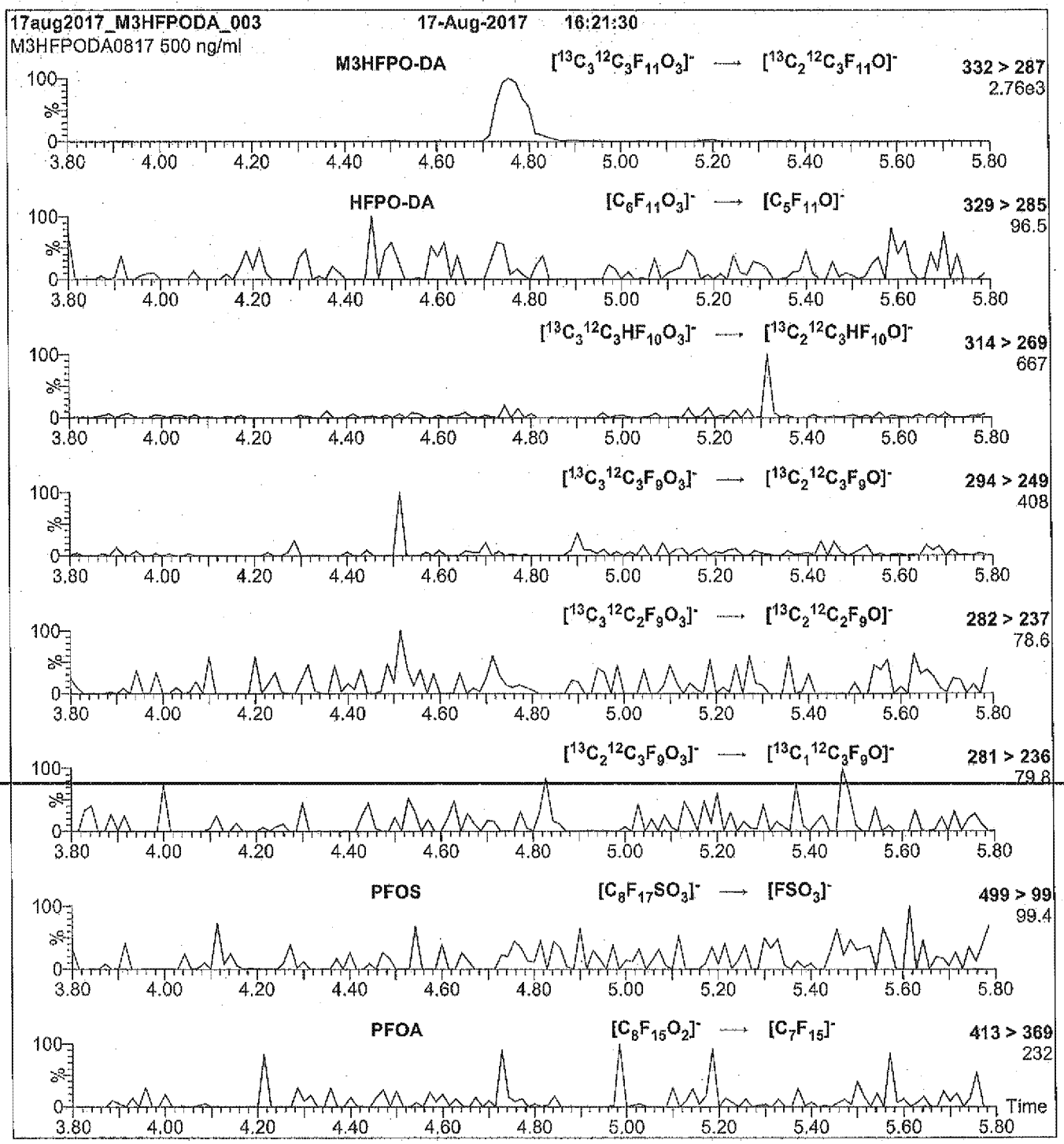
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3HFPO-DA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O with 10 mM NH_4OAc buffer

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 5

Reagent

13C3 HFPO-DA_00010

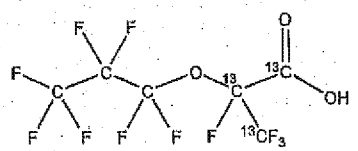
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA **LOT NUMBER:** M3HFPODA0817

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	08/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	08/17/2020		
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 ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/25/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

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CALA Testing Accreditation No. A3226

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

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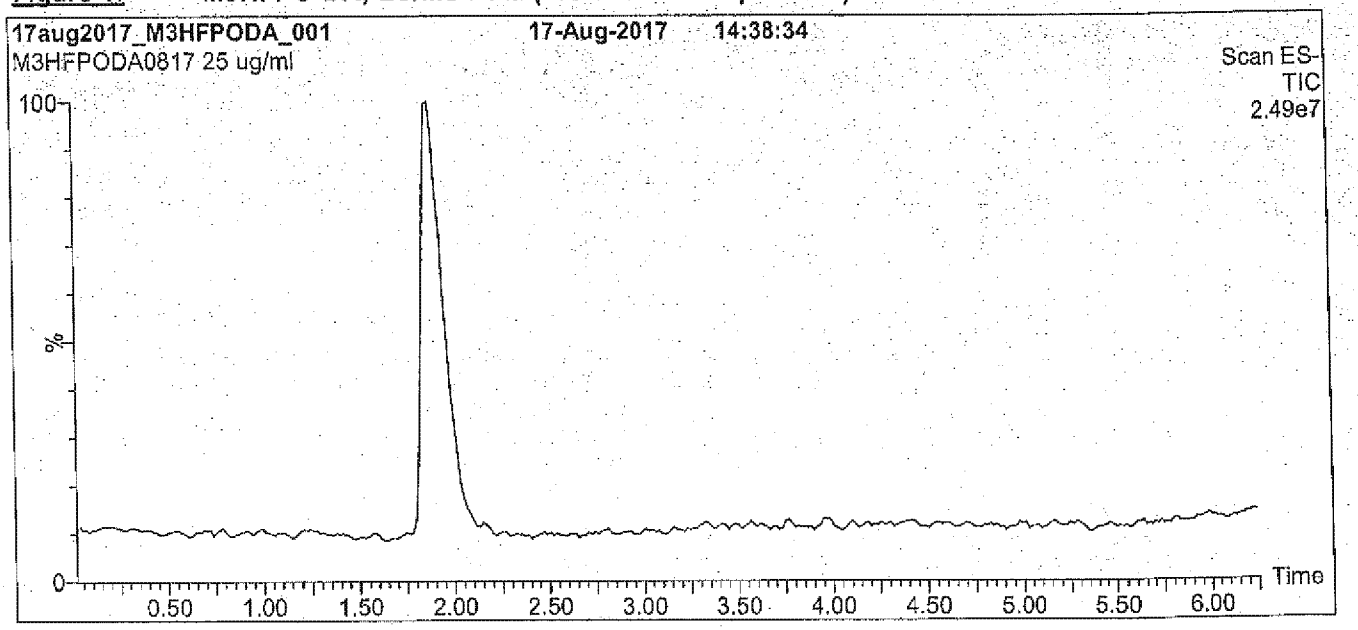
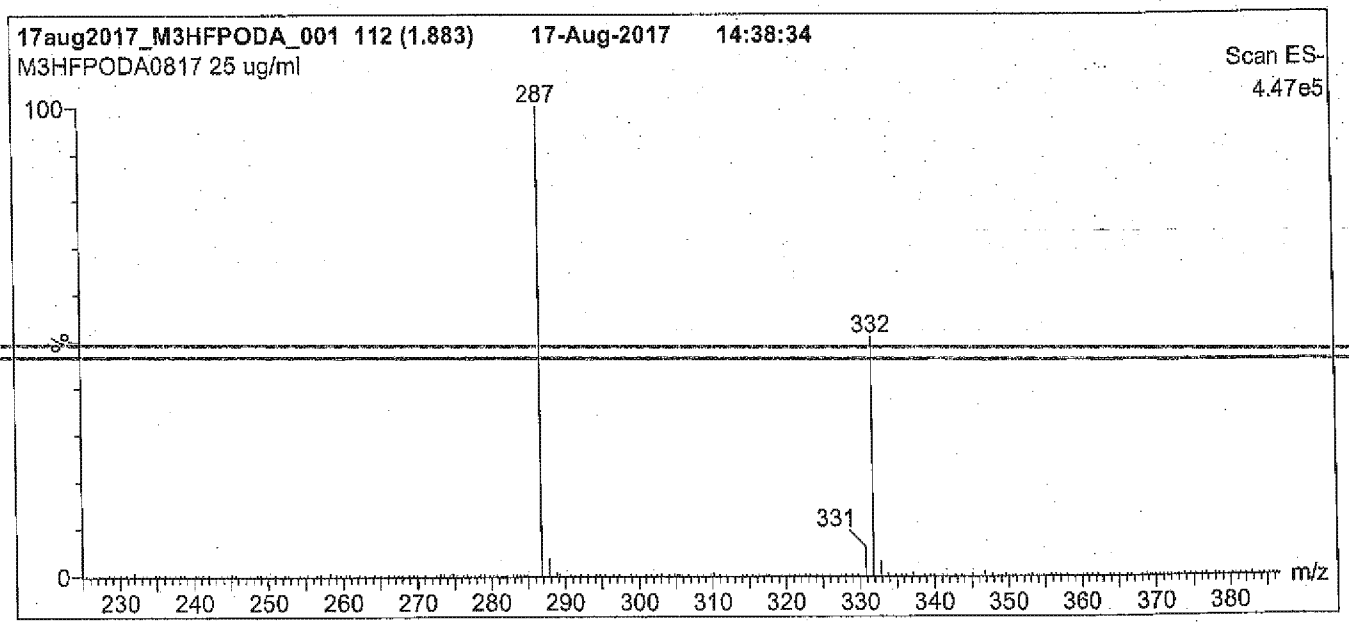
Figure 1: **M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

Time: 10 min

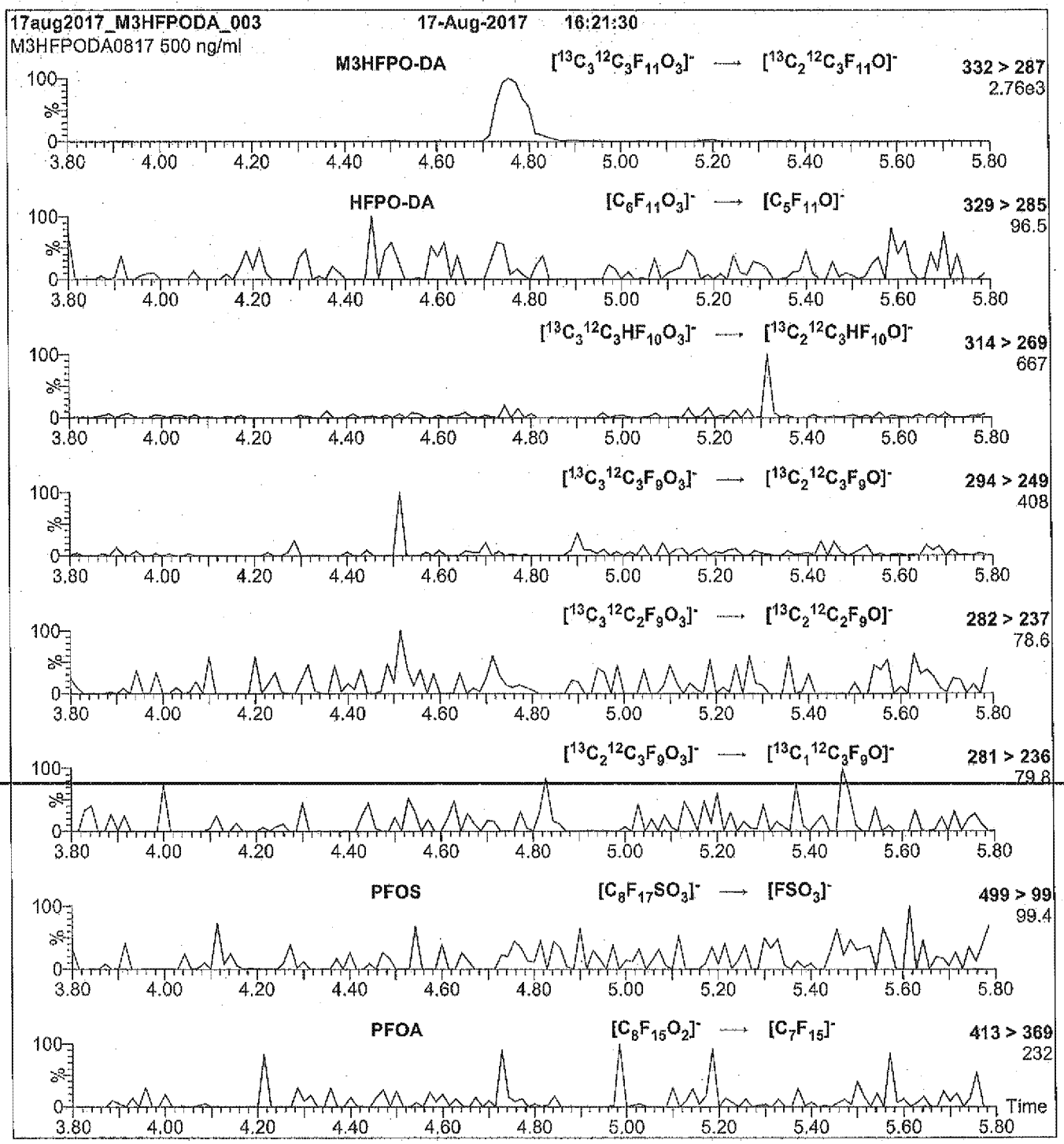
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3HFPO-DA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O with 10 mM NH_4OAc buffer

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 5

Reagent

HFPO I.S._00004

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

HFPO I.S._00004

Reagent ID: HFPO I.S._00004

		Expiration Date:	08/28/2018
Description:	Internal Standard for HFPO 0.5ug/ml	Laboratory:	TestAmerica Denver
No. of Bottles:	1	Prepared By:	Meyer, Andrew GC
Storage Location:	North Analytical	Solvent:	LCMS Grade MeOH
Reagent Volume:	100.000 mL	Solvent Lot:	LCMS_MeOH_00110
Creation Date:	08/28/2017		
Open Date:			
Container(s):	4700620		
Comment:			

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	13C3 HFPO-DA_00004	08/28/2018	50.00000	ug/mL	0.50000	ug/mL
13C3 HFPO-DA (IS)	13C3 HFPO-DA_00004	08/28/2018	50.00000	ug/mL	0.50000	ug/mL

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
13C3 HFPO-DA_00004	13C3 HFPO-DA I.S. for HFPO	ASTD	08/28/18	Wellington Laboratories	M3HFPOADA061	6M3HFPO-DA	1.00000	mL

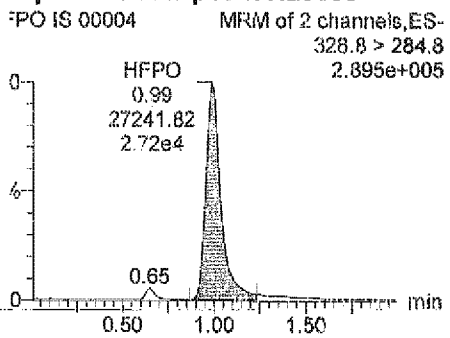
Ok AW 8/29/17

taset: Untitled

st Altered: Tuesday, August 29, 2017 10:47:21 Mountain Daylight Time
nted: Tuesday, August 29, 2017 10:47:53 Mountain Daylight Time

thod: C:\MassLynx\8321.PRO\MethDB\hfpo.mdb 23 Aug 2017 10:19:52
libration: C:\MassLynx\8321.PRO\CurveDB\hfpo17d24.cdb 24 Apr 2017 13:20:17

mple Name: hfpo717H23083

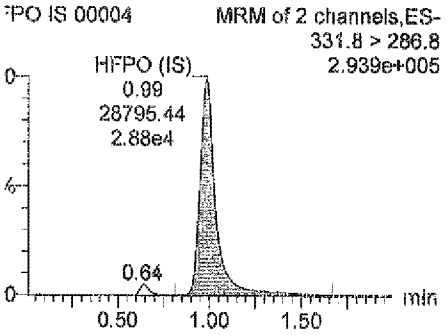


#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Primar...	ppb	%Dev
1	hfpo717H23083		10.000	0.99	27241.822	28795.438	0.946	bd	10.0	-0.4

ıtaset: Untitled

st Altered: Tuesday, August 29, 2017 10:47:21 Mountain Daylight Time
nted: Tuesday, August 29, 2017 10:47:53 Mountain Daylight Time

mple Name: hfpo717H23083



#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Primar	ppb	%Dev
1	hfpo717H23083		1.000	0.99	28795.438		28795.438	bb	1.2	23.6

Reagent

HFPO-DA_00003

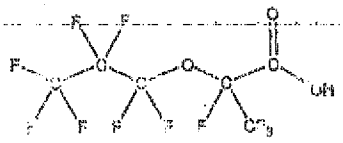
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: HFPO-DA **LOT NUMBER:** HFPODA0213

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE: **CAS #:** 13252-13-6



MOLECULAR FORMULA: $C_6HF_{11}O_3$ **MOLECULAR WEIGHT:** 330.05

CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 02/05/2014

EXPIRY DATE: (mm/dd/yyyy) Stability studies ongoing

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

RL = 0.025 ppb

MDL < RL

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:** 02/13/2014 (mm/dd/yyyy)

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

INTENDED USE:

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QUALITY MANAGEMENT:

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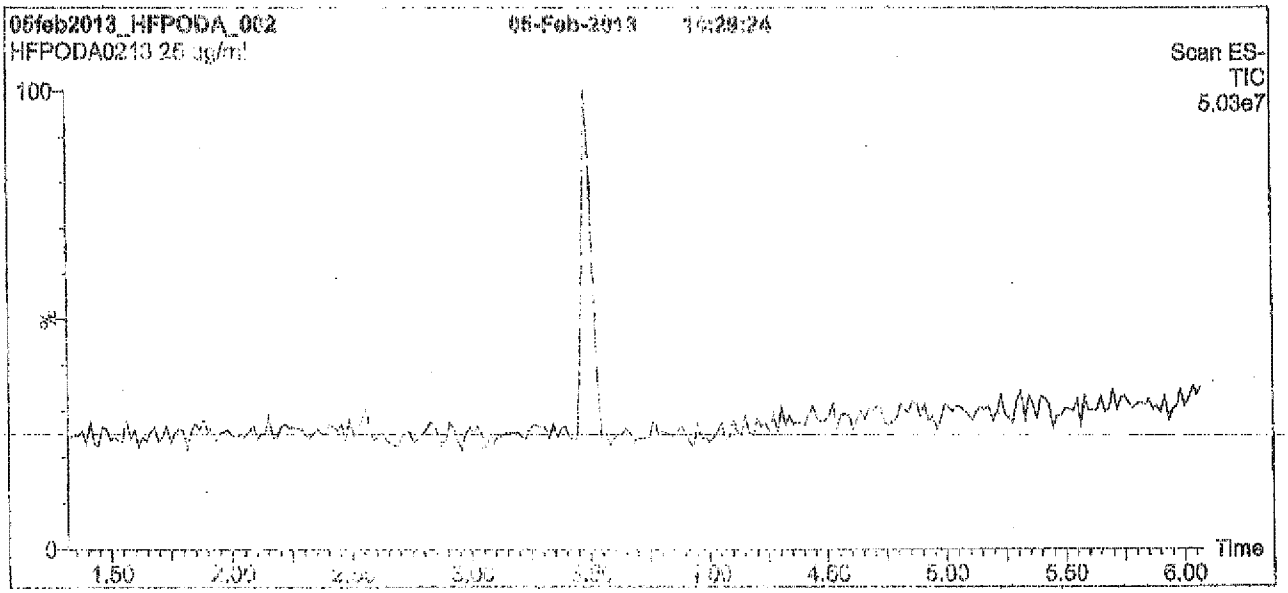
CALA

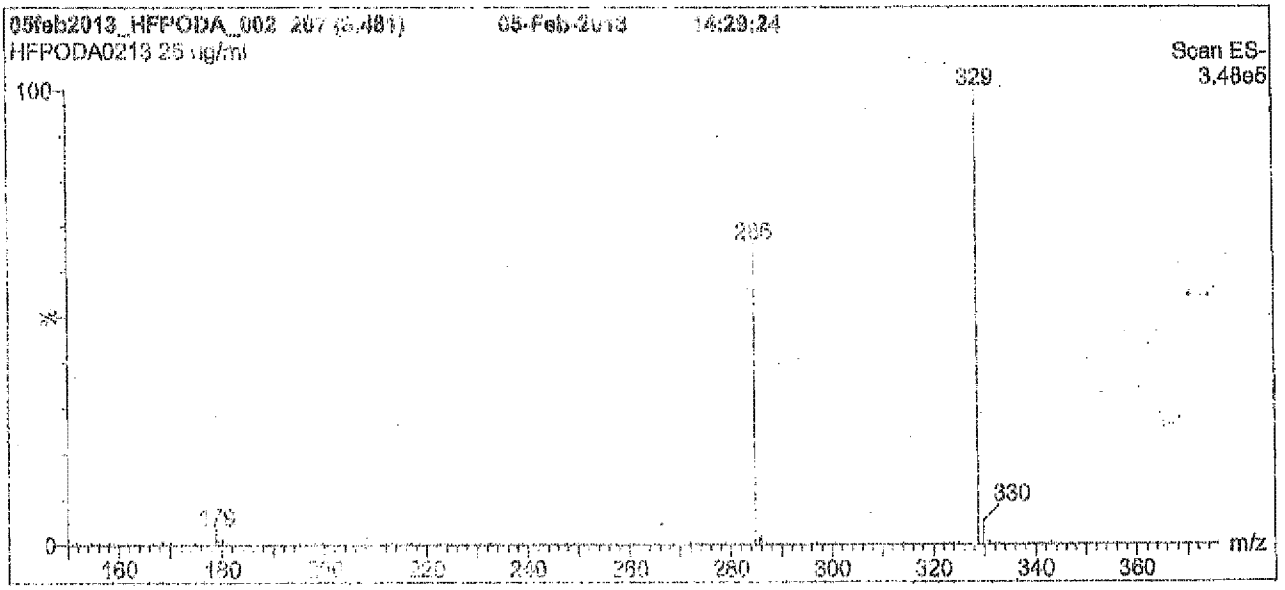
ACLASS

REFERENCE MATERIAL PRODUCER

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

Figure 1: HFPO-DA; LC/MS Data (TIC and Mass Spectrum)





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Kinetex PFP
2.6 µm, 4.6 x 100 mm

Mobile phase: Gradient
Start 40% (80:20 MeOH/ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 9 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 11 min

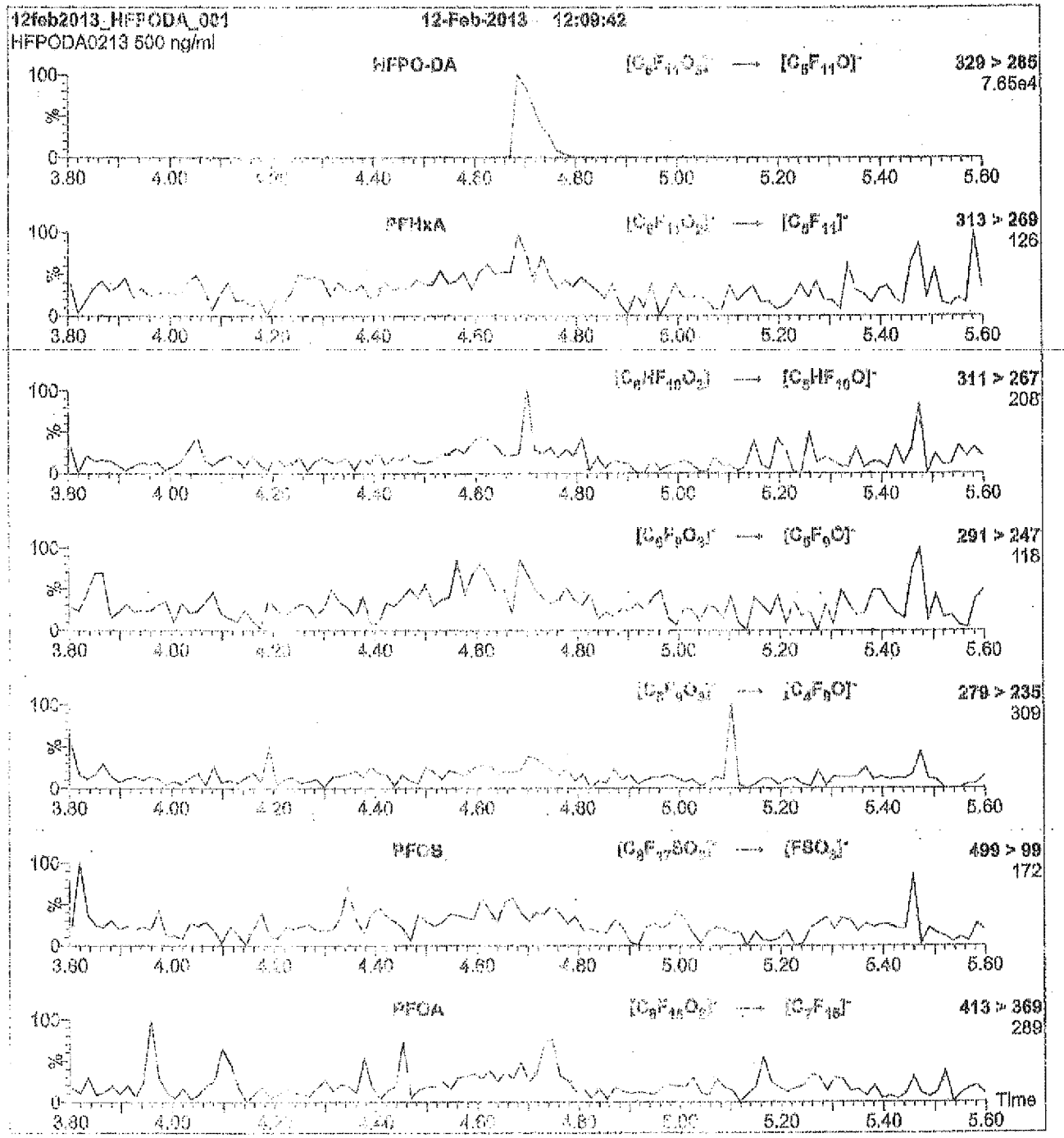
Flow: 800 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 9.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml HFPO-DA)	MS Parameters: Collision Gas (mbar) = 3.87e-3 Collision Energy (eV) = 5
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)	
Flow:	300 µl/min	

Reagent

HFPO-DA_00004

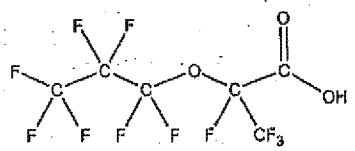
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: HFPO-DA **LOT NUMBER:** HFPODA0717

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE: **CAS #:** 13252-13-6



MOLECULAR FORMULA:	$C_6HF_{11}O_3$	**MOLECULAR WEIGHT:**	330.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2020		
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.
- Product is commercially known as GenX.

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

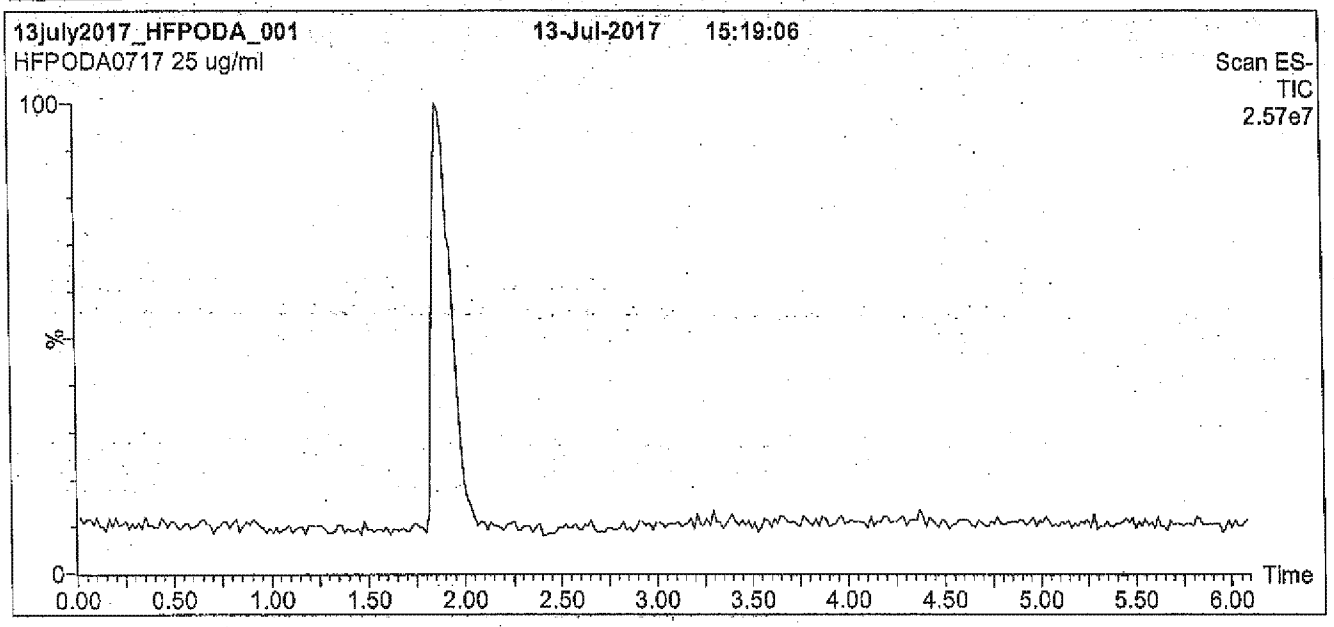
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

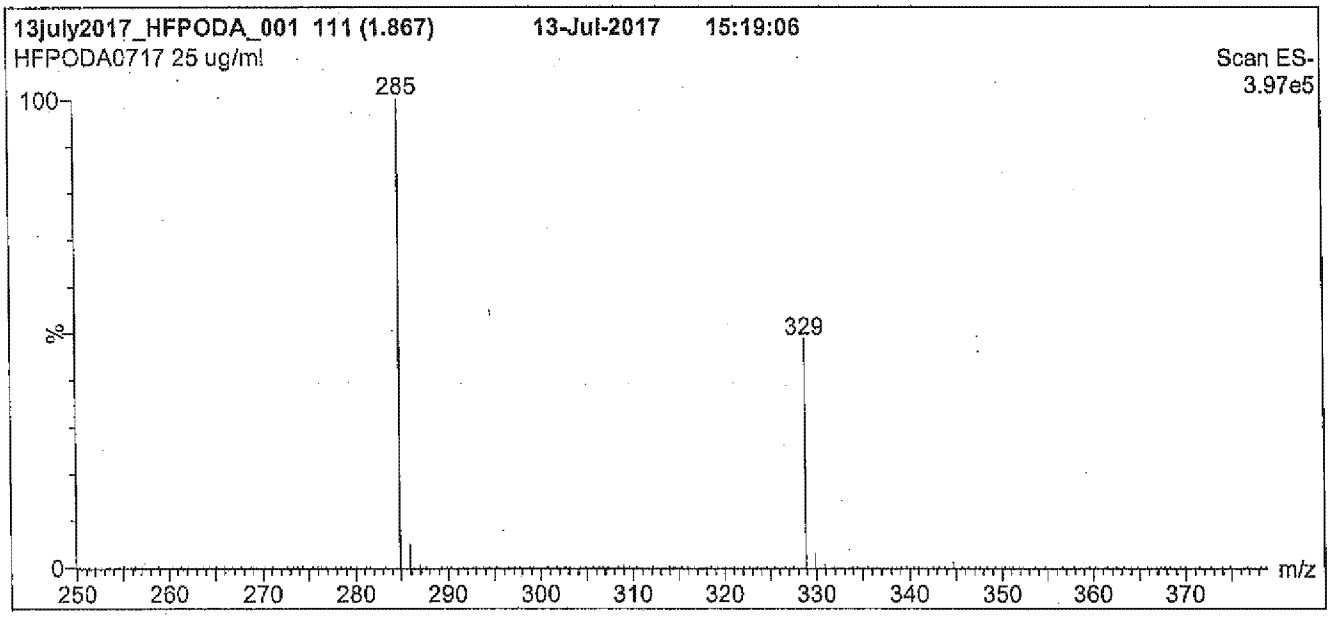
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

Time: 10 min

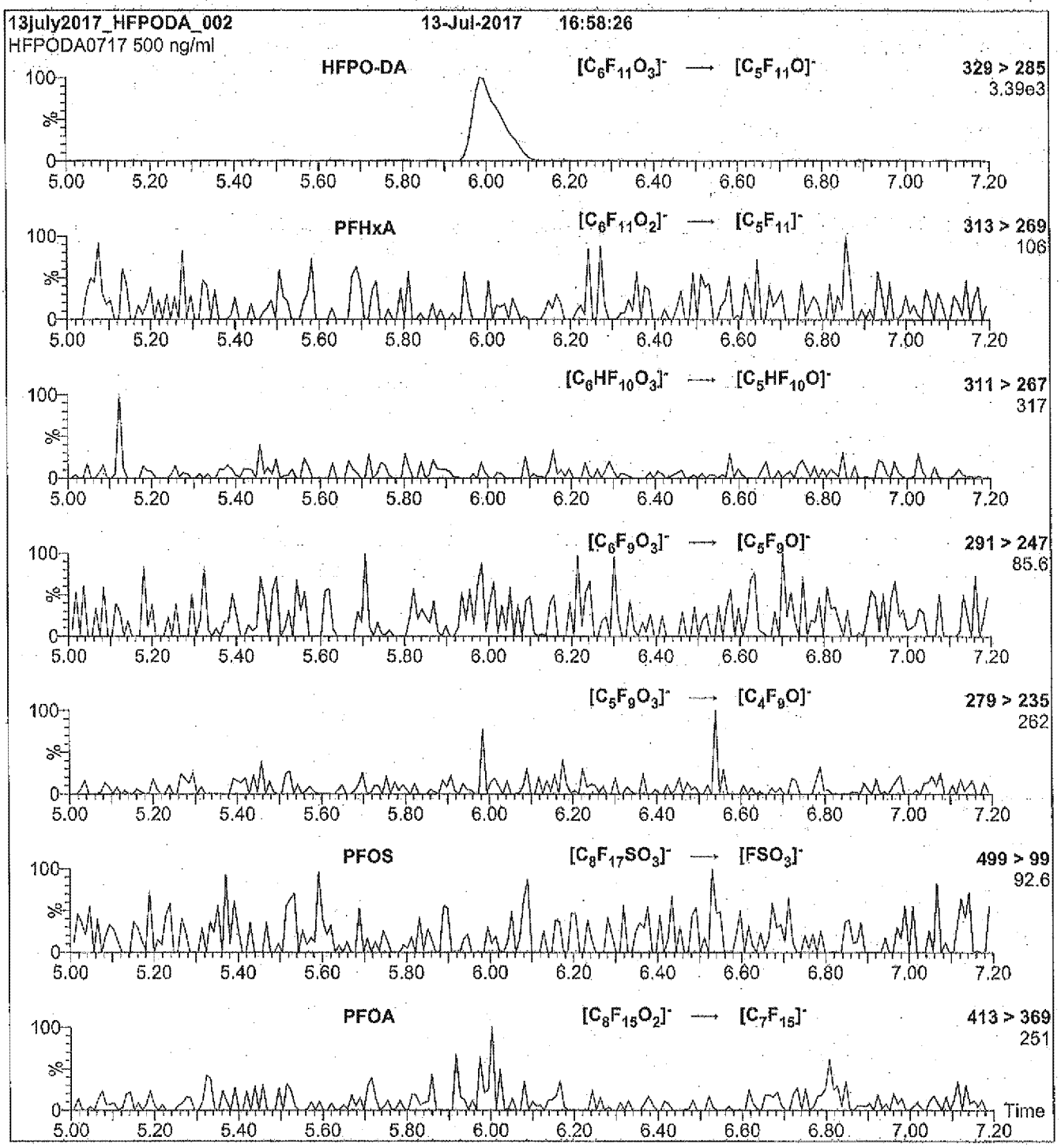
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 700

Figure 2: HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml HFPO-DA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O with 10 mM NH_4OAc buffer

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 5

Reagent

HFPO-DA_00005

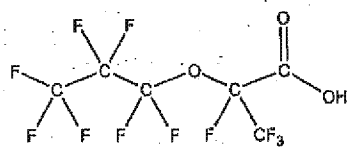
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: HFPO-DA **LOT NUMBER:** HFPODA0717

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE: **CAS #:** 13252-13-6



MOLECULAR FORMULA:	$C_6HF_{11}O_3$	**MOLECULAR WEIGHT:**	330.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2020		
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.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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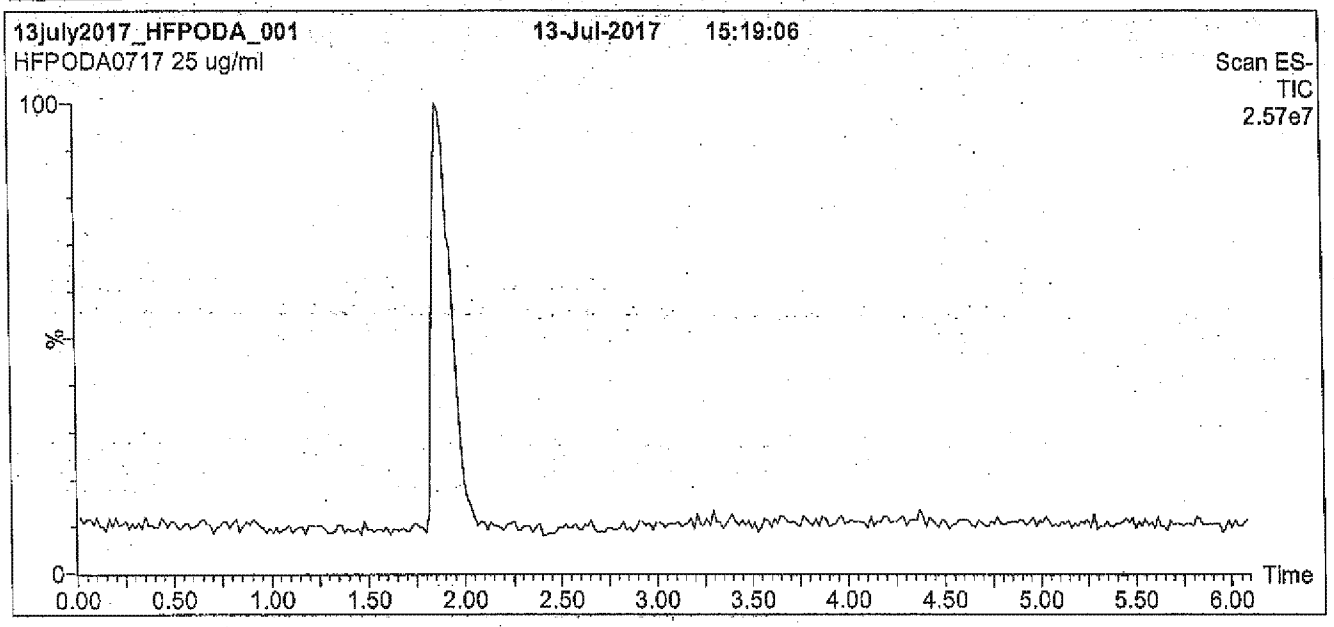
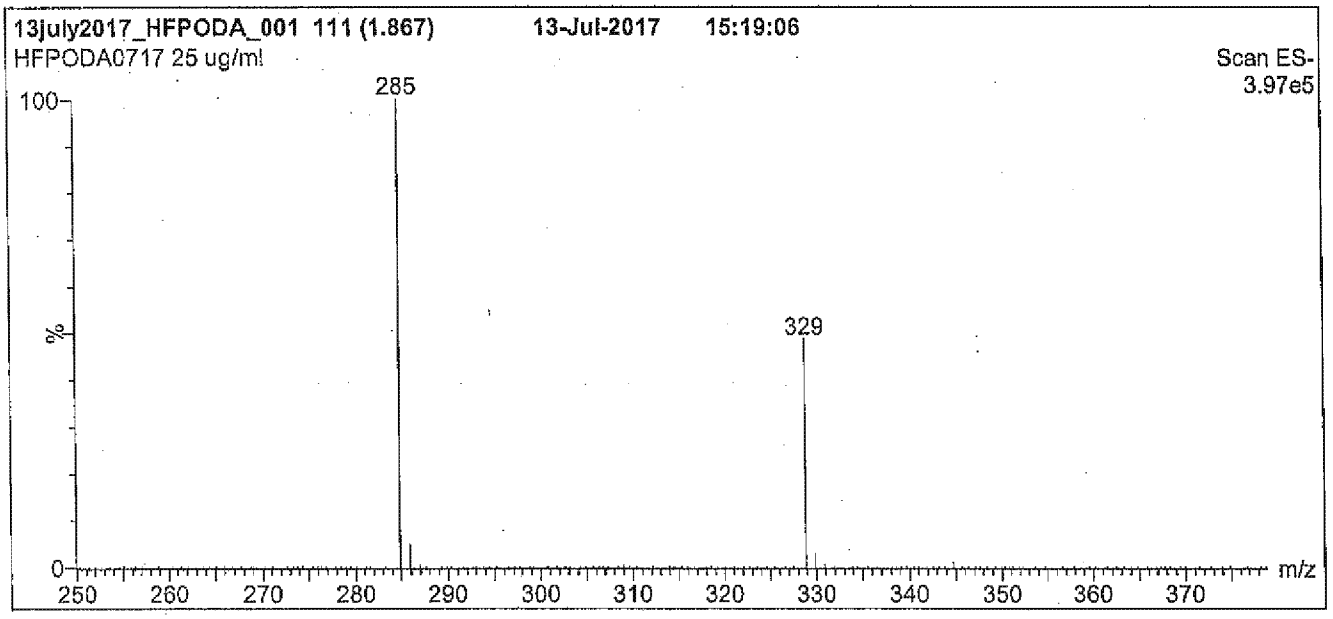
Figure 1: **HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

Time: 10 min

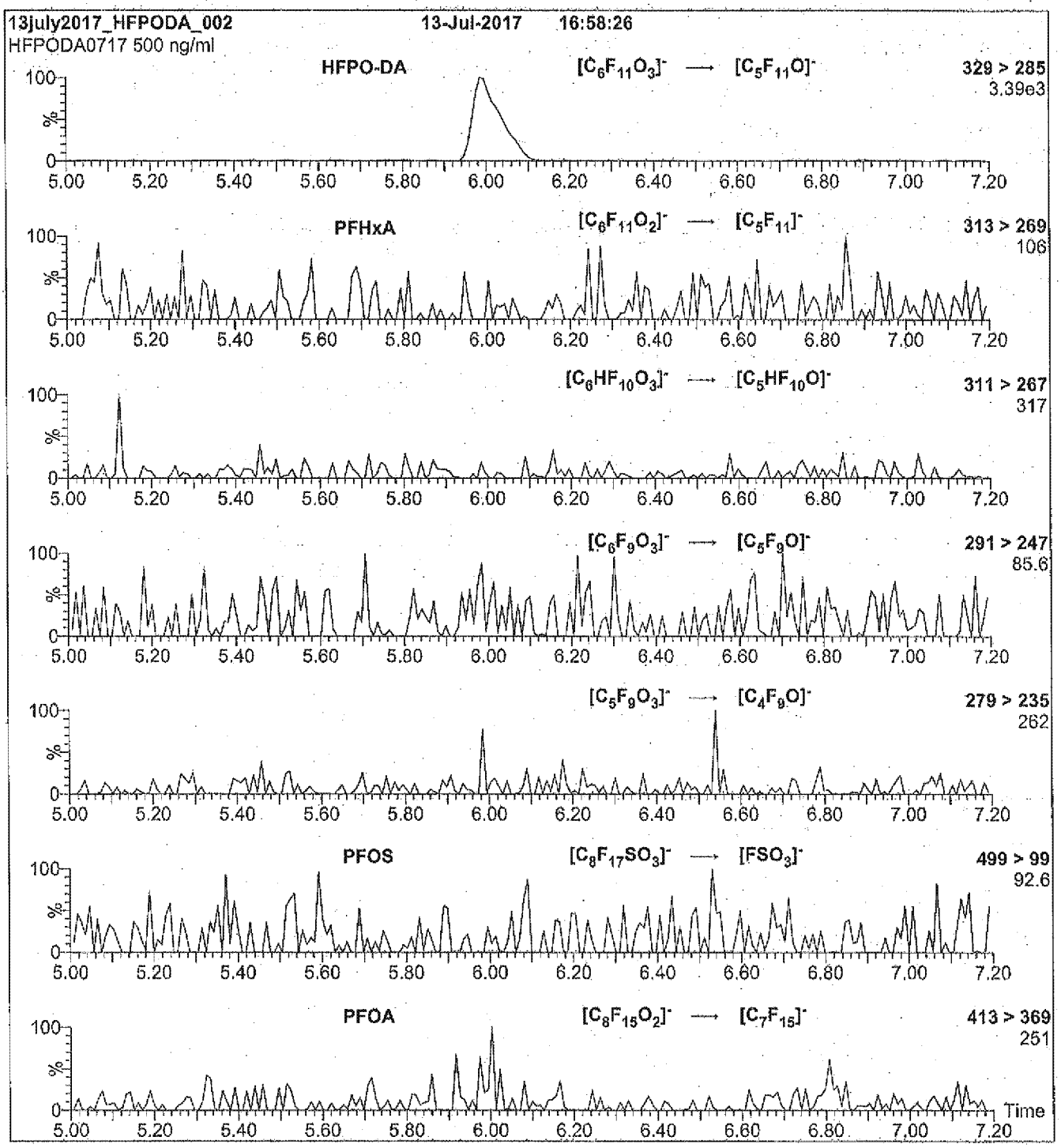
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 700

Figure 2: HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml HFPO-DA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O with 10 mM NH_4OAc buffer

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 5

8321A_HFPO_Du

HFPO-DA

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Synergi Hyd ID:

Client Sample ID	Lab Sample ID	HFPODA #
FAY-D-FB-030918	280-107269-1	64
FAY-D-5712MRSHR-W1 -1-030918	280-107269-2	61
FAY-D-5712MRSHR-W1 -2-030918	280-107269-3	55
FAY-D-3818HEART-W1 -1-030918	280-107269-4	62
FAY-D-3818HEART-W1 -2-030918	280-107269-5	64
	MB 280-407780/1-A	62
	LCS 280-407780/2-A	64
	LCSD 280-407780/3-A	68
	LLCS 280-407780/4-A	64
	DLCK 280-404345/13	104

	QC LIMITS
HFPODA = 13C3 HFPO-DA	50-200

Column to be used to flag recovery values

FORM II 8321A

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Matrix: Water Level: Low Lab File ID: hfpo718C19092.d

Lab ID: LCS 280-407780/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
HFPO-DA	0.200	0.219	110	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Matrix: Water Level: Low Lab File ID: hfpo718C19093.d

Lab ID: LCSD 280-407780/3-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
HFPO-DA	0.200	0.221	111	1	20	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Matrix: Water Level: Low Lab File ID: hfpo718C19094.d

Lab ID: LLCS 280-407780/4-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LLCS CONCENTRATION (ug/L)	LLCS % REC	QC LIMITS REC	#
HFPO-DA	0.0200	0.0210	105	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS DETECTION LIMIT CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Matrix: Water Level: Low Lab File ID: hfpo718B08044.d

Lab ID: DLCK 280-404345/13 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	DLCK CONCENTRATION (ug/L)	DLCK % REC	QC LIMITS REC	#
HFPO-DA	0.250	<0.50	90	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab File ID: hfpo718C19091.d Lab Sample ID: MB 280-407780/1-A

Matrix: Water Date Extracted: 03/13/2018 17:53

Instrument ID: LC_LCMS7 Date Analyzed: 03/19/2018 14:46

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-407780/2-A	hfpo718C19092.d	03/19/2018 14:49
	LCSD 280-407780/3-A	hfpo718C19093.d	03/19/2018 14:53
	LLCS 280-407780/4-A	hfpo718C19094.d	03/19/2018 14:56
FAY-D-FB-030918	280-107269-1	hfpo718C19110.d	03/19/2018 15:50
FAY-D-5712MRSHR-W1-1-030918	280-107269-2	hfpo718C19111.d	03/19/2018 15:53
FAY-D-5712MRSHR-W1-2-030918	280-107269-3	hfpo718C19113.d	03/19/2018 16:00
FAY-D-3818HEART-W1-1-030918	280-107269-4	hfpo718C19114.d	03/19/2018 16:03
FAY-D-3818HEART-W1-2-030918	280-107269-5	hfpo718C19115.d	03/19/2018 16:06

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID: FAY-D-FB-030918
Lab Sample ID: 280-107269-1
Matrix: Water
Lab File ID: hfpo718C19110.d
Analysis Method: 8321A
Date Collected: 03/09/2018 08:03
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 263.7(mL)
Date Analyzed: 03/19/2018 15:50
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	64		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19110.d
Lims ID: 280-107269-C-1-A
Client ID: FAY-D-FB-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 15:50:33 ALS Bottle#: 6 Worklist Smp#: 48
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-C-1-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:31

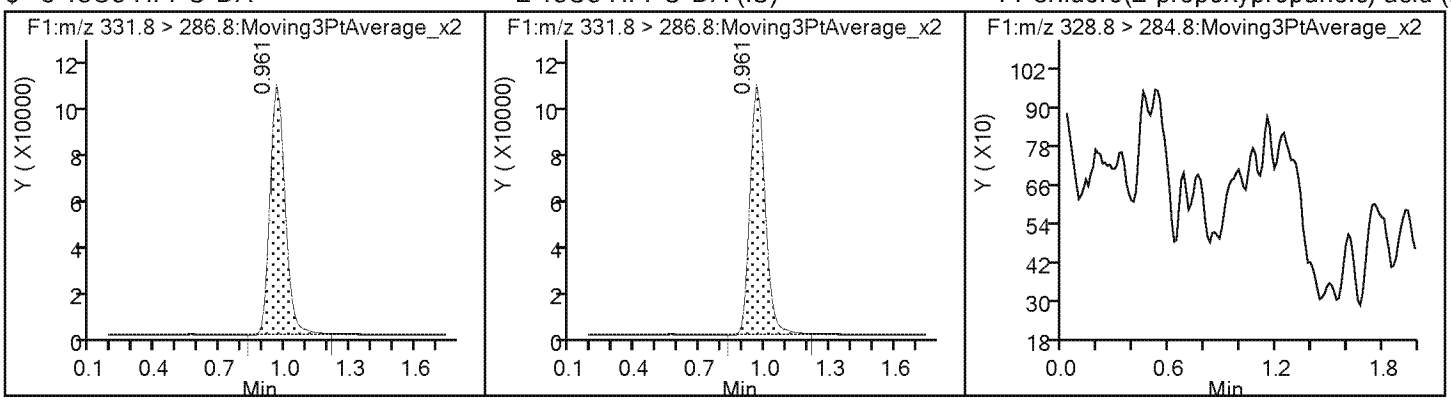
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.961	1.045	-0.084	1.000	474218	6.35	2772	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.961	1.045	-0.084		474218	10.0	2772	

Report Date: 20-Mar-2018 07:36:55 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19110.d				
Injection Date:	19-Mar-2018 15:50:33	Instrument ID:	LC_LCMS7		
Lims ID:	280-107269-C-1-A	Lab Sample ID:	280-107269-1		
Client ID:	FAY-D-FB-030918				
Operator ID:	JBH	ALS Bottle#:	6	Worklist Smp#:	48
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19110.d
Lims ID: 280-107269-C-1-A
Client ID: FAY-D-FB-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 15:50:33 ALS Bottle#: 6 Worklist Smp#: 48
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-C-1-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:31

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.35	63.52

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID: FAY-D-5712MRSHR-W1-1-030918
Lab Sample ID: 280-107269-2
Matrix: Water
Lab File ID: hfpo718C19111.d
Analysis Method: 8321A
Date Collected: 03/09/2018 08:27
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 258.6(mL)
Date Analyzed: 03/19/2018 15:53
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

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FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

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Lims ID: 280-107269-A-2-A
Client ID: FAY-D-5712MRSHR-W1-1-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 15:53:47 ALS Bottle#: 7 Worklist Smp#: 49
Injection Vol: 20.0 ul Dil. Factor: 1.0000
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Misc. Info.: HFPO18C19
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First Level Reviewer: meyera Date: 20-Mar-2018 07:31:37

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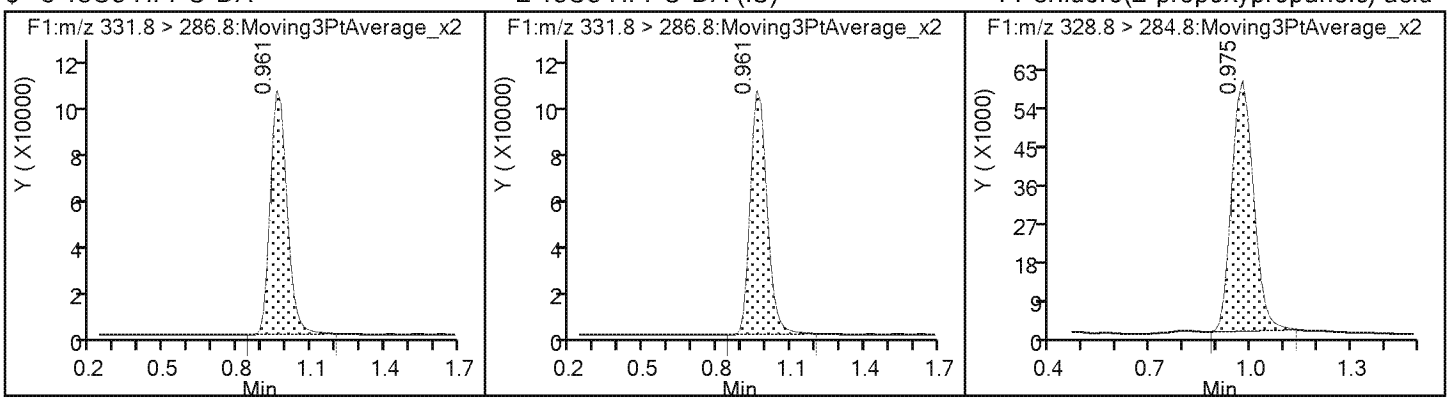
331.8 > 286.8	0.961	1.045	-0.084	1.000	452841	6.07	1879	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.961	1.045	-0.084		452841	10.0	1879	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.975	1.056	-0.081	1.000	258855	5.34	164	

Report Date: 20-Mar-2018 07:36:57 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19111.d				
Injection Date:	19-Mar-2018 15:53:47	Instrument ID:	LC_LCMS7		
Lims ID:	280-107269-A-2-A	Lab Sample ID:	280-107269-2		
Client ID:	FAY-D-5712MRSHR-W1-1-030918				
Operator ID:	JBH	ALS Bottle#:	7	Worklist Smp#:	49
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19111.d
Lims ID: 280-107269-A-2-A
Client ID: FAY-D-5712MRSHR-W1-1-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 15:53:47 ALS Bottle#: 7 Worklist Smp#: 49
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-A-2-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:37

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.07	60.65

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID: FAY-D-5712MRSHR-W1-2-030918
Lab Sample ID: 280-107269-3
Matrix: Water
Lab File ID: hfpo718C19113.d
Analysis Method: 8321A
Date Collected: 03/09/2018 08:28
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 256.3(mL)
Date Analyzed: 03/19/2018 16:00
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.12		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	55		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19113.d
Lims ID: 280-107269-D-3-A
Client ID: FAY-D-5712MRSHR-W1-2-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 16:00:17 ALS Bottle#: 8 Worklist Smp#: 51
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-D-3-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:45

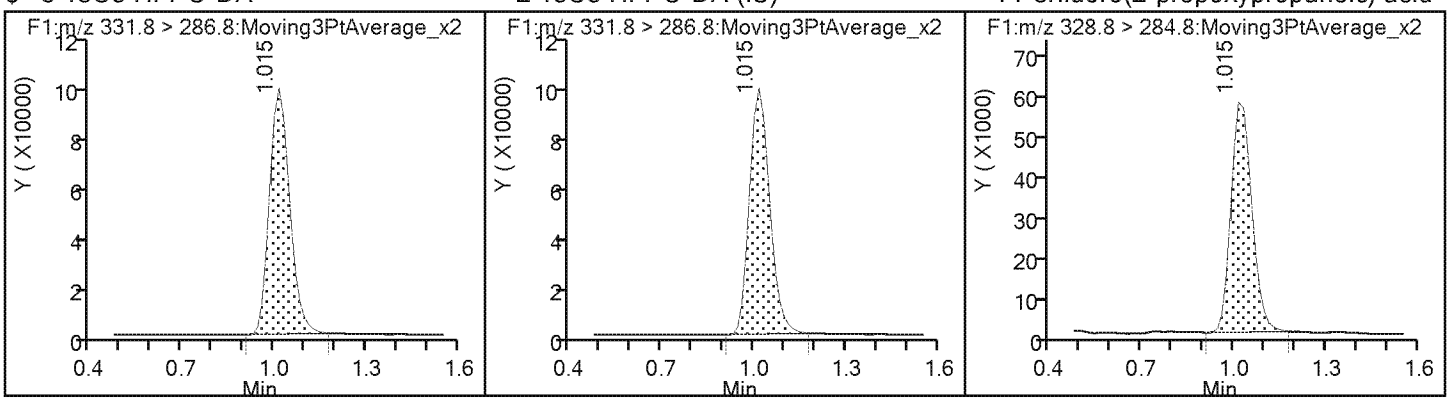
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.015	1.045	-0.030	1.000	407925	5.46	1989	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.015	1.045	-0.030		407925	10.0	1989	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.015	1.056	-0.041	1.000	259321	5.94	119	

Report Date: 20-Mar-2018 07:37:00 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19113.d				
Injection Date:	19-Mar-2018 16:00:17	Instrument ID:	LC_LCMS7		
Lims ID:	280-107269-D-3-A	Lab Sample ID:	280-107269-3		
Client ID:	FAY-D-5712MRSHR-W1-2-030918				
Operator ID:	JBH	ALS Bottle#:	8	Worklist Smp#:	51
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19113.d
Lims ID: 280-107269-D-3-A
Client ID: FAY-D-5712MRSHR-W1-2-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 16:00:17 ALS Bottle#: 8 Worklist Smp#: 51
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-D-3-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:45

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	5.46	54.64

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID: FAY-D-3818HEART-W1-1-030918
Lab Sample ID: 280-107269-4
Matrix: Water
Lab File ID: hfpo718C19114.d
Analysis Method: 8321A
Date Collected: 03/09/2018 08:52
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 262.8(mL)
Date Analyzed: 03/19/2018 16:03
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	62		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19114.d
Lims ID: 280-107269-D-4-A
Client ID: FAY-D-3818HEART-W1-1-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 16:03:31 ALS Bottle#: 9 Worklist Smp#: 52
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-D-4-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:51

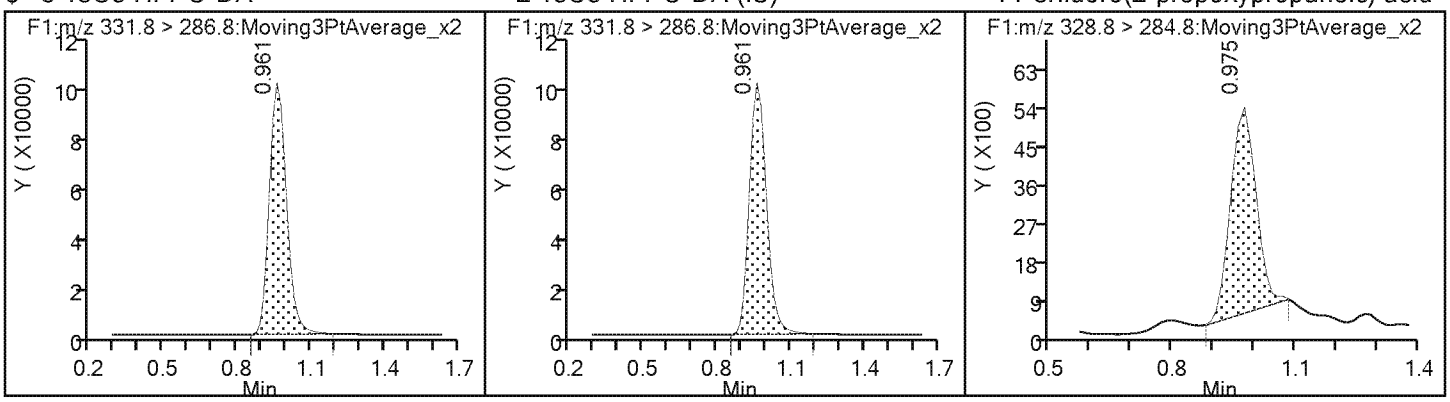
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.961	1.045	-0.084	1.000	465553	6.24	2844	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.961	1.045	-0.084		465553	10.0	2844	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.975	1.056	-0.081	1.000	20179	0.3735	15.5	

Report Date: 20-Mar-2018 07:37:02 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19114.d				
Injection Date:	19-Mar-2018 16:03:31	Instrument ID:	LC_LCMS7		
Lims ID:	280-107269-D-4-A	Lab Sample ID:	280-107269-4		
Client ID:	FAY-D-3818HEART-W1-1-030918				
Operator ID:	JBH	ALS Bottle#:	9	Worklist Smp#:	52
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19114.d
Lims ID: 280-107269-D-4-A
Client ID: FAY-D-3818HEART-W1-1-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 16:03:31 ALS Bottle#: 9 Worklist Smp#: 52
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-D-4-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:51

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.24	62.36

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID: FAY-D-3818HEART-W1-2-030918
Lab Sample ID: 280-107269-5
Matrix: Water
Lab File ID: hfpo718C19115.d
Analysis Method: 8321A
Date Collected: 03/09/2018 08:52
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 255.5(mL)
Date Analyzed: 03/19/2018 16:06
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	64		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19115.d
Lims ID: 280-107269-D-5-A
Client ID: FAY-D-3818HEART-W1-2-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 16:06:46 ALS Bottle#: 10 Worklist Smp#: 53
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-D-5-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:55

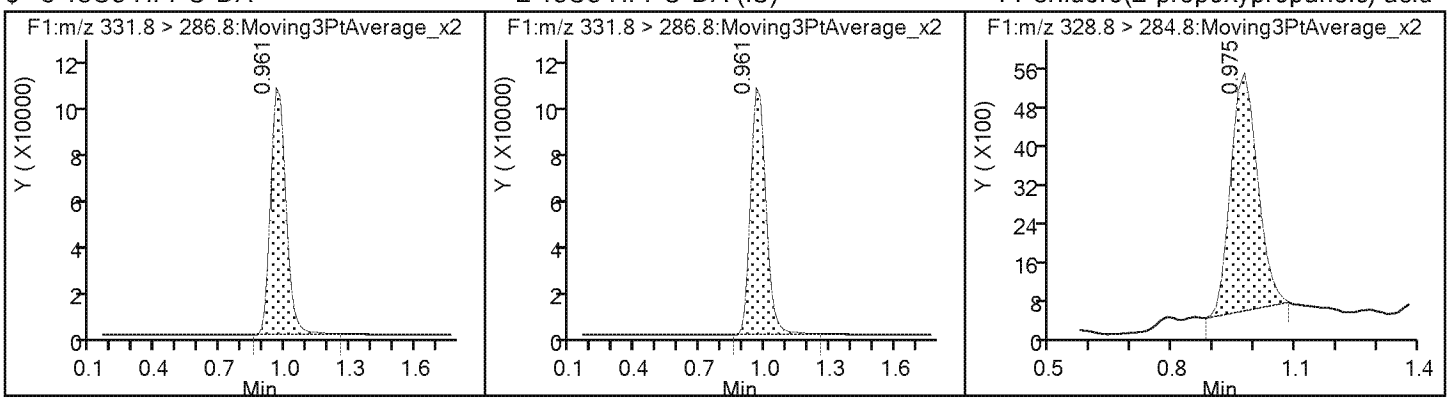
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.961	1.045	-0.084	1.000	476762	6.39	2900	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.961	1.045	-0.084		476762	10.0	2900	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.975	1.056	-0.081	1.000	21882	0.3975	12.8	

Report Date: 20-Mar-2018 07:37:03 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19115.d				
Injection Date:	19-Mar-2018 16:06:46	Instrument ID:	LC_LCMS7		
Lims ID:	280-107269-D-5-A	Lab Sample ID:	280-107269-5		
Client ID:	FAY-D-3818HEART-W1-2-030918				
Operator ID:	JBH	ALS Bottle#:	10	Worklist Smp#:	53
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19115.d
Lims ID: 280-107269-D-5-A
Client ID: FAY-D-3818HEART-W1-2-030918
Sample Type: Client
Inject. Date: 19-Mar-2018 16:06:46 ALS Bottle#: 10 Worklist Smp#: 53
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: 280-107269-D-5-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:55

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.39	63.86

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 390728

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8			RT WINDOW	AVG RT
Perfluoro(2-propoxypropanoic) acid	0.893	0.880	0.880	0.880	0.893	0.880	0.880	0.893			0.385 - 1.385	0.885
13C3 HFPO-DA	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880			0.380 - 1.380	0.880

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 390728

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
13C3 HFPO-DA	73075 74460	74523 73194	75043 72919	71803 70142	Ave		73144.6750				2.2		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 390728

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
Perfluoro(2-propoxypropanoic) acid	1.6980 1.0102	1.7128 0.9824	1.1896 1.0419	1.1637	1.0154	Lin1	0.2185	1.0121							0.9980		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 390728

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
13C3 HFPO-DA	Ave	730749 731935	745227 729188	750427 701420	718028	744600	10.0 10.0	10.0 10.0	10.0 10.0	10.0	10.0

Curve Type Legend:
Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 390728

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Perfluoro(2-propoxypropanoic) acid	13CP ODA	Lin1	31020 739399	63823 1790812	89272 3654104	167109	378047	0.250 10.0	0.500 25.0	1.00 50.0	2.00	5.00

Curve Type Legend:
Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10026.d
Lims ID: std001
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 10-Oct-2017 09:35:28 ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L1
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:45 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	730749	10.0	397	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		730749	10.0	397	
1 Perfluoro(2-propoxypropanoic) acid								M
328.8 > 284.8	0.893	0.885	0.008	1.000	31020	0.2036	14.1	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00031 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:45 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10026.d

Injection Date: 10-Oct-2017 09:35:28 Instrument ID: LC_LCMS7

Lims ID: std001

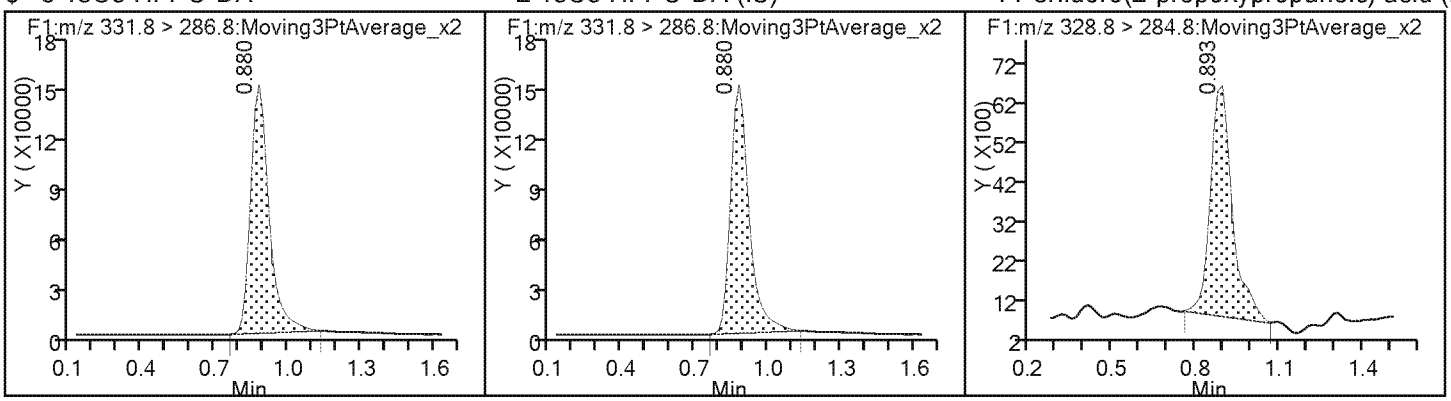
Client ID:

Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Denver

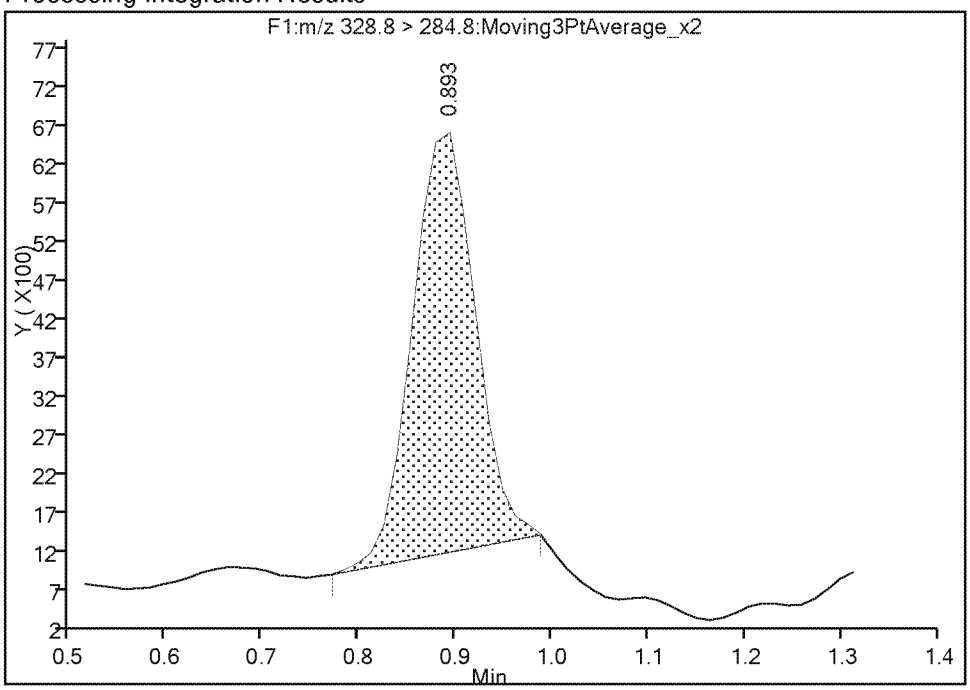
Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10026.d				
Injection Date:	10-Oct-2017 09:35:28	Instrument ID:	LC_LCMS7		
Lims ID:	std001				
Client ID:					
Operator ID:	JBH	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		
Column:		Detector	F1:MRM		

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

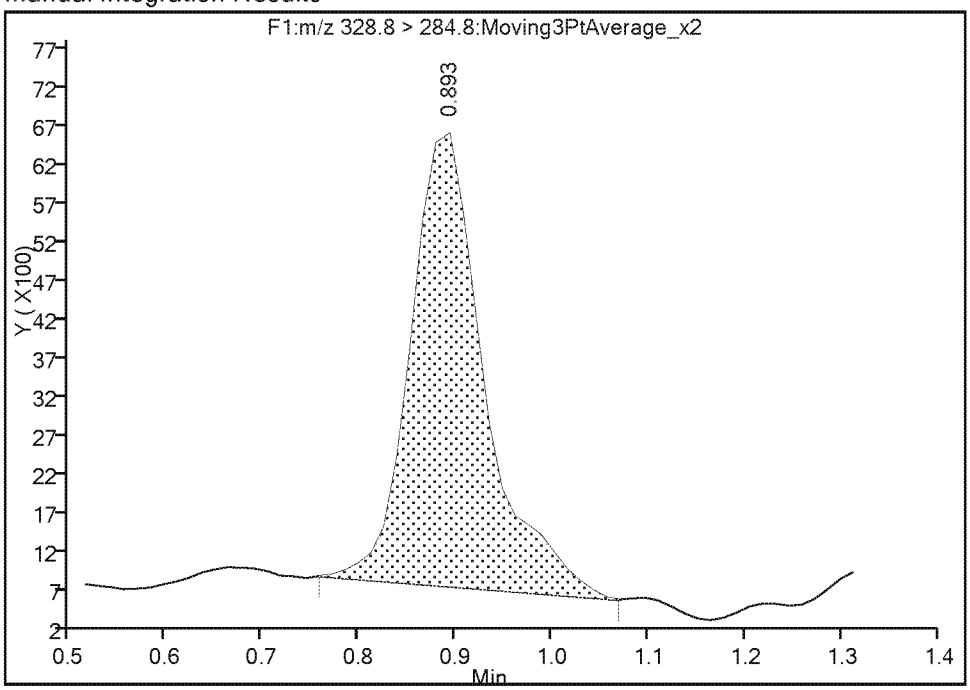
Processing Integration Results

RT: 0.89
Area: 24407
Amount: 0.162386
Amount Units: ug/l



Manual Integration Results

RT: 0.89
Area: 31020
Amount: 0.203553
Amount Units: ug/l



Reviewer: meyera, 10-Oct-2017 11:50:40

Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10027.d
Lims ID: std002
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 10-Oct-2017 09:38:42 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L2
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:46 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		745227	10.0	452	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	745227	10.2	452	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.880	0.885	-0.005	1.000	63823	0.6303	36.5	

Reagents:

HFPO_CAL-2_00032 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:46 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10027.d

Injection Date: 10-Oct-2017 09:38:42 Instrument ID: LC_LCMS7

Lims ID: std002

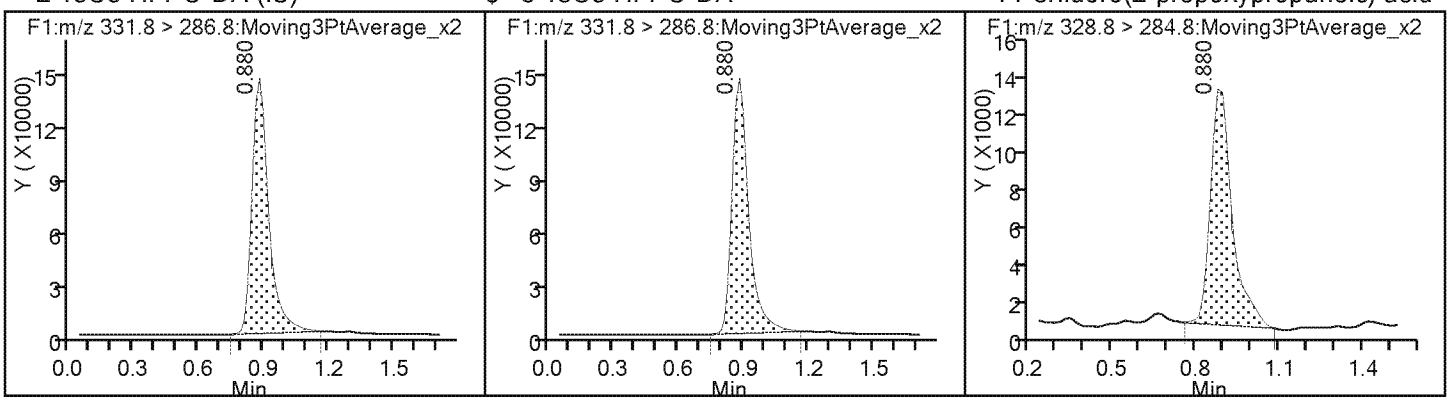
Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10028.d
Lims ID: std003
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 10-Oct-2017 09:41:56 ALS Bottle#: 4 Worklist Smp#: 5
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L3
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:47 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	750427	10.3	417	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		750427	10.0	417	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.880	0.885	-0.005	1.000	89272	0.9595	50.3	

Reagents:

HFPO_CAL-3_00031 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:47 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10028.d

Injection Date: 10-Oct-2017 09:41:56 Instrument ID: LC_LCMS7

Lims ID: std003

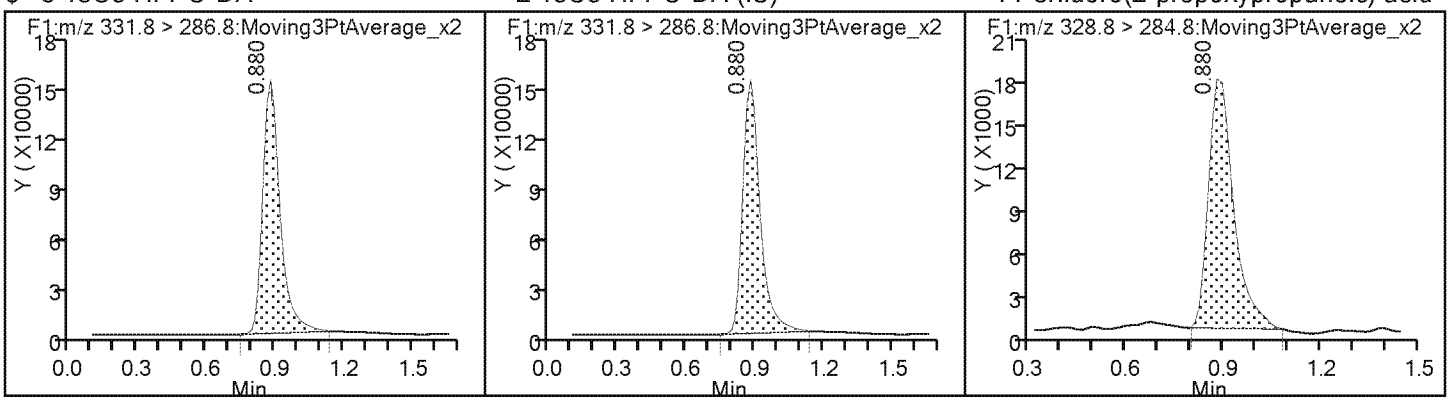
Client ID:

Operator ID: JBH ALS Bottle#: 4 Worklist Smp#: 5

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10029.d
Lims ID: std004
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 10-Oct-2017 09:45:11 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L4
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:47 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		718028	10.0	438	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	718028	9.82	438	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.880	0.885	-0.005	1.000	167109	2.08	143	

Reagents:

HFPO_CAL-4_00031 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:48 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10029.d

Injection Date: 10-Oct-2017 09:45:11 Instrument ID: LC_LCMS7

Lims ID: std004

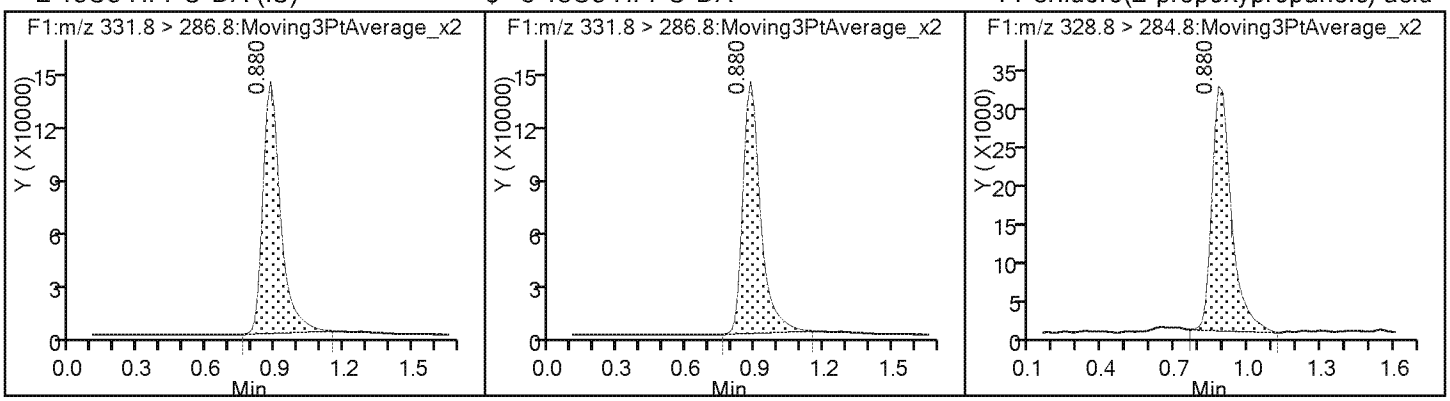
Client ID:

Operator ID: JBH ALS Bottle#: 5 Worklist Smp#: 6

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10030.d
Lims ID: std005
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 10-Oct-2017 09:48:25 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L5
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:48 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	744600	10.2	433	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		744600	10.0	433	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.893	0.885	0.008	1.000	378047	4.80	223	

Reagents:

HFPO_CAL-5_00070 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:49 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10030.d

Injection Date: 10-Oct-2017 09:48:25 Instrument ID: LC_LCMS7

Lims ID: std005

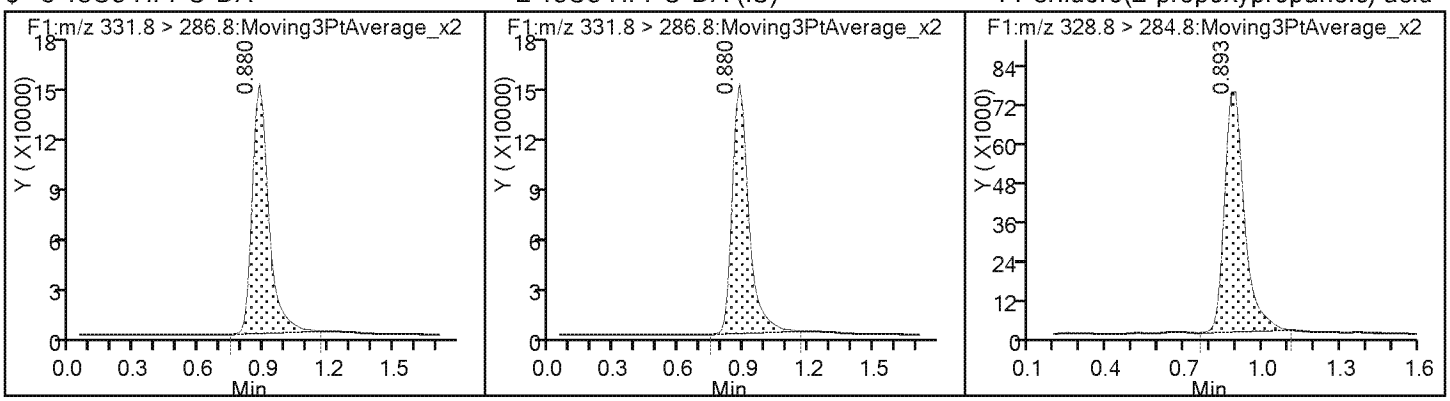
Client ID:

Operator ID: JBH ALS Bottle#: 6 Worklist Smp#: 7

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10031.d
Lims ID: std006
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 10-Oct-2017 09:51:39 ALS Bottle#: 7 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L6
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:49 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		731935	10.0	379	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	731935	10.0	379	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.880	0.885	-0.005	1.000	739399	9.77	298	

Reagents:

HFPO_CAL-6_00070 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:49 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10031.d

Injection Date: 10-Oct-2017 09:51:39 Instrument ID: LC_LCMS7

Lims ID: std006

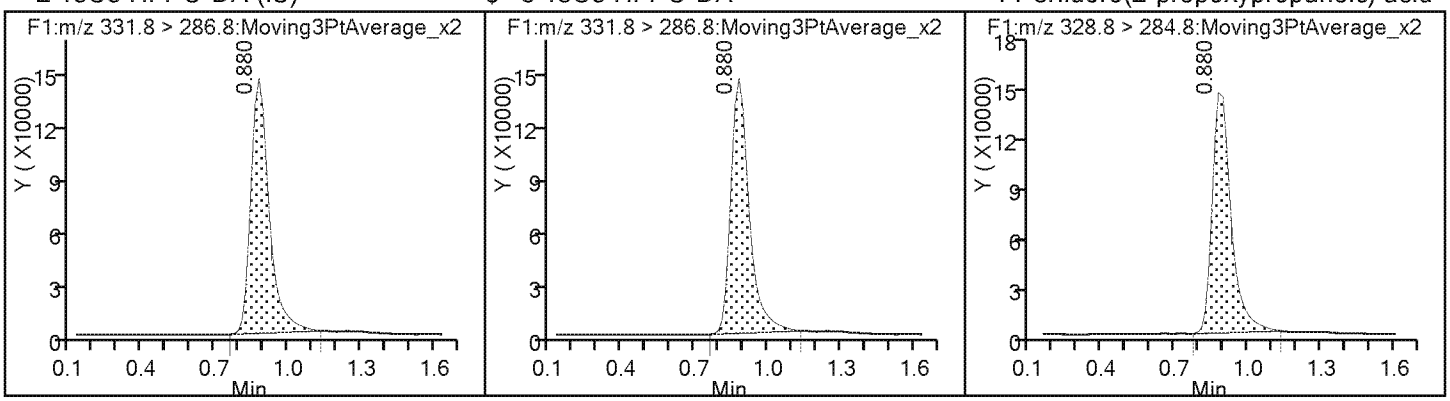
Client ID:

Operator ID: JBH ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10032.d
Lims ID: std007
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 10-Oct-2017 09:54:53 ALS Bottle#: 8 Worklist Smp#: 9
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L7
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:50 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	729188	9.97	404	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		729188	10.0	404	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.880	0.885	-0.005	1.000	1790812	24.0	386	

Reagents:

HFPO_CAL-7_00031 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:50 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10032.d

Injection Date: 10-Oct-2017 09:54:53 Instrument ID: LC_LCMS7

Lims ID: std007

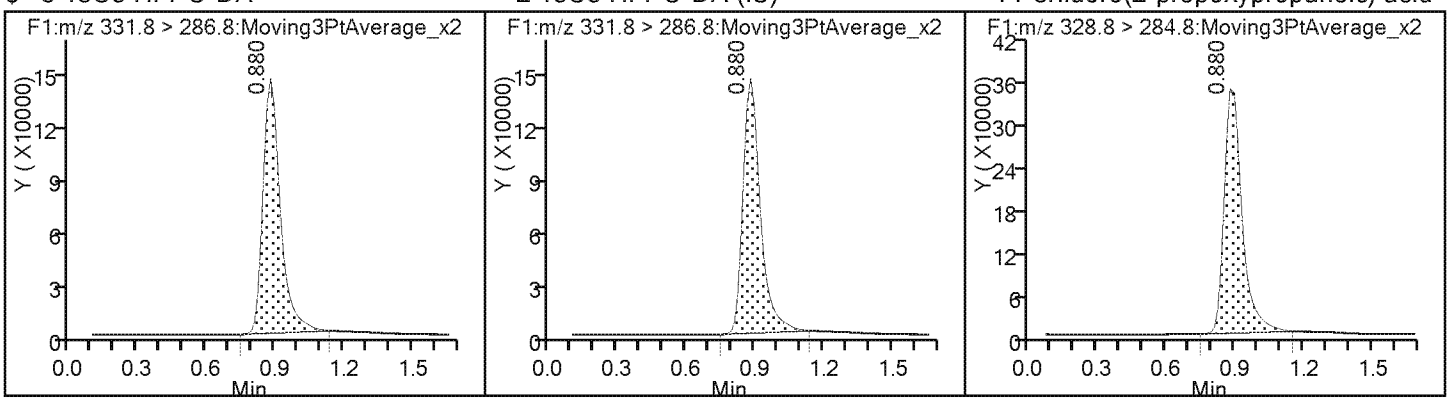
Client ID:

Operator ID: JBH ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d
Lims ID: std008
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 10-Oct-2017 09:58:07 ALS Bottle#: 9 Worklist Smp#: 10
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L8
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:51 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		701420	10.0	373	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	701420	9.59	373	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.893	0.885	0.008	1.000	3654104	51.3	421	

Reagents:

HFPO_CAL-8_00031 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:51 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Injection Date: 10-Oct-2017 09:58:07 Instrument ID: LC_LCMS7

Lims ID: std008

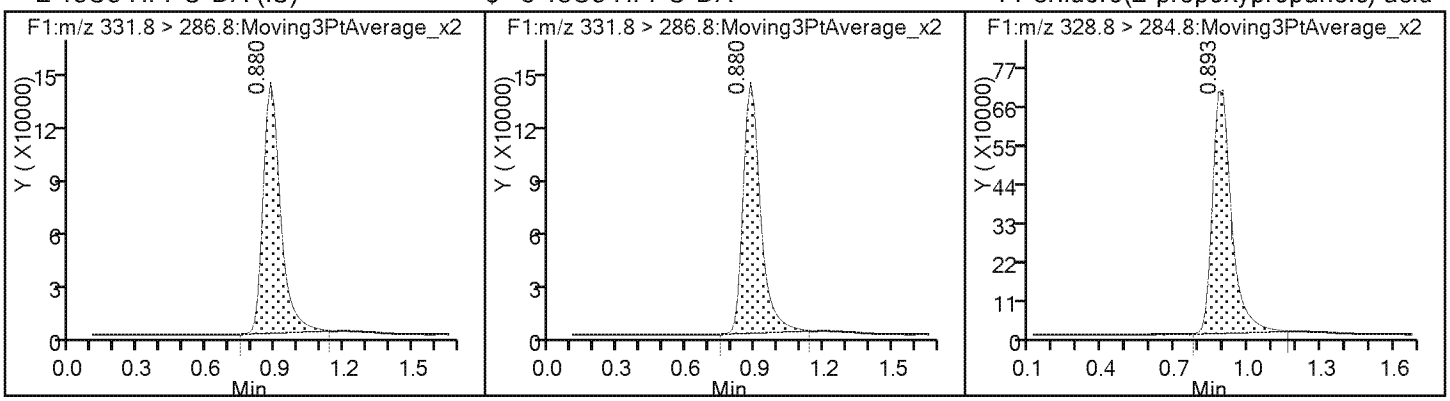
Client ID:

Operator ID: JBH ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9		RT WINDOW	AVG RT
HFPO-DA	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056		0.556 - 1.556	1.056
13C3 HFPO-DA	1.042	1.042	1.042	1.042	1.042	1.042	1.042	1.056	1.056		0.545 - 1.545	1.045

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
13C3 HFPO-DA	75771 75244 71284	75964 75940	72010 75039	77000 73687	Ave		74659.8778				2.6		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
HFPO-DA	1.1630 1.1128	1.1250 1.0911	1.0756 1.0665	1.0527 1.0507	1.1211	Lin1	0.0361	1.0638							1.0000		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
13C3 HFPO-DA	Ave	757714 759397	759642 750388	720099 736869	769995 712841	752444	10.0 10.0	10.0 10.0	10.0 10.0	10.0 10.0	10.0

Curve Type Legend:
Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107269-1 Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
HFPO-DA	13CP ODA	Lin1	22031 845082	42730 2046873	77455 3929397	162117 7489478	421775	0.250 10.0	0.500 25.0	1.00 50.0	2.00 100	5.00

Curve Type Legend:
Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d
Lims ID: std001
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 08-Feb-2018 13:05:38 ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L1
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:13 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		757714	10.0	1562	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	757714	10.1	1562	
1 Perfluoro(2-propoxypropanoic) acid								M
328.8 > 284.8	1.056	1.056	0.0	1.000	22031	0.2394	4.4	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:13 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d

Injection Date: 08-Feb-2018 13:05:38 Instrument ID: LC_LCMS7

Lims ID: std001

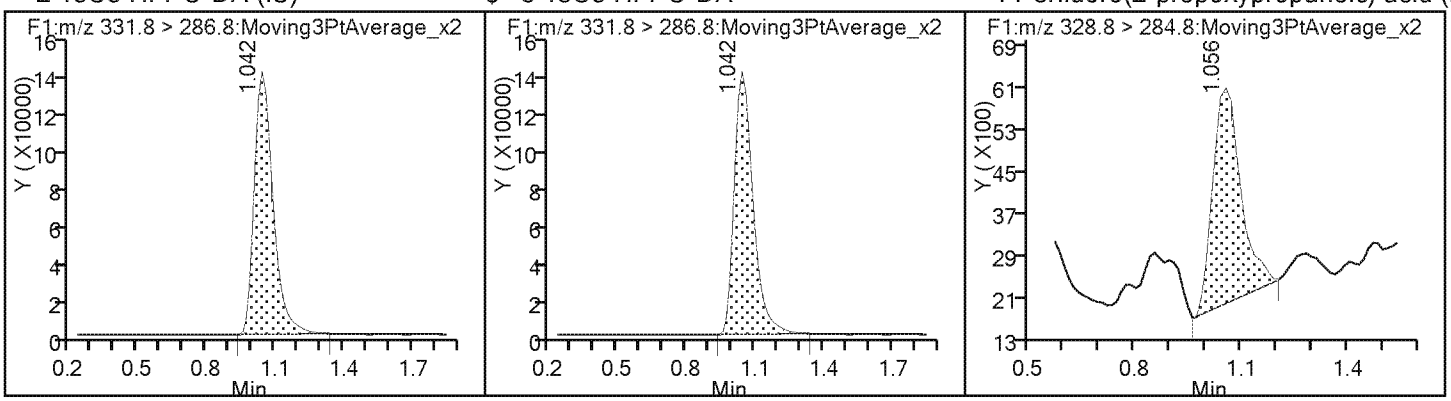
Client ID:

Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Denver

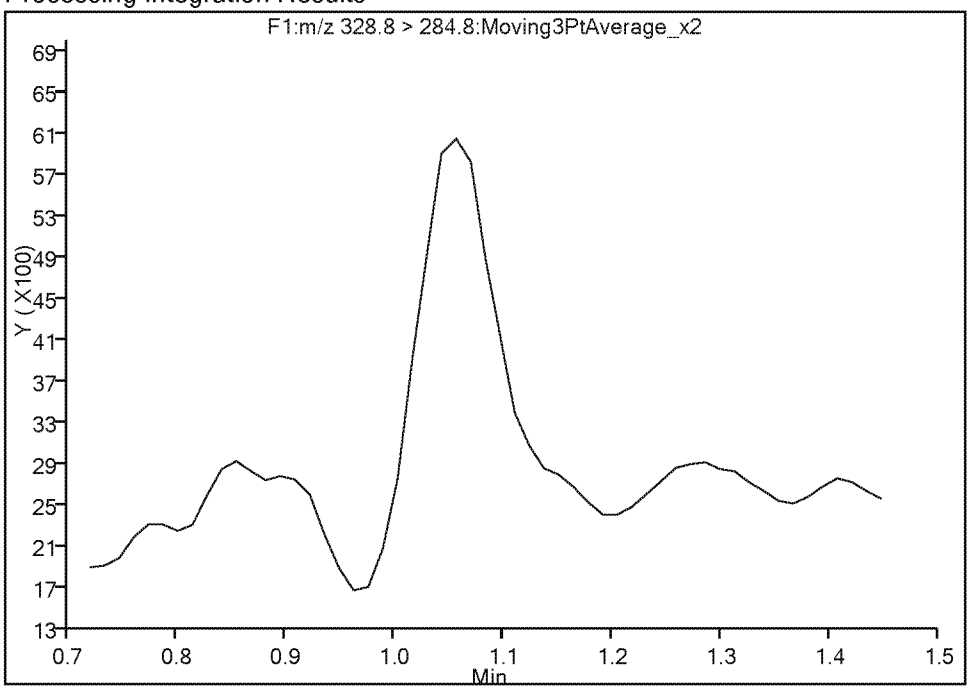
Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d				
Injection Date:	08-Feb-2018 13:05:38	Instrument ID:	LC_LCMS7		
Lims ID:	std001				
Client ID:					
Operator ID:	JBH	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		
Column:		Detector	F1:MRM		

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

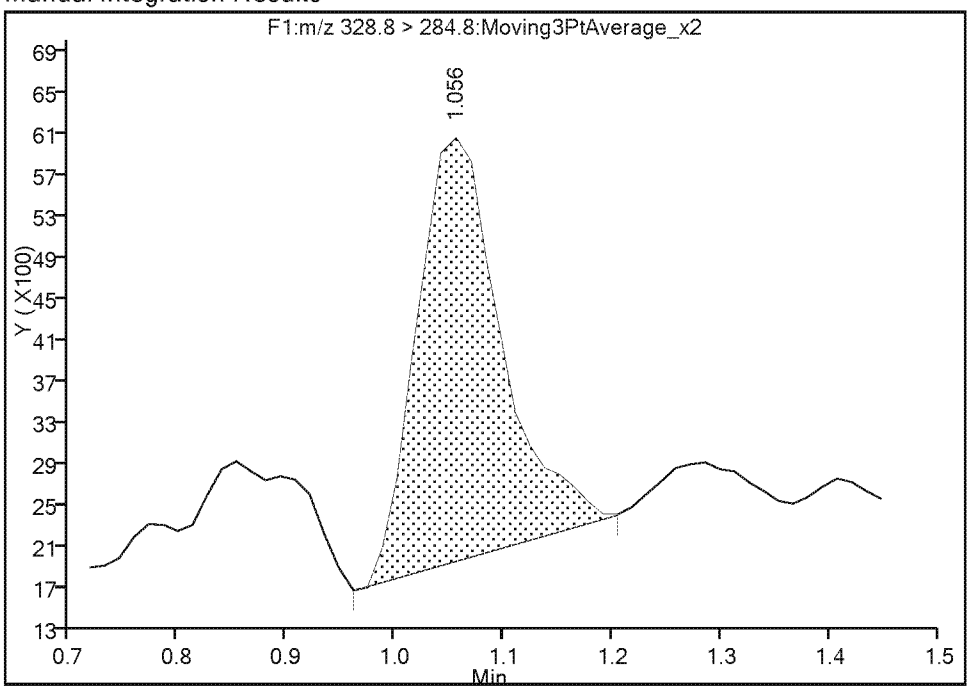
Processing Integration Results

Not Detected
Expected RT: 1.06



Manual Integration Results

RT: 1.06
Area: 22031
Amount: 0.239356
Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:19:01
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d
Lims ID: std002
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 08-Feb-2018 13:08:52 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L2
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	759642	10.2	1267	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		759642	10.0	1267	
1 Perfluoro(2-propoxypropanoic) acid								M
328.8 > 284.8	1.056	1.056	0.0	1.000	42730	0.4948	6.5	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-2_00033 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:14 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d

Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7

Lims ID: std002

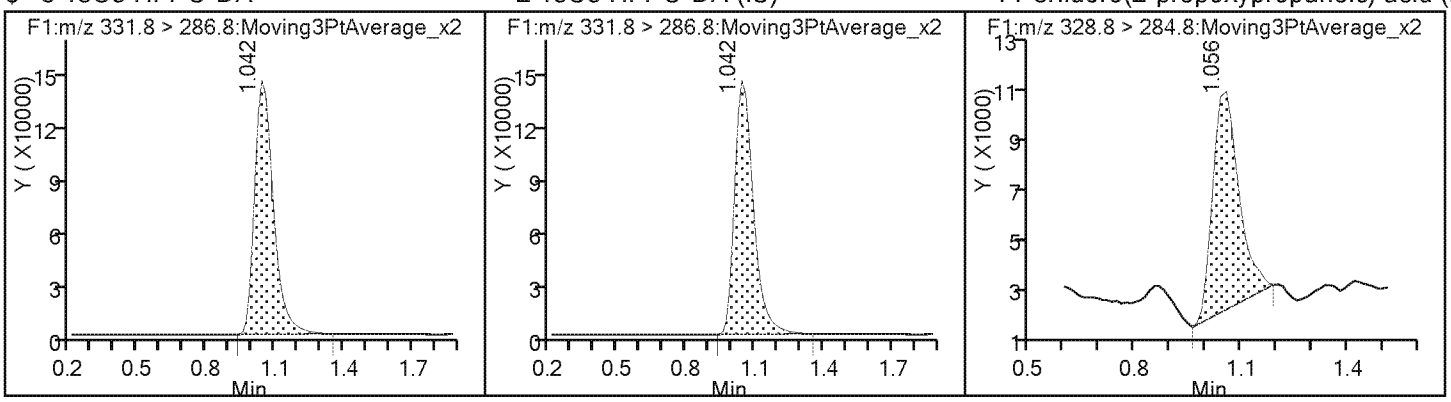
Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Denver

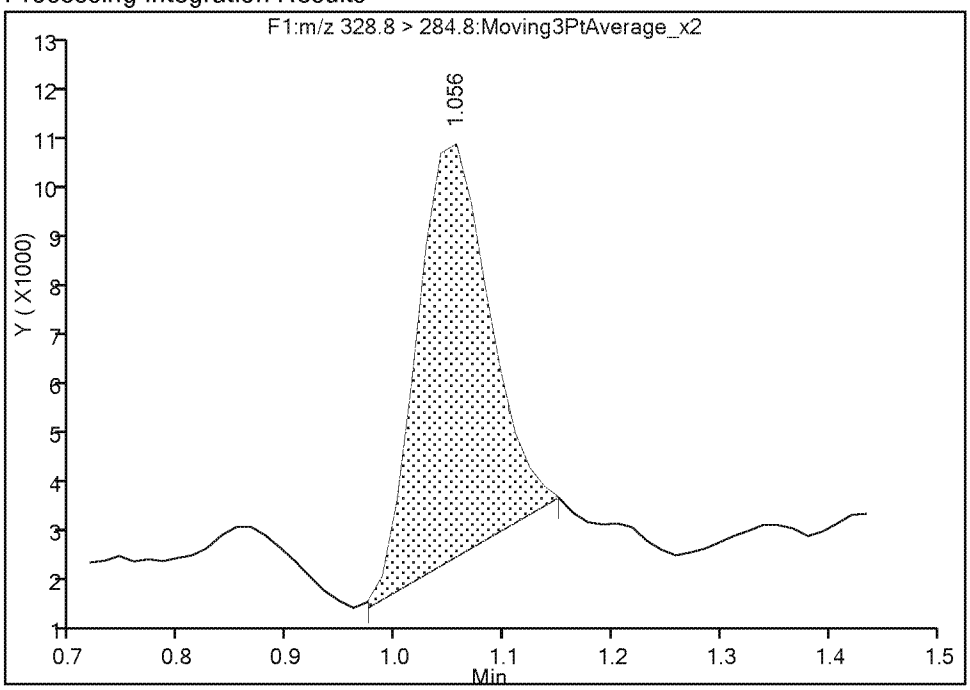
Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d				
Injection Date:	08-Feb-2018 13:08:52	Instrument ID:	LC_LCMS7		
Lims ID:	std002				
Client ID:					
Operator ID:	JBH	ALS Bottle#:	3	Worklist Smp#:	4
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		
Column:		Detector	F1:MRM		

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

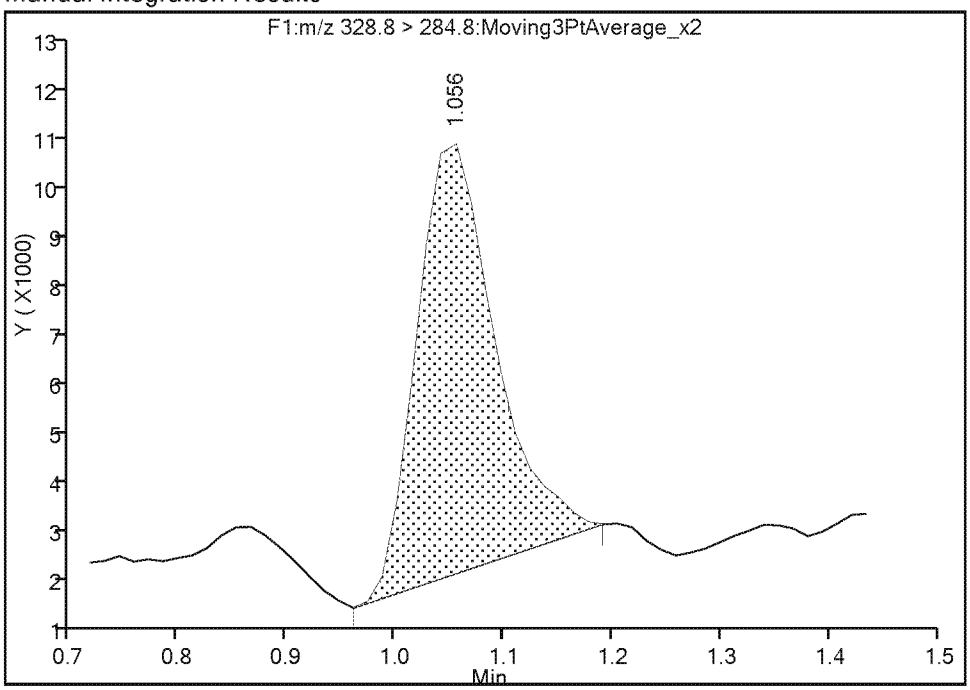
Processing Integration Results

RT: 1.06
Area: 38092
Amount: 0.452274
Amount Units: ug/l



Manual Integration Results

RT: 1.06
Area: 42730
Amount: 0.494804
Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:19:12

Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08036.d
Lims ID: std003
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 08-Feb-2018 13:12:06 ALS Bottle#: 4 Worklist Smp#: 5
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L3
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		720099	10.0	956	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	720099	9.65	956	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	77455	0.9771	10.6	

Reagents:

HFPO_CAL-3_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:15 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08036.d

Injection Date: 08-Feb-2018 13:12:06 Instrument ID: LC_LCMS7

Lims ID: std003

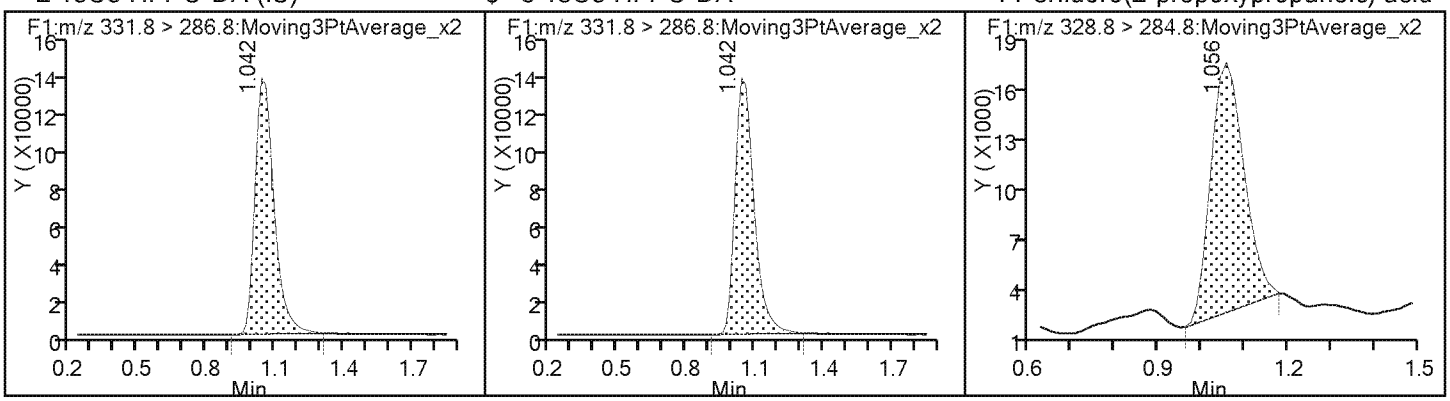
Client ID:

Operator ID: JBH ALS Bottle#: 4 Worklist Smp#: 5

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08037.d
Lims ID: std004
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 08-Feb-2018 13:15:21 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L4
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	769995	10.3	1154	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		769995	10.0	1154	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	162117	1.95	26.1	

Reagents:

HFPO_CAL-4_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:15 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08037.d

Injection Date: 08-Feb-2018 13:15:21 Instrument ID: LC_LCMS7

Lims ID: std004

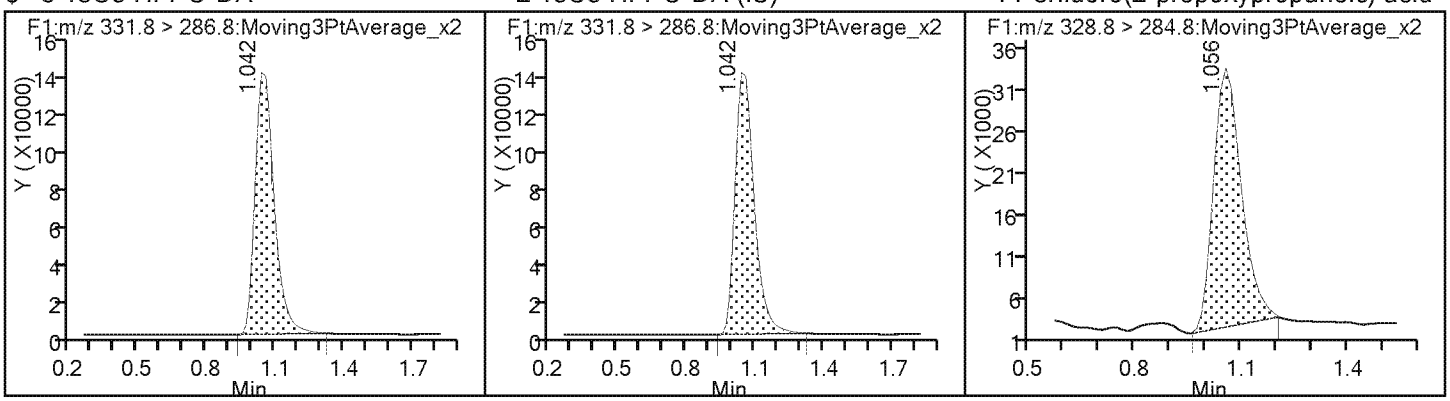
Client ID:

Operator ID: JBH ALS Bottle#: 5 Worklist Smp#: 6

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08038.d
Lims ID: std005
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 08-Feb-2018 13:18:35 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L5
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		752444	10.0	1072	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	752444	10.1	1072	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	421775	5.24	66.0	

Reagents:

HFPO_CAL-5_00080 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:16 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08038.d

Injection Date: 08-Feb-2018 13:18:35 Instrument ID: LC_LCMS7

Lims ID: std005

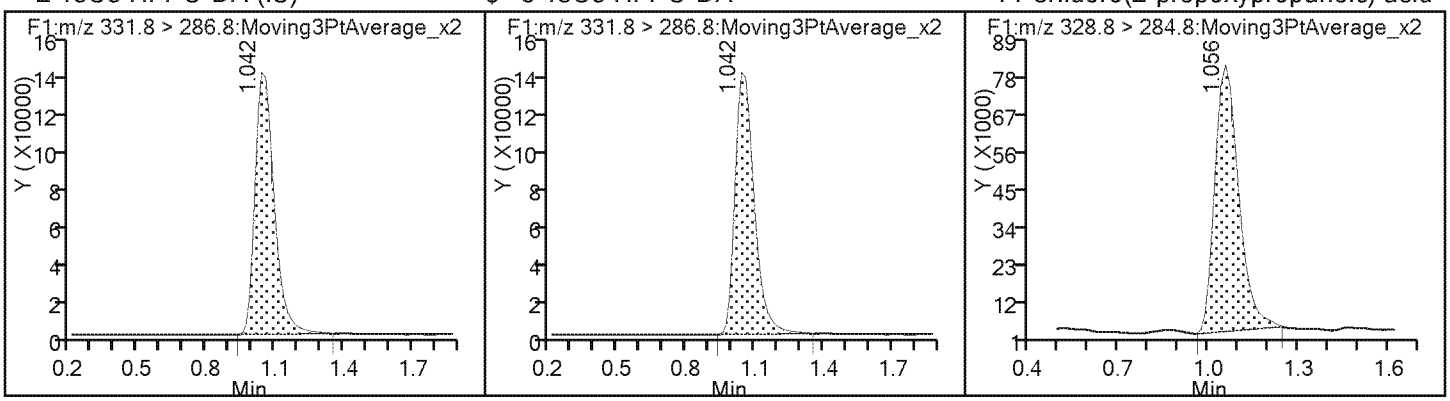
Client ID:

Operator ID: JBH ALS Bottle#: 6 Worklist Smp#: 7

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08039.d
Lims ID: std006
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 08-Feb-2018 13:21:49 ALS Bottle#: 7 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L6
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	759397	10.2	1193	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		759397	10.0	1193	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	845082	10.4	146	

Reagents:

HFPO_CAL-6_00080 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:16 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08039.d

Injection Date: 08-Feb-2018 13:21:49 Instrument ID: LC_LCMS7

Lims ID: std006

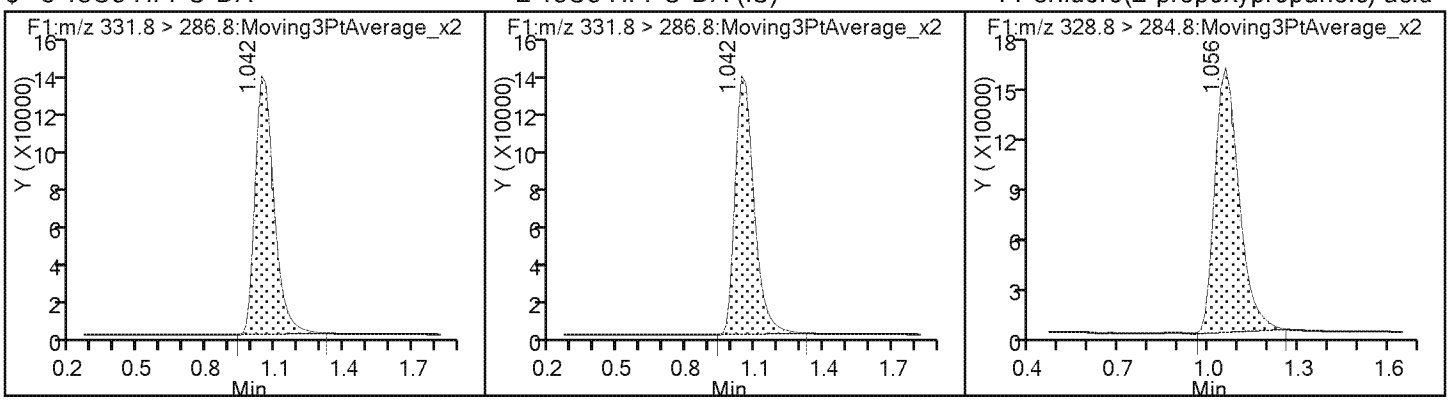
Client ID:

Operator ID: JBH ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08040.d
Lims ID: std007
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 08-Feb-2018 13:25:03 ALS Bottle#: 8 Worklist Smp#: 9
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L7
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.042	1.045	-0.003		750388	10.0	1247	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.042	1.045	-0.003	1.000	750388	10.1	1247	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	2046873	25.6	246	

Reagents:

HFPO_CAL-7_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:17 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08040.d

Injection Date: 08-Feb-2018 13:25:03 Instrument ID: LC_LCMS7

Lims ID: std007

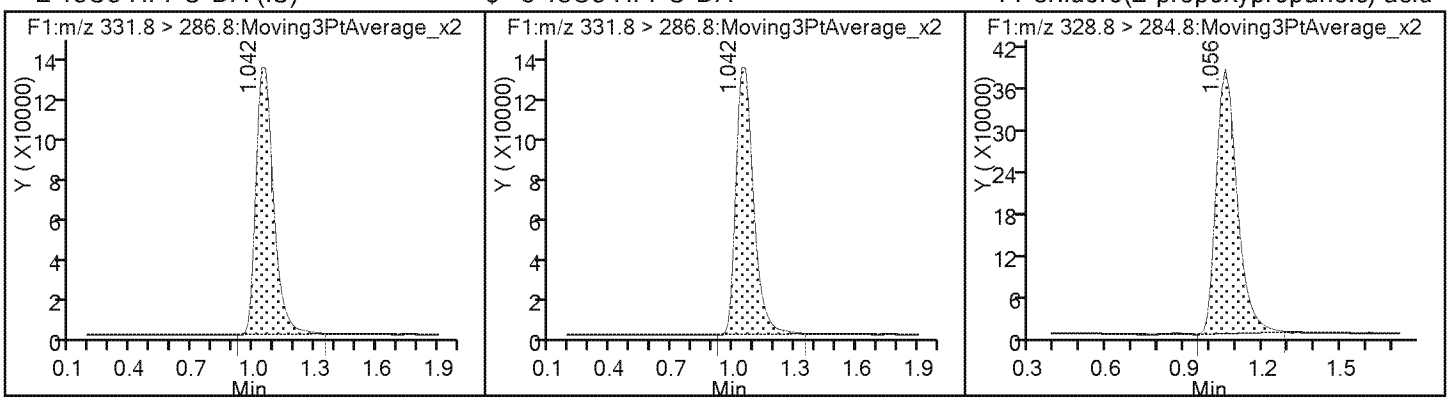
Client ID:

Operator ID: JBH ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08041.d
Lims ID: std008
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 08-Feb-2018 13:28:18 ALS Bottle#: 9 Worklist Smp#: 10
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L8
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	736869	9.87	1055	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		736869	10.0	1055	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	3929397	50.1	416	

Reagents:

HFPO_CAL-8_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:17 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08041.d

Injection Date: 08-Feb-2018 13:28:18 Instrument ID: LC_LCMS7

Lims ID: std008

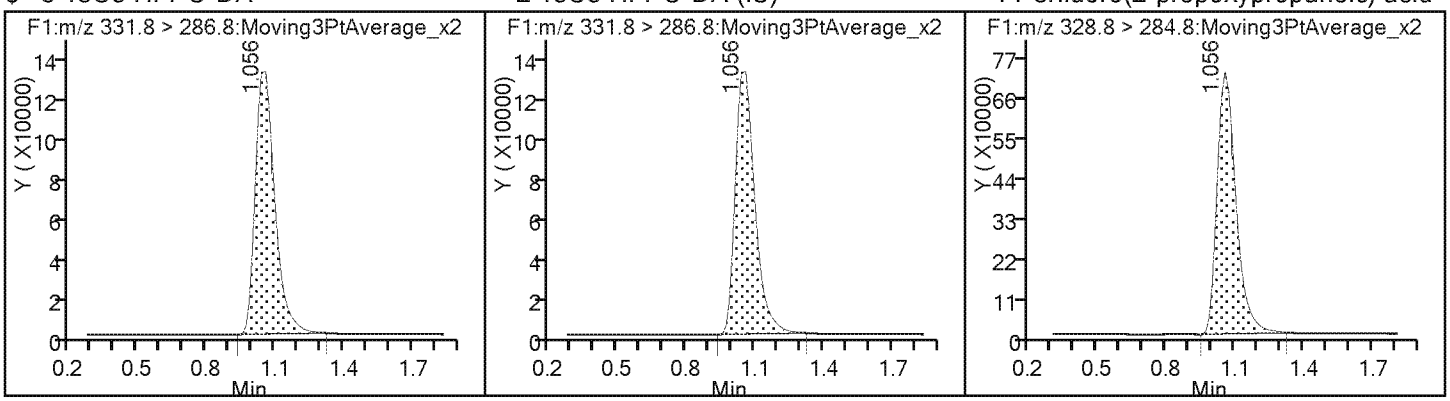
Client ID:

Operator ID: JBH ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
Lims ID: std009
Client ID:
Sample Type: IC Calib Level: 9
Inject. Date: 08-Feb-2018 13:31:32 ALS Bottle#: 10 Worklist Smp#: 11
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: L9
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		712841	10.0	1141	
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	712841	9.55	1141	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	7489478	98.7	561	

Reagents:

HFPO_CAL-9_00001 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:18 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Injection Date: 08-Feb-2018 13:31:32 Instrument ID: LC_LCMS7

Lims ID: std009

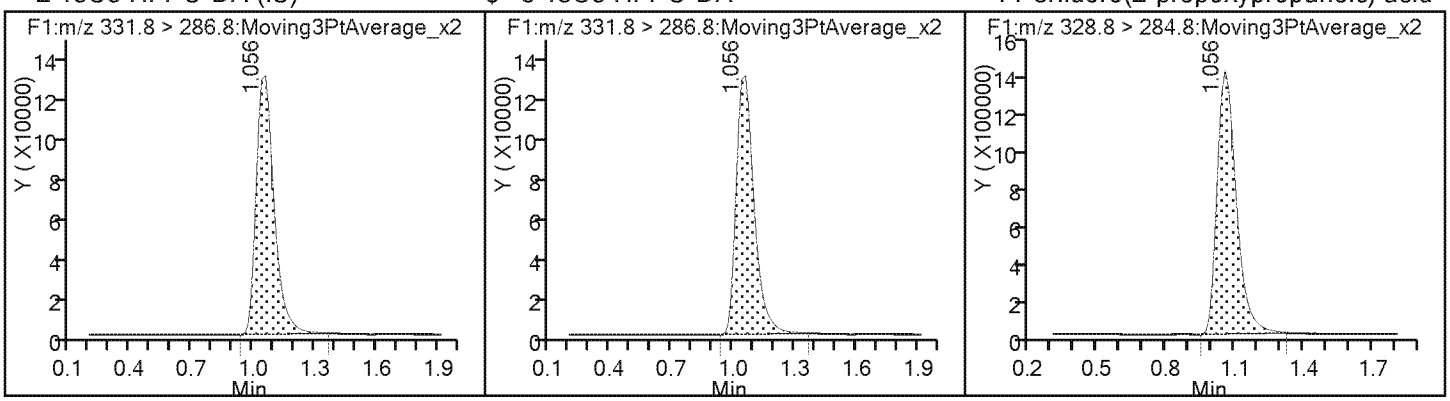
Client ID:

Operator ID: JBH ALS Bottle#: 10 Worklist Smp#: 11

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS) $ 3 13C3 HFPO-DA 1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab Sample ID: ICV 280-390728/13 Calibration Date: 10/10/2017 10:07

Instrument ID: LC_LCMS7 Calib Start Date: 10/10/2017 09:35

GC Column: Synergi Hydro ID: Calib End Date: 10/10/2017 09:58

Lab File ID: hfpo717J10036.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro(2-propoxypropanoic) acid	Lin1		1.154		2.07	2.00	3.3	20.0
13C3 HFPO-DA	Ave	73145	72923		9.97	10.0	-0.3	

FORM VII 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10036.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 10-Oct-2017 10:07:48 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: HFPO17J10
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist:

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 10-Oct-2017 12:51:53 Calib Date: 10-Oct-2017 09:58:07
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.880	0.880	0.0	1.000	729225	9.97	396	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.880	0.880	0.0		729225	10.0	396	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.893	0.885	0.008	1.000	168368	2.07	111	

Reagents:

HFPO_ICV_00032 Amount Added: 1.00 Units: mL

Report Date: 10-Oct-2017 12:51:53 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10036.d

Injection Date: 10-Oct-2017 10:07:48 Instrument ID: LC_LCMS7

Lims ID: ICV

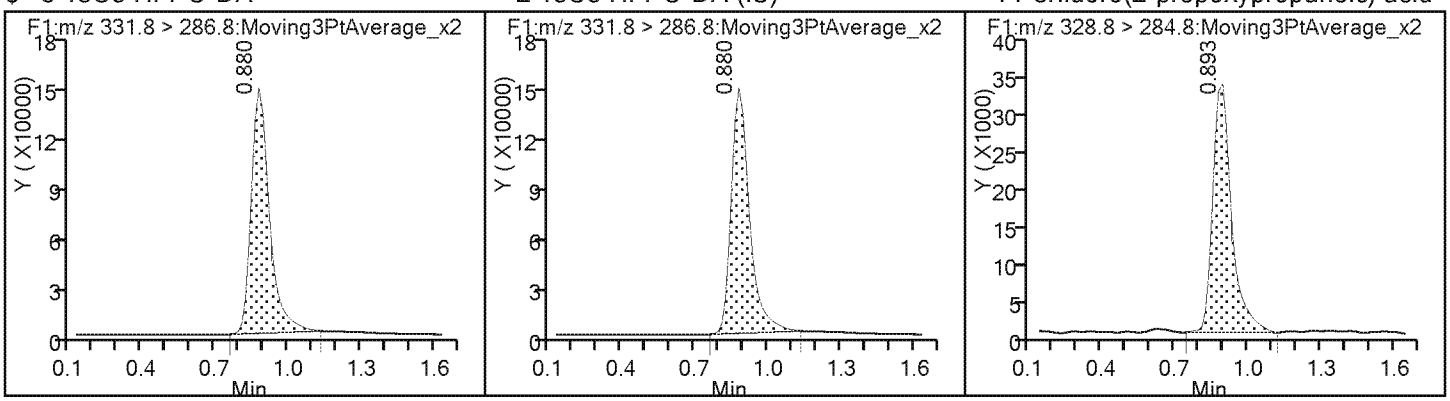
Client ID:

Operator ID: JBH ALS Bottle#: 10 Worklist Smp#: 13

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab Sample ID: ICV 280-404345/14 Calibration Date: 02/08/2018 13:41

Instrument ID: LC_LCMS7 Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID: Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718B08045.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.139		2.05	1.95	5.3	20.0
13C3 HFPO-DA	Ave	74660	76733		10.3	10.0	2.8	

FORM VII 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08045.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 08-Feb-2018 13:41:16 ALS Bottle#: 11 Worklist Smp#: 14
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist:

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:19 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	767333	10.3	1367	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		767333	10.0	1367	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.056	1.056	0.0	1.000	170411	2.05	30.8	

Reagents:

HFPO_ICV_00034 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:19 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08045.d

Injection Date: 08-Feb-2018 13:41:16 Instrument ID: LC_LCMS7

Lims ID: ICV

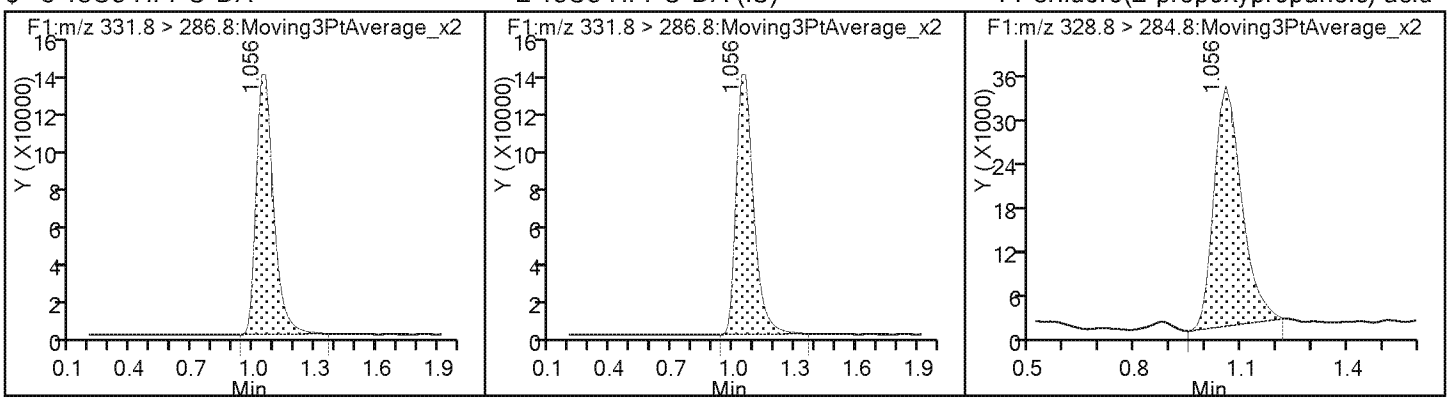
Client ID:

Operator ID: JBH ALS Bottle#: 11 Worklist Smp#: 14

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab Sample ID: CCV 280-408339/28 Calibration Date: 03/19/2018 14:43

Instrument ID: LC_LCMS7 Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID: Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C19090.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.014		9.50	10.0	-5.0	20.0
13C3 HFPO-DA	Ave	74660	44409		5.95	10.0	-40.5	

FORM VII 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19090.d
Lims ID: CCV L6
Client ID:
Sample Type: CCV
Inject. Date: 19-Mar-2018 14:43:27 ALS Bottle#: 4 Worklist Smp#: 28
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: CCV L6
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.029	1.045	-0.016	1.000	444090	5.95	2088	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.029	1.045	-0.016		444090	10.0	2088	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.042	1.056	-0.014	1.000	450501	9.50	193	

Reagents:

HFPO_CAL-6_00084 Amount Added: 1.00 Units: mL

Report Date: 20-Mar-2018 07:36:15 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19090.d

Injection Date: 19-Mar-2018 14:43:27 Instrument ID: LC_LCMS7

Lims ID: CCV L6

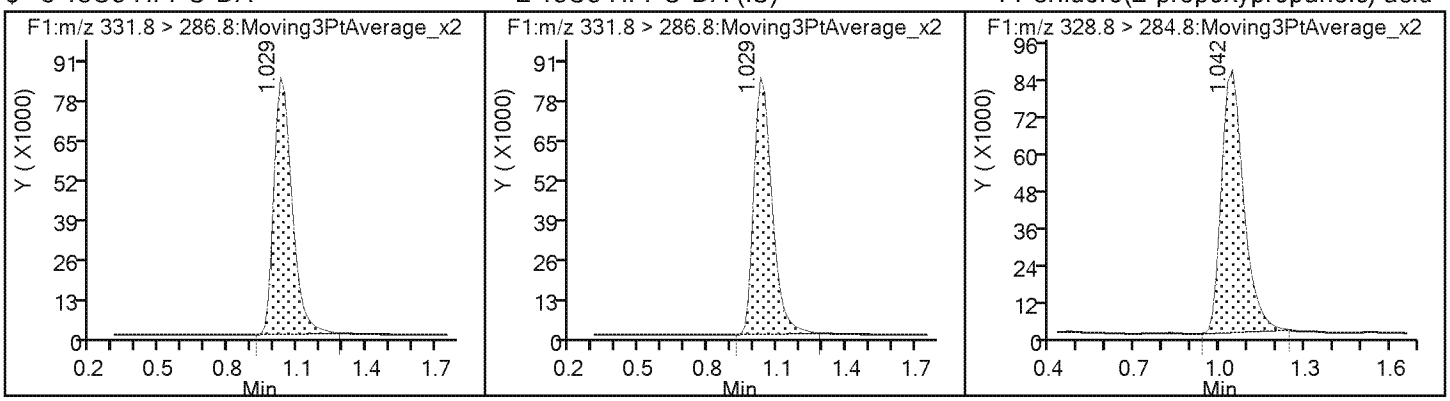
Client ID:

Operator ID: JBH ALS Bottle#: 4 Worklist Smp#: 28

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab Sample ID: CCV 280-408339/39 Calibration Date: 03/19/2018 15:21

Instrument ID: LC_LCMS7 Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID: Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C19101.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.040		4.86	5.00	-2.9	20.0
13C3 HFPO-DA	Ave	74660	47590		6.37	10.0	-36.3	

FORM VII 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19101.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 19-Mar-2018 15:21:17 ALS Bottle#: 3 Worklist Smp#: 39
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:39 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:30:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.002	1.045	-0.043	1.000	475903	6.37	2744	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.002	1.045	-0.043		475903	10.0	2744	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.015	1.056	-0.041	1.000	247524	4.86	107	

Reagents:

HFPO_CAL-5_00084 Amount Added: 1.00 Units: mL

Report Date: 20-Mar-2018 07:36:39 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19101.d

Injection Date: 19-Mar-2018 15:21:17 Instrument ID: LC_LCMS7

Lims ID: CCV L5

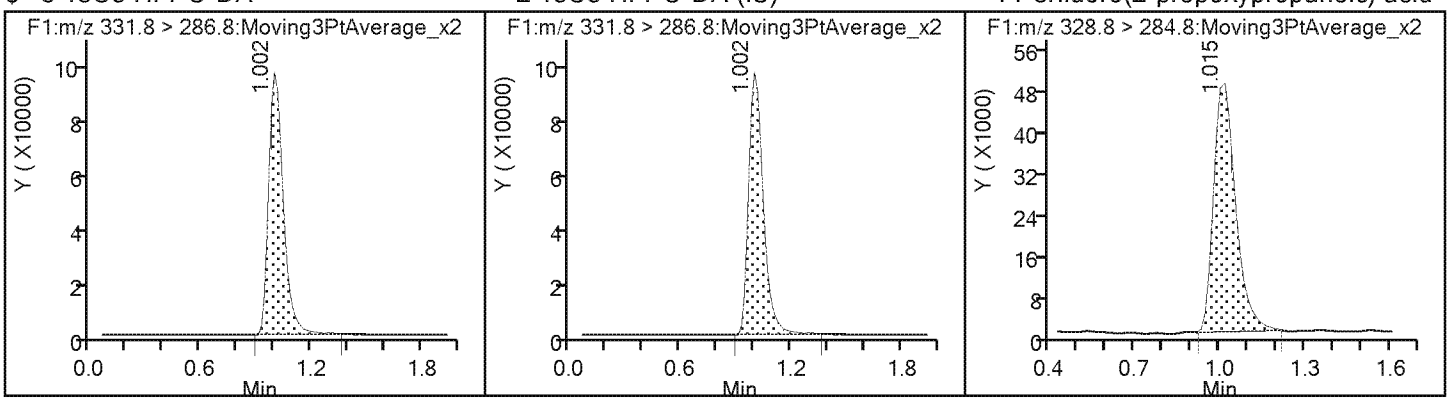
Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 39

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab Sample ID: CCV 280-408339/50 Calibration Date: 03/19/2018 15:57

Instrument ID: LC_LCMS7 Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID: Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C19112.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.035		9.69	10.0	-3.1	20.0
13C3 HFPO-DA	Ave	74660	45211		6.06	10.0	-39.4	

FORM VII 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19112.d
Lims ID: CCV L6
Client ID:
Sample Type: CCV
Inject. Date: 19-Mar-2018 15:57:02 ALS Bottle#: 4 Worklist Smp#: 50
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: CCV L6
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:54:30 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:31:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.002	1.045	-0.043	1.000	452111	6.06	2296	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.002	1.045	-0.043		452111	10.0	2296	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.002	1.056	-0.054	1.000	467793	9.69	189	

Reagents:

HFPO_CAL-6_00084 Amount Added: 1.00 Units: mL

Report Date: 20-Mar-2018 07:54:31 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19112.d

Injection Date: 19-Mar-2018 15:57:02 Instrument ID: LC_LCMS7

Lims ID: CCV L6

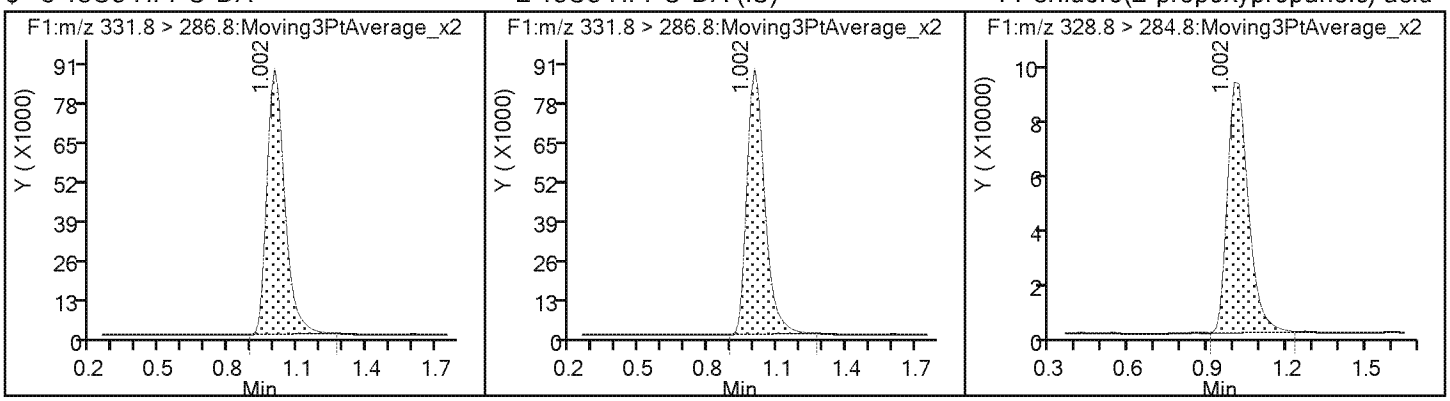
Client ID:

Operator ID: JBH ALS Bottle#: 4 Worklist Smp#: 50

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Lab Sample ID: CCV 280-408339/60 Calibration Date: 03/19/2018 16:29

Instrument ID: LC_LCMS7 Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID: Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C19122.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.040		4.85	5.00	-2.9	20.0
13C3 HFPO-DA	Ave	74660	48678		6.52	10.0	-34.8	

FORM VII 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19122.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 19-Mar-2018 16:29:31 ALS Bottle#: 3 Worklist Smp#: 60
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7
Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:37:16 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:32:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.015	1.045	-0.030	1.000	486781	6.52	2399	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.015	1.045	-0.030		486781	10.0	2399	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	1.029	1.056	-0.027	1.000	253129	4.85	98.6	

Reagents:

HFPO_CAL-5_00084 Amount Added: 1.00 Units: mL

Report Date: 20-Mar-2018 07:37:16 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19122.d

Injection Date: 19-Mar-2018 16:29:31 Instrument ID: LC_LCMS7

Lims ID: CCV L5

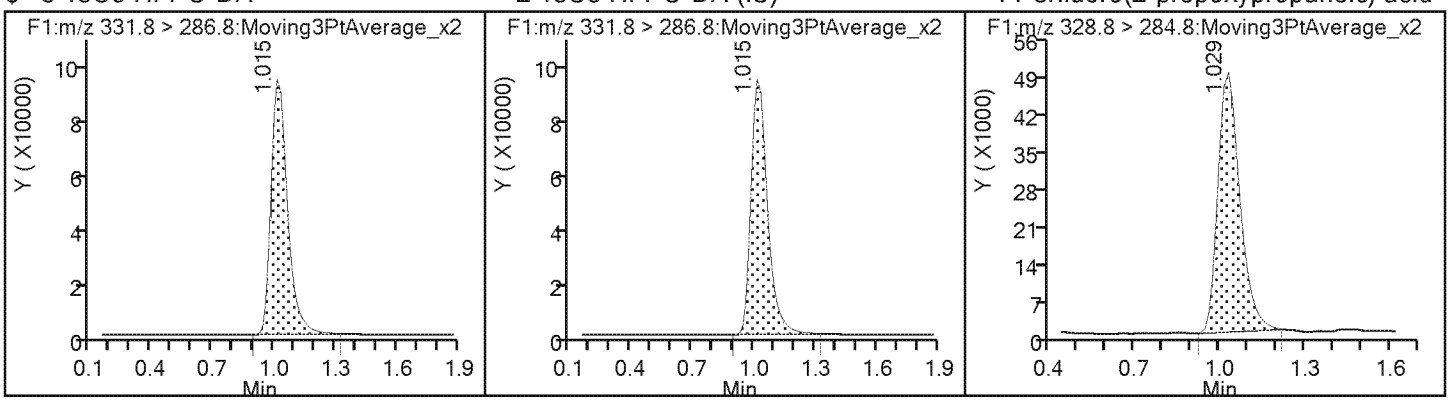
Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 60

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

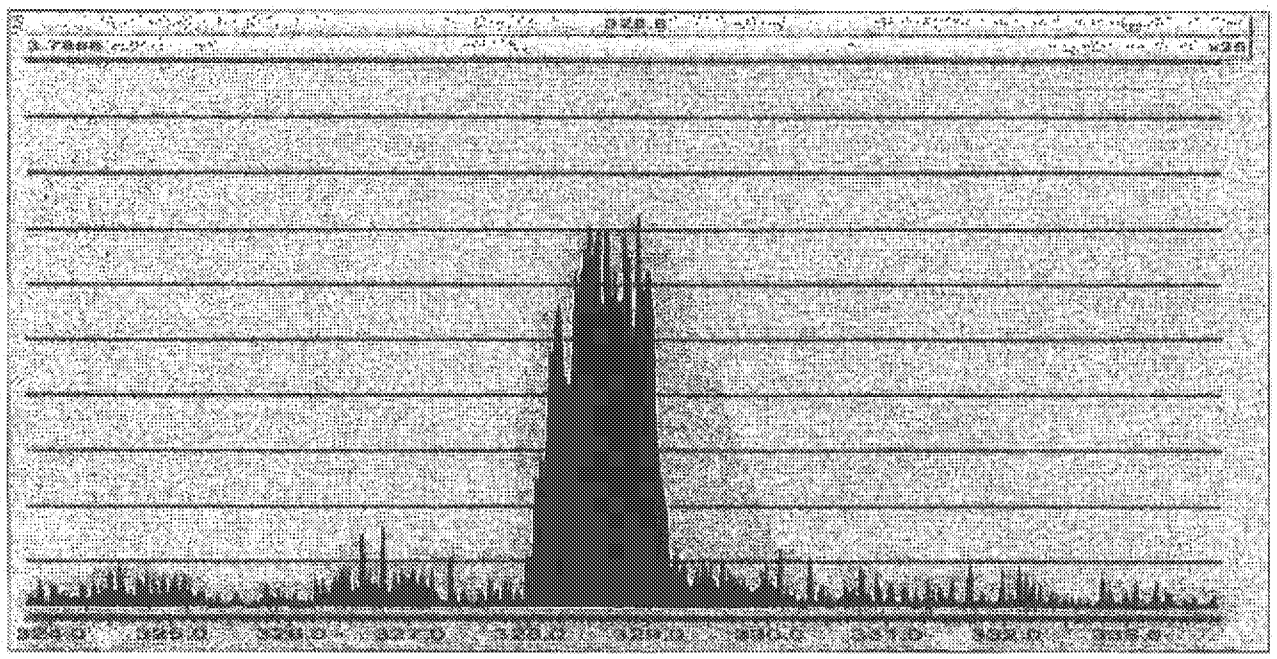
$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



File: C:\MassLynx\8321.PROVACQUDB\HFPOMRM.ipr

Instrument: XEVO-TQMS#VBA453

Printed: Monday, March 19, 2018 08:41:37 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
MS1 Scan	323.80	333.80	

Source (ES-)	Settings	Readbacks
Capillary (kV)	0.50	0.52
Cone (V)	10.00	-21.06
Extractor (V)	3.00	-10.61
Source Temperature (°C)	120	120
Desolvation Temperature (°C)	200	200
Cone Gas Flow (L/Hr)	50	51
Desolvation Gas Flow (L/Hr)	800	793
Collision Gas Flow (mL/Min)	0.15	0.05

Analyser	Settings	Readbacks
LM 1 Resolution	2.8	
HM 1 Resolution	14.8	
Ion Energy 1	0.7	
MS Mode Collision Energy	7.00	
MSMS Mode Collision Energy	20.00	
MS Mode Entrance	0.50	
MS Mode Exit	0.50	
Gas On MS Mode Entrance	0.50	
Gas On MS Mode Exit	0.50	
Gas On MSMS Mode Entrance	0.50	
Gas On MSMS Mode Exit	0.50	
Gas Off MS Mode Entrance	30.00	
Gas Off MS Mode Exit	30.00	
Gas Off MSMS Mode Entrance	2.00	
Gas Off MSMS Mode Exit	2.00	
ScanWave MS Mode Entrance	0.50	
ScanWave MS Mode Exit	0.50	
ScanWave MSMS Mode Entrance	0.50	
ScanWave MSMS Mode Exit	0.50	
LM 2 Resolution	2.9	
HM 2 Resolution	14.7	
Ion Energy 2	0.3	

Oldham
3/21/18

File: C:\MassLynx\8321.PRO\ACQUDB\HFPOMRM.lpr

Instrument: XEVO-TQMS#VBA453

Printed: Monday, March 19, 2018 08:41:37 Mountain Daylight Time

Multiplier	523.57
Active Reservoir	A

Pressure Gauges

Collision Cell Pressure (mbar)	7.830201e-005

Instrument Configuration

Automatic Mode

MS Inter-scan delay (secs)	0.005	
Polarity/Mode switch inter-scan delay (secs)		0.020
Enhanced Inter-scan delay (secs)		0.020

Inter-channel delay - See Tables

MS 1 Delay Table:

	R	delay
<=	0.500	0.005
<=	2.000	0.008
<=	4.000	0.010
<=	11.000	0.012
>	11.000	0.014

MS 2 Delay Table:

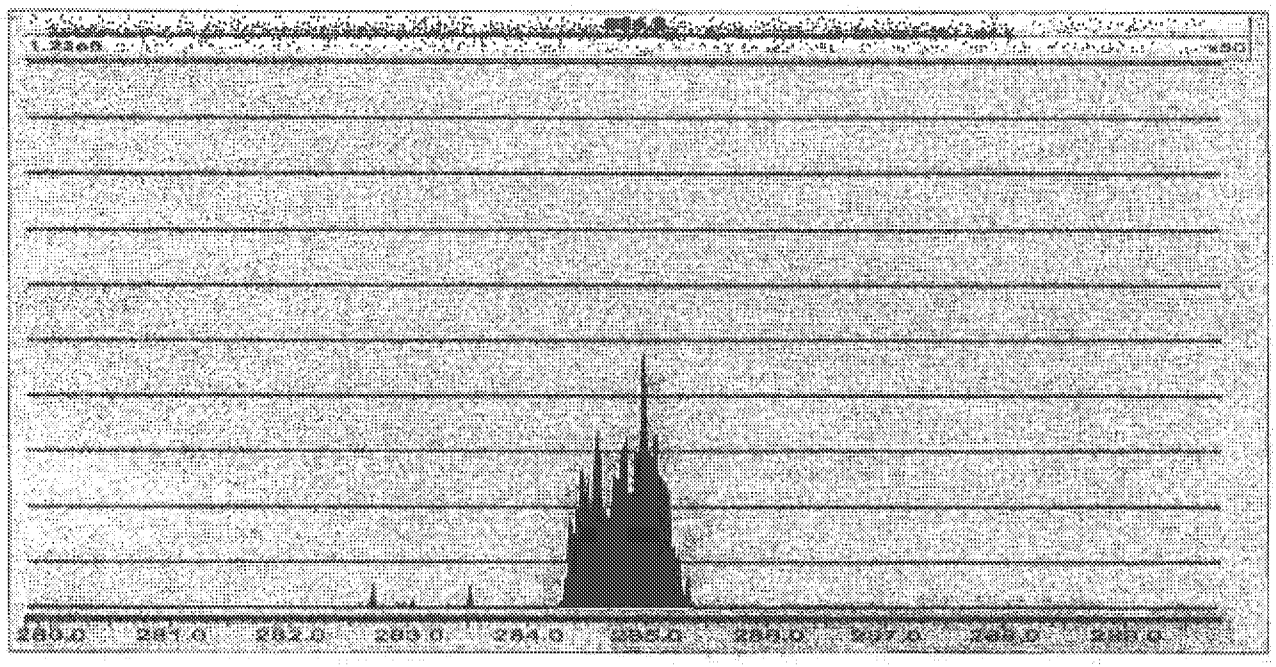
	R	delay
<=	8.000	0.005
<=	25.000	0.005
>	25.000	0.007

dwdapom
3/21/18

File: C:\MassLynx\8321.PROVACQUDB\HFPOMRM.ipr

Instrument: XEVO-TQMS#VBA453

Printed: Monday, March 19, 2018 08:42:13 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
Daughter Scan	279.80	289.80	328.80

Source (ES-)	Settings	Readbacks
Capillary (kV)	0.60	0.63
Cone (V)	10.00	-21.08
Extractor (V)	3.00	-10.61
Source Temperature (°C)	120	120
Desolvation Temperature (°C)	200	200
Cone Gas Flow (L/Hr)	50	49
Desolvation Gas Flow (L/Hr)	800	798
Collision Gas Flow (mL/Min)	0.15	0.14

Analyser	Settings	Readbacks
LM 1 Resolution	2.8	
HM 1 Resolution	14.8	
Ion Energy 1	0.7	
MS Mode Collision Energy	7.00	
MSMS Mode Collision Energy	20.00	
MS Mode Entrance	0.50	
MS Mode Exit	0.50	
Gas On MS Mode Entrance	0.50	
Gas On MS Mode Exit	0.50	
Gas On MSMS Mode Entrance	0.50	
Gas On MSMS Mode Exit	0.50	
Gas Off MS Mode Entrance	30.00	
Gas Off MS Mode Exit	30.00	
Gas Off MSMS Mode Entrance	2.00	
Gas Off MSMS Mode Exit	2.00	
ScanWave MS Mode Entrance	0.50	
ScanWave MS Mode Exit	0.50	
ScanWave MSMS Mode Entrance	0.50	
ScanWave MSMS Mode Exit	0.50	
LM 2 Resolution	2.9	
HM 2 Resolution	14.7	
Ion Energy 2	0.3	

dwdapom
3/21/18

File: C:\MassLynx\8321.PRO\ACQUDB\HFPOMRM.lpr

Instrument: XEVO-TQMS#VBA453

Printed: Monday, March 19, 2018 08:42:13 Mountain Daylight Time

Multiplier	523.81
Active Reservoir	A

Pressure Gauges

Collision Cell Pressure (mbar)	1.282143e-003

Instrument Configuration

Automatic Mode

MS Inter-scan delay (secs)	0.005	
Polarity/Mode switch Inter-scan delay (secs)		0.020
Enhanced Inter-scan delay (secs)		0.020

Inter-channel delay - See Tables

MS 1 Delay Table:

	R	delay
<=	0.500	0.005
<=	2.000	0.008
<=	4.000	0.010
<=	11.000	0.012
>	11.000	0.014

MS 2 Delay Table:

	R	delay
<=	8.000	0.005
<=	25.000	0.005
>	25.000	0.007

dvodapam
3/21/18

File: c:\masslynx\8321.pro\acqudb\hfpo.exp

Printed: Monday, March 19, 2018 08:42:57 Mountain Daylight Time

Creation Time	Fri 18 Nov 2016 09:08:40
Instrument Identifier	XEVO-TQMS#VBA453
Version Number	1.0
Duration (min)	2.0
Calibration Filename	C:\MassLynx\IntelliStart\Results\Unit Mass Resolution\Calibration_20100811
_2.cal	
Solvent Delay Divert Valve Enabled	0
Number Of Functions	1

Function 1 : MRM of 2 mass pairs, Time 0.00 to 2.00, ES-

Type	MRM
Ion Mode	ES-
Inter Channel Delay (sec)	-1.000
InterScan Time (sec)	-1.000
Span (Da)	0.5
Start Time (min)	0.0
End Time (min)	2.0

Ch	Prnt(Da)	Dau(Da)	Dwell(s)	Cone(V)	Coll(eV)	Delay(s)	Compound
1	328.80	284.80	0.400	10.00	7.00	-1.000	HFPO
2	331.80	286.80	0.400	10.00	7.00	-1.000	HFPO IS

dwillarom

3/21/18.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 280-407780/1-A
Matrix: Water
Lab File ID: hfpo718C19091.d
Analysis Method: 8321A
Date Collected:
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 250(mL)
Date Analyzed: 03/19/2018 14:46
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	62		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19091.d
Lims ID: MB 280-407780/1-A
Client ID:
Sample Type: MB
Inject. Date: 19-Mar-2018 14:46:40 ALS Bottle#: 36 Worklist Smp#: 29
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: MB280-407780/1-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.029	1.045	-0.016	1.000	459312	6.15	2857	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.029	1.045	-0.016		459312	10.0	2857	

Report Date: 20-Mar-2018 07:36:17 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19091.d

Injection Date: 19-Mar-2018 14:46:40 Instrument ID: LC_LCMS7

Lims ID: MB 280-407780/1-A

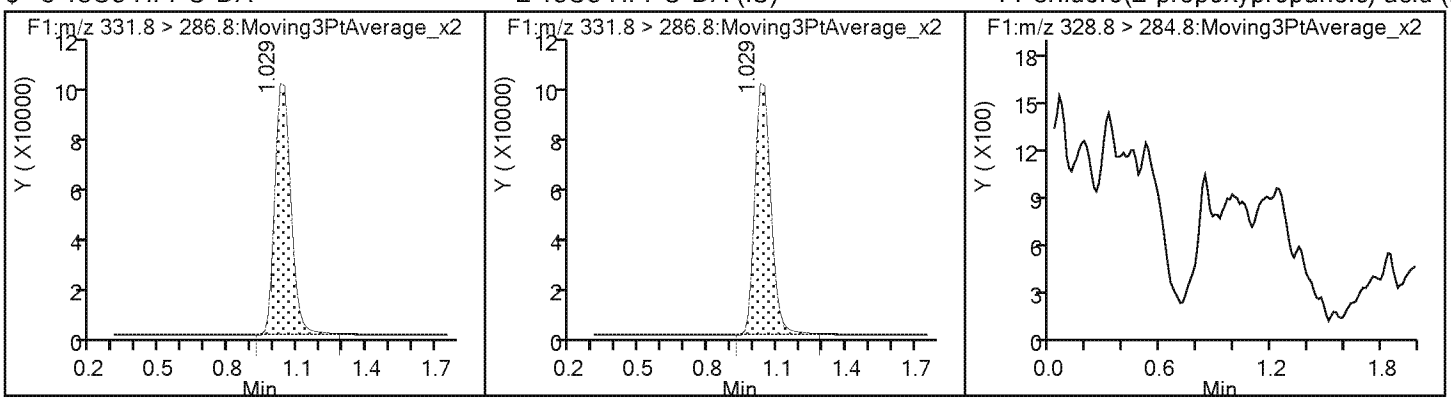
Client ID:

Operator ID: JBH ALS Bottle#: 36 Worklist Smp#: 29

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19091.d
Lims ID: MB 280-407780/1-A
Client ID:
Sample Type: MB
Inject. Date: 19-Mar-2018 14:46:40 ALS Bottle#: 36 Worklist Smp#: 29
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: MB280-407780/1-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:26

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.15	61.52

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID:
Lab Sample ID: ICB 280-404345/12
Matrix: Water
Lab File ID: hfpo718B08043.d
Analysis Method: 8321A
Date Collected:
Extraction Method:
Date Extracted:
Sample wt/vol: 1(mL)
Date Analyzed: 02/08/2018 13:34
Con. Extract Vol.:
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 404345
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.50		0.50	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	103		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d
Lims ID: ICB
Client ID:
Sample Type: ICB
Inject. Date: 08-Feb-2018 13:34:46 ALS Bottle#: 1 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: ICB
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	772269	10.3	1251	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		772269	10.0	1251	

Reagents:

HFPO_CAL-0_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:18 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d

Injection Date: 08-Feb-2018 13:34:46 Instrument ID: LC_LCMS7

Lims ID: ICB

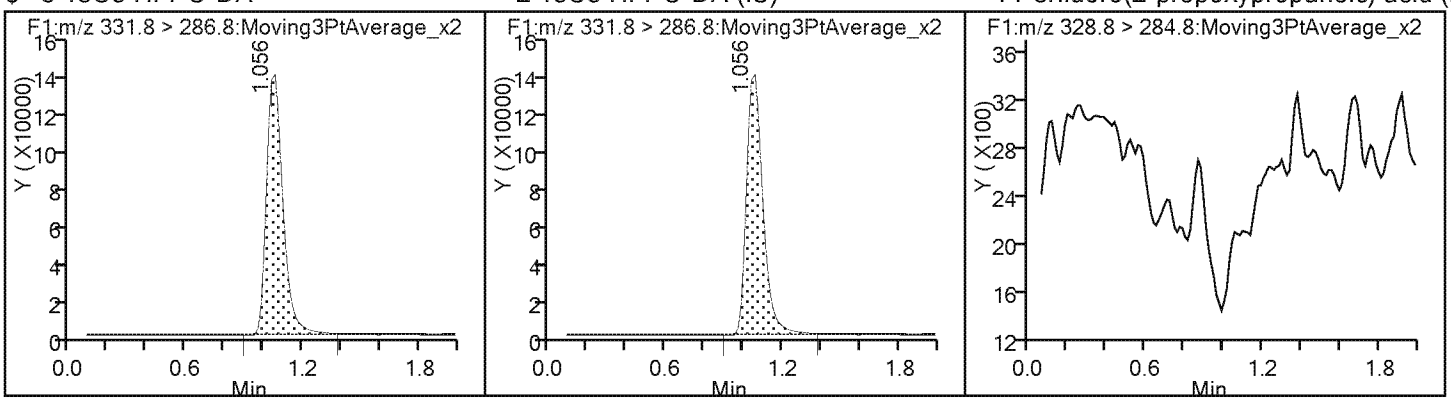
Client ID:

Operator ID: JBH ALS Bottle#: 1 Worklist Smp#: 12

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d
Lims ID: ICB
Client ID:
Sample Type: ICB
Inject. Date: 08-Feb-2018 13:34:46 ALS Bottle#: 1 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: ICB
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:42

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	10.3	103.44

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID:
Lab Sample ID: LCS 280-407780/2-A
Matrix: Water
Lab File ID: hfpo718C19092.d
Analysis Method: 8321A
Date Collected:
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 250(mL)
Date Analyzed: 03/19/2018 14:49
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.219		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	64		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19092.d
Lims ID: LCS 280-407780/2-A
Client ID:
Sample Type: LCS
Inject. Date: 19-Mar-2018 14:49:56 ALS Bottle#: 37 Worklist Smp#: 30
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: LCS280-407780/2-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.975	1.045	-0.070	1.000	479330	6.42	3182	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.975	1.045	-0.070		479330	10.0	3182	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.988	1.056	-0.068	1.000	560908	11.0	453	

Report Date: 20-Mar-2018 07:36:19 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19092.d

Injection Date: 19-Mar-2018 14:49:56 Instrument ID: LC_LCMS7

Lims ID: LCS 280-407780/2-A

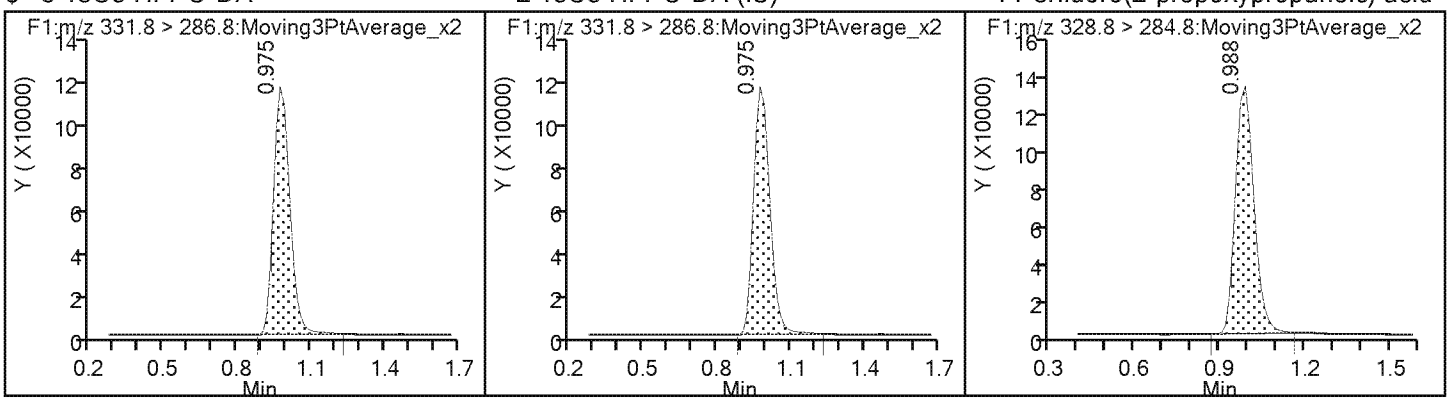
Client ID:

Operator ID: JBH ALS Bottle#: 37 Worklist Smp#: 30

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19092.d
Lims ID: LCS 280-407780/2-A
Client ID:
Sample Type: LCS
Inject. Date: 19-Mar-2018 14:49:56 ALS Bottle#: 37 Worklist Smp#: 30
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: LCS280-407780/2-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:29

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.42	64.20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID:
Lab Sample ID: LCSD 280-407780/3-A
Matrix: Water
Lab File ID: hfpo718C19093.d
Analysis Method: 8321A
Date Collected:
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 250(mL)
Date Analyzed: 03/19/2018 14:53
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.221		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	68		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19093.d
Lims ID: LCSD 280-407780/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 19-Mar-2018 14:53:12 ALS Bottle#: 38 Worklist Smp#: 31
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: LCSD280-407780/3-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.975	1.045	-0.070	1.000	510011	6.83	4118	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.975	1.045	-0.070		510011	10.0	4118	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.975	1.056	-0.081	1.000	601864	11.1	621	

Report Date: 20-Mar-2018 07:36:22 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19093.d

Injection Date: 19-Mar-2018 14:53:12 Instrument ID: LC_LCMS7

Lims ID: LCSD 280-407780/3-A

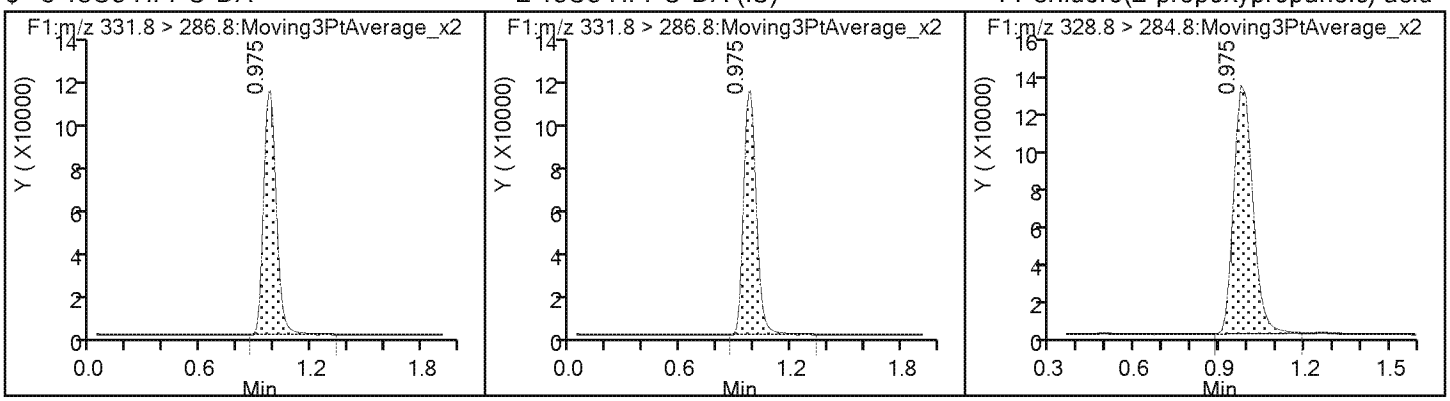
Client ID:

Operator ID: JBH ALS Bottle#: 38 Worklist Smp#: 31

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19093.d
Lims ID: LCSD 280-407780/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 19-Mar-2018 14:53:12 ALS Bottle#: 38 Worklist Smp#: 31
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: LCSD280-407780/3-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:33

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.83	68.31

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID:
Lab Sample ID: LLCS 280-407780/4-A
Matrix: Water
Lab File ID: hfpo718C19094.d
Analysis Method: 8321A
Date Collected:
Extraction Method: 3535
Date Extracted: 03/13/2018 17:53
Sample wt/vol: 250(mL)
Date Analyzed: 03/19/2018 14:56
Con. Extract Vol.: 5(mL)
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 408339
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.0210		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	64		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19094.d
Lims ID: LLCS 280-407780/4-A
Client ID:
Sample Type: LLCS
Inject. Date: 19-Mar-2018 14:56:29 ALS Bottle#: 39 Worklist Smp#: 32
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: LLCS280-407780/4-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	0.975	1.045	-0.070	1.000	477767	6.40	3200	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	0.975	1.045	-0.070		477767	10.0	3200	
1 Perfluoro(2-propoxypropanoic) acid								
328.8 > 284.8	0.988	1.056	-0.068	1.000	55052	1.05	33.2	

Report Date: 20-Mar-2018 07:36:24 Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19094.d

Injection Date: 19-Mar-2018 14:56:29 Instrument ID: LC_LCMS7

Lims ID: LLCS 280-407780/4-A

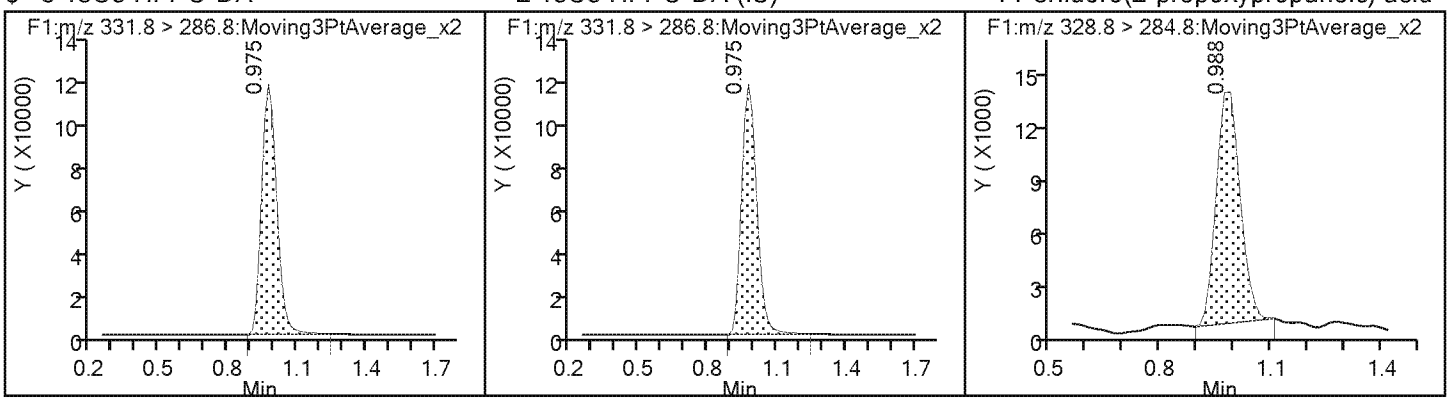
Client ID:

Operator ID: JBH ALS Bottle#: 39 Worklist Smp#: 32

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\hfpo718C19094.d
Lims ID: LLCS 280-407780/4-A
Client ID:
Sample Type: LLCS
Inject. Date: 19-Mar-2018 14:56:29 ALS Bottle#: 39 Worklist Smp#: 32
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: LLCS280-407780/4-A
Misc. Info.: HFPO18C19
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180319-68118.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 20-Mar-2018 07:36:15 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK032

First Level Reviewer: meyera Date: 20-Mar-2018 07:29:37

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	6.40	63.99

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-107269-1
SDG No.:
Client Sample ID:
Lab Sample ID: DLCK 280-404345/13
Matrix: Water
Lab File ID: hfpo718B08044.d
Analysis Method: 8321A
Date Collected:
Extraction Method:
Date Extracted:
Sample wt/vol: 1(mL)
Date Analyzed: 02/08/2018 13:38
Con. Extract Vol.:
Dilution Factor: 1
Injection Volume: 20(uL)
GC Column: Synergi Hydro ID:
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 404345
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.50		0.50	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	104		50-200

FORM I 8321A

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d
Lims ID: DLCK
Client ID:
Sample Type: DLCK
Inject. Date: 08-Feb-2018 13:38:01 ALS Bottle#: 2 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: DLCK
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	776147	10.4	1241	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		776147	10.0	1241	
1 Perfluoro(2-propoxypropanoic) acid								M
328.8 > 284.8	1.056	1.056	0.0	1.000	21424	0.2255	2.8	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 15:24:19 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d

Injection Date: 08-Feb-2018 13:38:01 Instrument ID: LC_LCMS7

Lims ID: DLCK

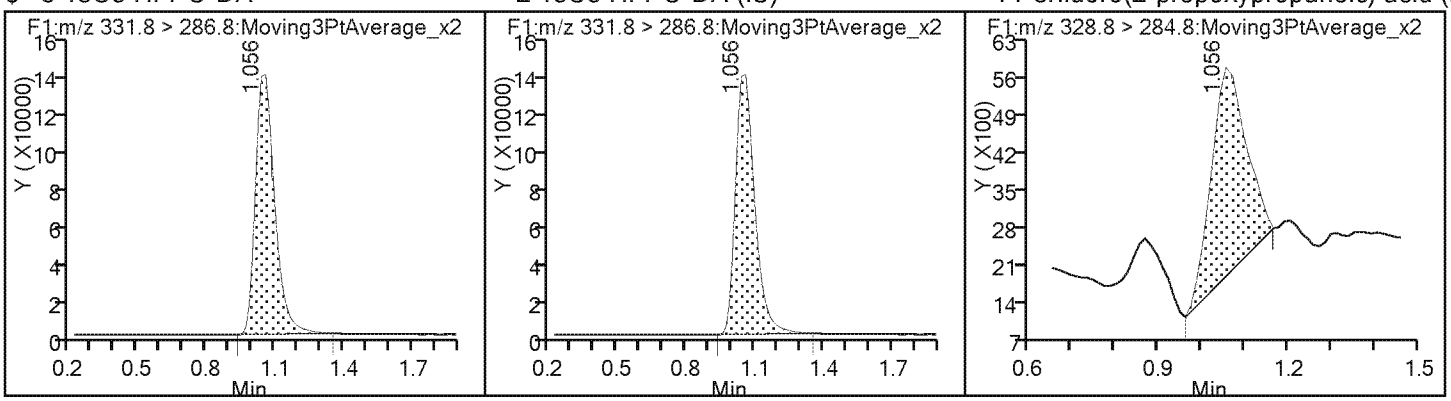
Client ID:

Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 13

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

$ 3 13C3 HFPO-DA * 2 13C3 HFPO-DA (IS) 1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d
Lims ID: DLCK
Client ID:
Sample Type: DLCK
Inject. Date: 08-Feb-2018 13:38:01 ALS Bottle#: 2 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Sample Info: DLCK
Misc. Info.: HFPO18B08
Operator ID: JBH Instrument ID: LC_LCMS7

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
Limit Group: LC - 8321A_HFPO_Du
Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
Integrator: Picker
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:32

Compound	Amount Added	Amount Recovered	% Rec.
$ 3 13C3 HFPO-DA	10.0	10.4	103.96

Manual Integration/User Assign Peak Report

TestAmerica Denver

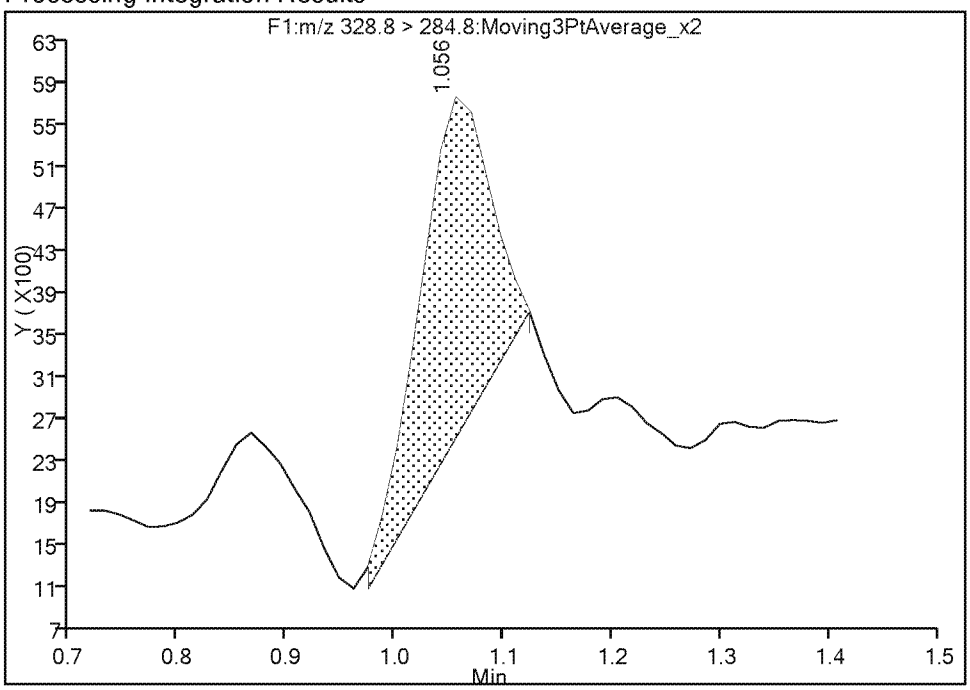
Data File:	\\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d				
Injection Date:	08-Feb-2018 13:38:01	Instrument ID:	LC_LCMS7		
Lims ID:	DLCK				
Client ID:					
Operator ID:	JBH	ALS Bottle#:	2	Worklist Smp#:	13
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	HFPO	Limit Group:	LC - 8321A_HFPO_Du		
Column:		Detector	F1:MRM		

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

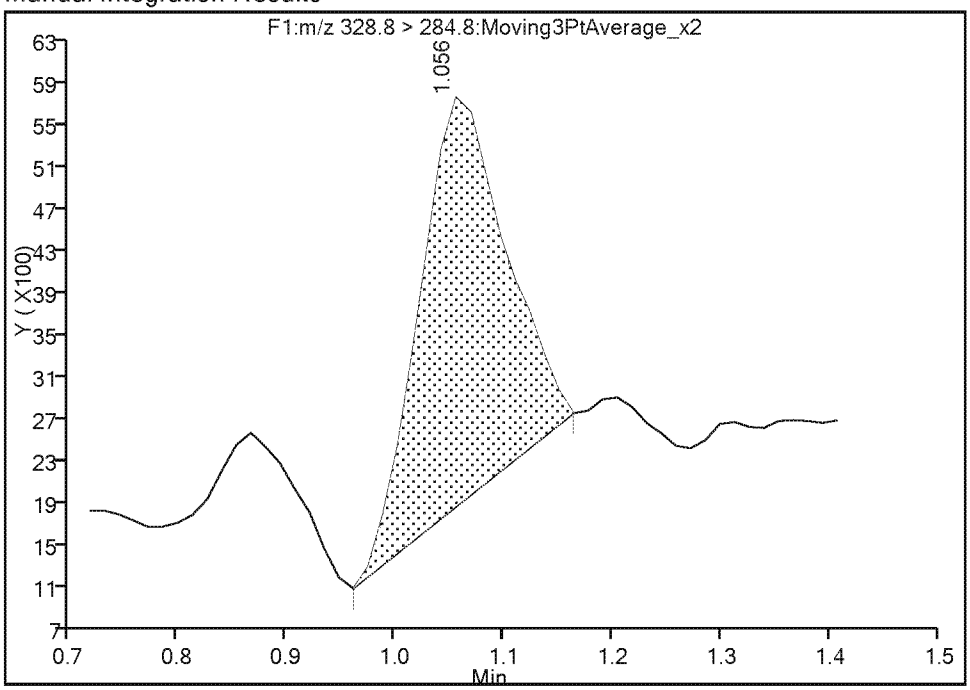
Processing Integration Results

RT: 1.06
Area: 14614
Amount: 0.143034
Amount Units: ug/l



Manual Integration Results

RT: 1.06
Area: 21424
Amount: 0.225513
Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:20:27

Audit Action: Manually Integrated Audit Reason: Baseline

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Instrument ID: LC_LCMS7 Start Date: 10/10/2017 09:35

Analysis Batch Number: 390728 End Date: 10/10/2017 11:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-390728/3 IC		10/10/2017 09:35	1	hfpo717J10026.d	Synergi Hydro
STD002 280-390728/4 IC		10/10/2017 09:38	1	hfpo717J10027.d	Synergi Hydro
STD003 280-390728/5 IC		10/10/2017 09:41	1	hfpo717J10028.d	Synergi Hydro
STD004 280-390728/6 IC		10/10/2017 09:45	1	hfpo717J10029.d	Synergi Hydro
STD005 280-390728/7 IC		10/10/2017 09:48	1	hfpo717J10030.d	Synergi Hydro
STD006 280-390728/8 IC		10/10/2017 09:51	1	hfpo717J10031.d	Synergi Hydro
STD007 280-390728/9 IC		10/10/2017 09:54	1	hfpo717J10032.d	Synergi Hydro
STD008 280-390728/10 IC		10/10/2017 09:58	1	hfpo717J10033.d	Synergi Hydro
ICB 280-390728/11		10/10/2017 10:01	1		Synergi Hydro
ZZZZZ		10/10/2017 10:04	1		Synergi Hydro
ICV 280-390728/13		10/10/2017 10:07	1	hfpo717J10036.d	Synergi Hydro
ZZZZZ		10/10/2017 10:11	1		Synergi Hydro
ZZZZZ		10/10/2017 10:14	1		Synergi Hydro
ZZZZZ		10/10/2017 10:17	1		Synergi Hydro
ZZZZZ		10/10/2017 10:20	1		Synergi Hydro
ZZZZZ		10/10/2017 10:23	1		Synergi Hydro
ZZZZZ		10/10/2017 10:27	1		Synergi Hydro
ZZZZZ		10/10/2017 10:30	1		Synergi Hydro
ZZZZZ		10/10/2017 10:33	1		Synergi Hydro
ZZZZZ		10/10/2017 10:36	1		Synergi Hydro
ZZZZZ		10/10/2017 10:40	1		Synergi Hydro
CCV 280-390728/24		10/10/2017 10:43	1		Synergi Hydro
ZZZZZ		10/10/2017 10:46	1		Synergi Hydro
ZZZZZ		10/10/2017 10:49	1		Synergi Hydro
ZZZZZ		10/10/2017 10:53	1		Synergi Hydro
ZZZZZ		10/10/2017 10:56	1		Synergi Hydro
ZZZZZ		10/10/2017 10:59	1		Synergi Hydro
ZZZZZ		10/10/2017 11:02	1		Synergi Hydro
ZZZZZ		10/10/2017 11:06	1		Synergi Hydro
ZZZZZ		10/10/2017 11:09	1		Synergi Hydro
ZZZZZ		10/10/2017 11:12	1		Synergi Hydro
ZZZZZ		10/10/2017 11:16	1		Synergi Hydro
CCV 280-390728/35		10/10/2017 11:19	1		Synergi Hydro

8321A

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Instrument ID: LC_LCMS7 Start Date: 02/08/2018 13:05

Analysis Batch Number: 404345 End Date: 02/08/2018 13:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-404345/3 IC		02/08/2018 13:05	1	hfpo718B08034.d	Synergi Hydro
STD002 280-404345/4 IC		02/08/2018 13:08	1	hfpo718B08035.d	Synergi Hydro
STD003 280-404345/5 IC		02/08/2018 13:12	1	hfpo718B08036.d	Synergi Hydro
STD004 280-404345/6 IC		02/08/2018 13:15	1	hfpo718B08037.d	Synergi Hydro
STD005 280-404345/7 IC		02/08/2018 13:18	1	hfpo718B08038.d	Synergi Hydro
STD006 280-404345/8 IC		02/08/2018 13:21	1	hfpo718B08039.d	Synergi Hydro
STD007 280-404345/9 IC		02/08/2018 13:25	1	hfpo718B08040.d	Synergi Hydro
STD008 280-404345/10 IC		02/08/2018 13:28	1	hfpo718B08041.d	Synergi Hydro
STD009 280-404345/11 IC		02/08/2018 13:31	1	hfpo718B08042.d	Synergi Hydro
ICB 280-404345/12		02/08/2018 13:34	1	hfpo718B08043.d	Synergi Hydro
DLCK 280-404345/13		02/08/2018 13:38	1	hfpo718B08044.d	Synergi Hydro
ICV 280-404345/14		02/08/2018 13:41	1	hfpo718B08045.d	Synergi Hydro

8321A

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Instrument ID: LC_LCMS7 Start Date: 03/19/2018 14:43

Analysis Batch Number: 408339 End Date: 03/19/2018 16:29

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-408339/28		03/19/2018 14:43	1	hfpo718C19090.d	Synergi Hydro
MB 280-407780/1-A		03/19/2018 14:46	1	hfpo718C19091.d	Synergi Hydro
LCS 280-407780/2-A		03/19/2018 14:49	1	hfpo718C19092.d	Synergi Hydro
LCSD 280-407780/3-A		03/19/2018 14:53	1	hfpo718C19093.d	Synergi Hydro
LLCS 280-407780/4-A		03/19/2018 14:56	1	hfpo718C19094.d	Synergi Hydro
ZZZZZ		03/19/2018 14:59	1		Synergi Hydro
ZZZZZ		03/19/2018 15:03	1		Synergi Hydro
ZZZZZ		03/19/2018 15:06	1		Synergi Hydro
ZZZZZ		03/19/2018 15:09	1		Synergi Hydro
ZZZZZ		03/19/2018 15:12	1		Synergi Hydro
ZZZZZ		03/19/2018 15:18	1		Synergi Hydro
CCV 280-408339/39		03/19/2018 15:21	1	hfpo718C19101.d	Synergi Hydro
ZZZZZ		03/19/2018 15:24	1		Synergi Hydro
ZZZZZ		03/19/2018 15:27	1		Synergi Hydro
ZZZZZ		03/19/2018 15:31	1		Synergi Hydro
ZZZZZ		03/19/2018 15:34	1		Synergi Hydro
ZZZZZ		03/19/2018 15:37	1		Synergi Hydro
ZZZZZ		03/19/2018 15:40	1		Synergi Hydro
ZZZZZ		03/19/2018 15:44	1		Synergi Hydro
ZZZZZ		03/19/2018 15:47	1		Synergi Hydro
280-107269-1		03/19/2018 15:50	1	hfpo718C19110.d	Synergi Hydro
280-107269-2		03/19/2018 15:53	1	hfpo718C19111.d	Synergi Hydro
CCV 280-408339/50		03/19/2018 15:57	1	hfpo718C19112.d	Synergi Hydro
280-107269-3		03/19/2018 16:00	1	hfpo718C19113.d	Synergi Hydro
280-107269-4		03/19/2018 16:03	1	hfpo718C19114.d	Synergi Hydro
280-107269-5		03/19/2018 16:06	1	hfpo718C19115.d	Synergi Hydro
ZZZZZ		03/19/2018 16:10	5		Synergi Hydro
ZZZZZ		03/19/2018 16:13	10		Synergi Hydro
ZZZZZ		03/19/2018 16:16	5		Synergi Hydro
ZZZZZ		03/19/2018 16:19	5		Synergi Hydro
ZZZZZ		03/19/2018 16:23	5		Synergi Hydro
ZZZZZ		03/19/2018 16:26	5		Synergi Hydro
CCV 280-408339/60		03/19/2018 16:29	1	hfpo718C19122.d	Synergi Hydro

8321A

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-107269-1

SDG No.:

Batch Number: 407780 Batch Start Date: 03/13/18 17:53 Batch Analyst: Hall, Adam A

Batch Method: 3535 Batch End Date: 03/13/18 21:04

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	HFPO I.S. 00010	HFPO Spike 00004
MB 280-407780/1		3535, 8321A				250 mL	5 mL	0.1 mL	
LCS 280-407780/2		3535, 8321A				250 mL	5 mL	0.1 mL	0.1 mL
LCSD 280-407780/3		3535, 8321A				250 mL	5 mL	0.1 mL	0.1 mL
LLCS 280-407780/4		3535, 8321A				250 mL	5 mL	0.1 mL	0.01 mL
280-107269-C-1	FAY-D-FB-030918	3535, 8321A	T	291.7 g	28 g	263.7 mL	5 mL	0.1 mL	
280-107269-A-2	FAY-D-5712MRSHR-W1-1-030918	3535, 8321A	T	287.1 g	28.5 g	258.6 mL	5 mL	0.1 mL	
280-107269-D-3	FAY-D-5712MRSHR-W1-2-030918	3535, 8321A	T	285.7 g	29.4 g	256.3 mL	5 mL	0.1 mL	
280-107269-D-4	FAY-D-3818HEART-W1-1-030918	3535, 8321A	T	290.7 g	27.9 g	262.8 mL	5 mL	0.1 mL	
280-107269-D-5	FAY-D-3818HEART-W1-2-030918	3535, 8321A	T	284.2 g	28.7 g	255.5 mL	5 mL	0.1 mL	

Batch Notes	
Acid ID	2% Formic Aci_00147
Acid Name	2% Formic Acid
Balance ID	24350888
Batch Comment	Reviewer/Trainer:CDC AH= Trainee
First End time	3.13.18@1847
H2O ID	HPLC_Water_00867
Pipette ID	P, SPE-1, syringe
Reagent ID	10% NH4OH
Reagent Lot Number	10% NH4OH_00123
Solvent Lot #	Methanol_00196
Solvent Name	Methanol
SOP Number	DV-OP-0019
SPE Cartridge Type	STRATA-X-AW (8B S038 FCH)
Solid Phase Extraction Disk ID	S308-0080
First Start time	3.13.18@1812

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 Denver Job No.: 280-107269-1

SDG No.:

Batch Number: 407780 Batch Start Date: 03/13/18 17:53 Batch Analyst: Hall, Adam A

Batch Method: 3535 Batch End Date: 03/13/18 21:04

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

HFPO_CAL-5_00084

Reagent ID: HFPO_CAL-5_00084

Description:	level5	Expiration Date:	04/02/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H2O
Creation Date:	03/19/2018	Solvent Lot:	00016
Open Date:			
Container(s):	6009511		
Comment:	level-5		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO I.S._00010	03/06/2019	0.80000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO I.S._00010	03/06/2019	0.80000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO Spike_00005	03/07/2019	0.80000	ug/mL	8.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO I.S._00010	Internal Standard for HFPO 0.8ug/ml		03/06/19				20.00000	uL
HFPO Spike_00005	HFPO LCS/Calibration Spike 0.8ug/ml		03/07/19				10.00000	uL

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3/21/19

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

HFPO_CAL-6_00084

Reagent ID: HFPO_CAL-6_00084

Description:	level8	Expiration Date:	04/02/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H2O
Creation Date:	03/19/2018	Solvent Lot:	00016
Open Date:			
Container(s):	5009532		
Comment:	level-6		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO I.S._00010	03/08/2019	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO I.S._00010	03/08/2019	0.50000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO Spike_00006	03/07/2019	0.50000	ug/mL	10.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO I.S._00010	Internal Standard for HFPO 0.5ug/ml		03/08/19				20.00000	uL
HFPO Spike_00006	HFPO LCS/Calibration Spike 0.5ug/ml		03/07/19				20.00000	uL

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3/21/18

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Shipping and Receiving Documents

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Sampler: BP CM
Lab PM: Johnston, Michelle
Carrier Tracking No(s): FedEx
COC No:
Client Contact: Mr. Michael Aucoin
Phone: 704 600 5746
E-Mail: michelle.johnston@testamericainc.com
Page: Page ____ of ____
Company: The Chemours Company FC, LLC
Job #:
Address: c/o AECOM 4051 Ogletown Road, Suite 300
Due Date Requested:
City: Newark
TAT Requested (days): 10 Business Days
State, Zip: DE, 19713
Phone: 302.781.5873
PO #: LBIO-67048/84201000-2231QS1000
Email: michael.aucoin@aecom.com
WO #:
Project Name: FAY-2018 Residential Sampling
Project #: 28016904
Site: FAYETTEVILLE, NC
SSOW#:

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Wastewater, Soil, Sediment, Air=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	HFPO-DA- LC/MS/MS	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	X	
FAY-D-FB030918	03/09/18	0803	G	W	N	N	X	4	Hold All Remaining
FAY-D-5712MPSHR-WI-1-030918	03/09/18	0827	G	W	N	N	X	4	Volumes as
FAY-D-5712MPSHR-WI-2-030918	03/09/18	0828	G	W	N	N	X	4	Retains
FAY-D-3818HEART-WI-1-030918	03/09/18	0852	G	W	N	N	X	4	
FAY-D-3818HEART-WI-2-030918	03/09/18	0852	G	W	N	N	X	4	

280-107269 Chain of Custody

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level IV

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Tyler Parsons	03-09-18/1800	Parsons	[illegible]	3-10-18 0920	TA-Den

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 1.1 2.2 & 8 -0.1 Transfer DP 3-10-18

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Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-107269-1

Login Number: 107269
List Number: 1
Creator: Kramer, Julieann L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Refer to Job Narrative for details.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	