MPI RESEARCH
3058 Research Drive
State College, Pennsylvania 16801 USA
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Analytical Report

PFOA and PFOS Analysis of Deer Serum Samples by LC/MS/MS

MPI Report No. L0019345

Testing Laboratory

MPI Research, Inc.
3058 Research Drive
State College, PA 16801

Requester/Project Manager

Dena Haverland
Dalton Utilities
PO BOX 869
Dalton, GA 30722
Phone: 706-529-1010

2010 JAN -6 P 1:44

1 Introduction

Results are reported for the analysis of deer serum samples received at MPI Research from Dalton Utilities. The MPI Research study number assigned to the project is L0019345. Table I lists the target analytes quantitated for the samples.

Table I. Target Analytes for Quantitation

Compound Name	Acronym
Perfluorooctanoic Acid	C8 Acid or PFOA
Perfluorooctanesulfonate	C8 Sulfonate or PFOS

2 Sample Receipt

Two samples were received from Dena Haverland at Dalton Utilities for this study. The samples were collected on October 02, 2009. The samples arrived on October 06, 2009 via Fedex and were logged in under MPI Research login number L0019345. The shipment was received frozen on dry ice. The samples were stored frozen at approximately -80°C from receipt until analysis. Chain-of-custody information is presented in Attachment A.

3 Methods - Analytical and Preparatory

3.1 Serum Sample Preparation

3.1.1. Measure 1 mL of serum sample into a 50 mL disposable centrifuge tube and fortify, if appropriate. Add 0.2 mL of a 100 ng/mL WIS for a final concentration of 0.5 ng/mL.

3.1.2 Add water to sample for a final volume of 20 mL. Cap tightly and vortex for ~1 minute.

3.1.3 Transfer 1 mL of the sample using a disposable pipette into 15 mL disposable centrifuge tubes. Add 5 mL of ACN and shake for ~20 minutes on a wrist action shaker.

3.1.4 Centrifuge tubes at ~3000 rpm for ~ 5 minutes. Carefully decant supernatant into a 50 mL disposable centrifuge tube and add 35 mL of water.

3.1.5 Place the unconditioned SPE columns on the vacuum manifold. Condition the SPE columns by passing ~ 10 mL of methanol through the column followed by ~ 5 mL of water. The washes may be pulled through the SPE column using vacuum at a flow rate of ~1 drop/sec or may be allowed to pass through the column unaided. Discard all washes. Do not allow the column to dry.

3.1.6 Load the sample onto a conditioned SPE column . Discard the eluate. Any analyte residues will be trapped on the SPE column at this point.

3.1.7 Elute with 2 mL of methanol. Collect 2 mL of elute into a graduated 15 mL centrifuge tube.

3.2 Sample Analysis by LC/MS/MS

In High Pressure Liquid Chromatography (HPLC), an aliquot of extract is injected and passed through a liquid-phase chromatographic column. Based on the affinity of the analyte for the stationary phase in the column relative to the liquid mobile phase, the analyte is retained for a characteristic amount of time. Following HPLC separation, mass spectrometry provides a rapid and accurate means for analyzing a wide range of organic compounds. Molecules are ionized, fragmented, and detected. The ions characteristic of the compounds are observed and quantitated against external calibration standards.

An HP1100 system interfaced to an Applied Biosystems API 4000 LC/MS/MS was used to analyze the sample extracts for quantitation. A gradient elution through a Phenomenex Luna 3µ C8(2) Mercury, 20 x 4.0 mm column was used for separation.

The following gradient was performed:

Mobile Phase (A): 2mM Ammonium Acetate in Water
Mobile Phase (B): Methanol

Time	%A	%B
0.0	90	10
0.5	90	10
2.0	10	90
5.0	10	90
5.1	0	100
6.0	0	100
6.1	90	10
10.0	90	10

The following parameters were used for operation of the mass spectrometer:

Parameter	Setting
Ionization Mode	Electrospray
Polarity	Negative
Transitions Monitored	413→369 (PFOA)
	499→80 (PFOS)
	415→370 (Internal Std. ^{13}C PFOA (m+2))
	503→80 (Internal Std. ^{13}C PFOS (m+4))
Gas Temperature	450°C

4 *Analysis by LCMSMS*

4.1 Calibration

For the serum sample analysis, a 6-point calibration curve was analyzed throughout the analytical sequence for PFOA and PFOS. The calibration points were prepared at 0.1, 0.2, 0.5, 1.0, 2.0, 5.0 ng/mL (ppb) each containing 1.0 ng/mL ^{13}C-PFOA (m+2) and ^{13}C-PFOS (m+4).

The ratio of the analyte concentration to the IS concentration versus the ratio of the analyte instrument response (area) to the IS response (area) was plotted for each point. Using linear regression with 1/x weighting, the slope, y-intercept and coefficient of determination (r^2) were determined. A calibration curve is acceptable if $r^2 \geq 0.985$.

For the results reported here, calibration criteria were met. The calibration curves are included in the raw data in Attachment C.

4.2 Laboratory Control Spikes

Laboratory control spikes in the analytical set were prepared during each extraction set by adding a known concentration of the analyte to deer serum controls. Laboratory control spikes are used to assess method accuracy. The laboratory control spikes must show recoveries between 70-130% or the data is rejected. For the results reported here, the laboratory control spikes were within the acceptable range. Laboratory control spike recoveries are given in Attachment B.

4.3 Matrix Spikes

One matrix spike was prepared by adding a known concentration of the target analyte to a sample. Matrix spikes are used to assess method accuracy in the matrix. The matrix spikes should show recoveries between 70-130%. For the results reported here, the matrix spike was within the acceptable range with the exceptions of:

L19345-2 (Deer # 7 3.5 yr male serum) Spk C at 1000 ng/mL for PFOS, which gave low recovery of 68%.

4.4 Laboratory Duplicates

One sample was prepared in duplicate and analyzed. Duplicate results are given along with the sample results in Attachment B.

5 *Data Summary*

Please see Attachment B for a detailed listing of the analytical results. For the serum samples the results are reported in parts per billion (ng/mL) on an as-received basis.

6 *Data/Sample Retention*

Samples are disposed of 60 days after the report is issued unless otherwise specified by the project manager. All electronic data is archived on retrievable media and hard copy reports are stored in data folders maintained by MPI Research. Hardcopy data is stored for a minimum of five years. The client will be notified 30 days prior to the disposal of hardcopy data.

7 Attachments

7.1 Attachment A: Chain of Custody

7.2 Attachment B: Analytical Results

7.3 Attachment C: Raw Analytical Data for Water

8 Signatures

Mark Neeley, Research Chemist Associate II — Date: 11-6-09

Robert Zhu, Manager, Analytical — Date: 11/9/09

A

MPI RESEARCH

Mattawan (Corporate Headquarters)
54943 North Main Street
Mattawan, MI 49071-9399
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State College
3058 Research Drive
State College, PA 16801
(814) 272-1039 Phone
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Login

Login Group: L0019345

Login #:	19459	Conform COC Sample:	True
Project:	P0005195	Conform COC:	True
Company Name:	Dalton Utilities	Conform Sample:	True
Submitted By:	Dena Haverland	Conform Request:	True
Login Type:	Immediate Receipt of Samples		
Started:	True		
Date Start:	10/27/2009		
Due Date:	11/06/2009		
Login Initiated:	10/27/2009		
Received By:	Ammerman, Mark		
Spread Sample:			
Label:			
MPI SD/PI:	Zhu, Xiang		
Project Title/Type:	PFOA and PFOS Analysis of Serum Samples By LC/MS/MS / ROUTINE		
Login Notes:			

Packages / Containers

Package	Carton	Date / Condition	Shipper / ID	Temp. Control/Temp.	Direction / Handled By
K0022041		Received Date: 10/6/09 10:25 Package & Contents Uncompromised	FEDEX 8694 2057 8178	Dry Ice -79.2	RECEIVED Ammerman, Mark

Container #	Gross Weight	pH	Container Type	Preservative	Mfg. Lot	Mfg. ID
C0457604	3.10 g		2 ml clear plst vial	NONE		
C0457605	3.10 g		2 ml clear plst vial	NONE		
C0457606	3.20 g		2 ml clear plst vial	NONE		
C0457607	3.10 g		2 ml clear plst vial	NONE		
C0457608	3.10 g		2 ml clear plst vial	NONE		
C0457609	3.10 g		2 ml clear plst vial	NONE		
C0457610	3.20 g		2 ml clear plst vial	NONE		
C0457611	3.40 g		2 ml clear plst vial	NONE		
C0457612	3.10 g		2 ml clear plst vial	NONE		
C0457613	3.10 g		2 ml clear plst vial	NONE		
C0457614	3.10 g		2 ml clear plst vial	NONE		
C0457615	3.20 g		2 ml clear plst vial	NONE		
C0457616	3.10 g		2 ml clear plst vial	NONE		
C0457617	3.10 g		2 ml clear plst vial	NONE		
C0457618	3.10 g		2 ml clear plst vial	NONE		
C0457619	3.10 g		2 ml clear plst vial	NONE		
C0457620	3.10 g		2 ml clear plst vial	NONE		
C0457621	3.10 g		2 ml clear plst vial	NONE		
C0457622	3.20 g		2 ml clear plst vial	NONE		
C0457623	3.10 g		2 ml clear plst vial	NONE		

Login

Samples

Sample ID	Container	Matrix	System	System Matrix	Sample	Date Sampled	Date Due
L0019345-0001		LIQUID	Deer	Serum	Deer #6 0.5 yr female-serum	10/02/2009	11/06/20
	C0457604						
	C0457605						
	C0457606						
	C0457607						
	C0457608						
	C0457609						
	C0457610						
	C0457611						
	C0457612						
	C0457613						
L0019345-0002		LIQUID	Deer	Serum	Deer #7 3.5 yr male-serum	10/02/2009	11/06/2009
	C0457614						
	C0457615						
	C0457616						
	C0457617						
	C0457618						
	C0457619						
	C0457620						
	C0457621						
	C0457622						
	C0457623						

Login Reviewed By: _____ Date/Time: 10/28/09 1440

MPI RESEARCH

Sample Submittal

MPI Research Contact: Daniel Wright

Please fax this form before sending samples.

Please send samples to shipping and receiving:
3048 Research Drive, State College, PA 16801
T: (814) 272-1039 • F: (814) 272-1019

Send Report To:

Company: Dalton Utilities
Address: 1200 VD Parrott JR Parkway, PO Box 869
City, State, ZIP: Dalton, GA 30722-0869
Attention: Dena Haverland
Phone #: 706-529-1010
Fax #: 706-529-1271
Email: dhaverland@dutil.com
Study/Job #:
Signature/Date:
Printed Name:

Turnaround time (TAT) requirements:

Results Due Date: 30 days
Preliminary Results Format: Verbal (Email) Fax
Report Due Date: 30 days

Storage Conditions

Room temperature
Refrigerator
(Freezer)
Ultra Low freezer
Desiccated
Lighting required
Stability (°C/%RH):
Stability time period:

Safety Information

Special handling:
MSDS attached
Controlled substance:
HAZARDS:
Please fill in the diamond HMIS/NFPA (0 4) if appropriate

	Client ID# Description	Lot/ Control #	Amt. Sent/ Weight	# of Bottles	Matrix	Date & Time	Tests Requested
1	Deer #6 0.5 yr female-Serum		10ml	10	deer	10/2/09 1:08AM	PFOA/PFOS
2	Deer #6 0.5yr female-muscle		as requested	1 bag	deer	10/2/09 2:28AM	PFOA/PFOS
3	Deer #6 0.5yr female-Liver		Whole	1 bag	deer	10/2/09 2:30AM	PFOA/PFOS
4	Deer #7 3.5yr Male-Serum		10ml	10	deer	10/2/09 1:45AM	PFOA/PFOS
5	Deer #7 3.5yr Male-muscle		as requested	1 bag	deer	10/2/09 2:45AM	PFOA/PFOS
6	Deer #7 3.5yr Male-Liver		Whole	1 bag	deer	10/2/09 2:48AM	PFOA/PFOS
7							
8							
9							
10							

PO #:

Notes:

Relinquished by	Date	Time	Received by	Date	Time
Darrell Kavanaugh	10/5/09	6:30pm		10/06/09	1025

V0002836-2

Administrative Form

MPI RESEARCH

TEMPORARY SAMPLE STORAGE FORM

To be completed during ExyLIMS Login

Project #: P5195

Login #: L19345

Initials / Date: MA 10/27/09

One form to be completed for each package

Date / Time Received: 10/06/09 1025

Received By: Mark Ammerman

Shipper: FedEx

Shipper Package ID: 8694 2057 8178

Temperature (deg C) / Thermometer ID: -79.2 / D0001775

Temperature Control Method: dry ice

Temporary Storage Location: freezer 32

Condition of sample(s):

✓ Good – Package and contents uncompromised
___ Fair – Package damaged / contents uncompromised
___ Poor – Package and contents compromised

Notes:

FedEx Express US Airbill

FedEx Tracking Number 8694 2057 8178

Recipient's Copy

1 From

Date 10/5/09 [redacted]

Sender's Name Darrell Kavanaugh Phone 706 546-5637

Company USDA Wildlife Service / [illegible]

Address 2000 Phoenix Road

Dept./Floor/Suite/Room

City Athens State GA ZIP 30602

2 Your Internal Billing Reference

3 To

Recipient's Name Daniel Weight Phone 814 272-1039

Company MPI Research Labs

Recipient's Address 3048 Research Drive

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City State College State PA ZIP 16801

8694 2057 8178

4a Express Package Service *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation: ** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

* Declared value limit $500.

6 Special Handling

Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
- [ ] HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [x] Dry Ice — Dry Ice, 9, UN 1845 1 x 2.5 kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Obtain Recip. Acct. No. [ ]

[redacted]

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details.

Credit Card Auth.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [x] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

520

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B

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Analytical Report

Summary of Fluorochemical Residues in Serum Samples

	PFOA Perfluorooctanoic Acid	PFOS Perfluorooctanesulfonate
Sample ID	Analyte Found (ng/mL, ppb)	Analyte Found (ng/mL, ppb)
Deer # 7 3.5 yr male-serum	NQ	670^
Deer # 7 3.5 yr male-serum*	NQ	671^
Deer # 6 0.5 yr female-serum	ND	113

*Laboratory Duplicate
ND = Not detected = Response is below the LOD of 1.0 ng/mL (ppb).
NQ = Not quantifiable = Response is between the LOD and the LOQ of 10 ng/mL (ppb).

^ The corresponding Matrix Spike recovery was outside the acceptance criteria of 70-130%, therefore the sample values should be considered an estimate.

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Recovery Summary of Fluorochemical Residues in Serum Samples

		PFOA			PFOS		
Sample Description	Amount Spiked (ng/mL)	Amt Found in Sample (ng/mL)	Amount Recovered (ng/mL)	Recovery (%)	Amt Found in Sample (ng/mL)	Amount Recovered (ng/mL)	Recovery (%)
LCS A (Data set 110309A) 10 ng/mL	10	ND	10.1	101	ND	9.99	100
LCS B (Data set 110309A) 50 ng/mL	50	ND	47.7	95	ND	47.9	96
LCS A (Data set 110509A) 10 ng/mL	10	N/A	N/A	N/A	ND	10.5	105
LCS B (Data set 110509A) 50 ng/mL	50	N/A	N/A	N/A	ND	49.2	98
Deer # 7 3.5 yr male-serum (L19345-2 Spk C, 50 ng/mL Lab Spike)	50	NQ	51.0	102	670	**	**
Deer # 7 3.5 yr male-serum (L19345-2 Spk C, 1000 ng/mL Lab Spike)	1000	N/A	N/A	N/A	670	1350	68*

ND = Not detected = Response is below the LOD of 1.0 ng/mL.
NQ = Not quantifiable = Response is between the LOD and the LOQ of 10 ng/mL.

* The Matrix Spike recovery was outside the acceptance criteria of 70-130%, therefore the sample values should be considered an estimate.
** The endogenous level of PFOS in the sample significantly exceeds the spiking level, therefore an accurate recovery cannot be calculated.

C

RAW DATA REPORT

Sponsor Study No:	NA	Limit of Quantitation:	10 ng/mL	Set No:	110309A
MPI Study No:	L19345	Injection Volume:	15 µL	Analyst:	Mark Neeley
Analyte:	PFOA	Matrix:	Deer Serum	Instrument Type:	LC/MS/MS Unit # 9
Ions Monitored:	413 -> 369			Extraction Date:	11/03/09
Site:	NA			Analyzed on:	11/03/09

MPI Research ID	Sponsor ID	Sample Code	Sample Index No.	Std. Conc. (ng/mL)	Internal Std. Conc. (ng/mL)	Aliquot Factor (AF)	Dilution Factor (DF)	Peak Area	Internal Standard Peak Area	Analyte Found (ng/mL)	Amount Analyte Added (ng/mL)	Recovery (%)
SS33618	-	CS	1	0.100	1.0	-	-	53649	578811	-	-	-
SS33617	-	CS	2	0.200	1.0	-	-	102736	577969	-	-	-
SS33616	-	CS	3	0.500	1.0	-	-	239879	580849	-	-	-
SS33615	-	CS	4	1.00	1.0	-	-	496152	567252	-	-	-
SS33614	-	CS	5	2.00	1.0	-	-	961042	576511	-	-	-
SS33613	-	CS	6	5.00	1.0	-	-	2338317	556934	-	-	-
Methanol Wash	-	W	7	-	-	-	-	1023	0	-	-	-
Methanol Wash	-	W	8	-	-	-	-	1008	0	-	-	-
Control	MC4311 Deer Serum Control	C	9	-	0.5	40	1	2392	347101	ND	-	-
LCS A	MC4311 Deer Serum Spike A	LCS	10	-	0.5	40	1	154309	355719	10.1	10	101
LCS B	MC4311 Deer Serum Spike B	LCS	11	-	0.5	40	1	751597	374371	47.7	50	95
L19345-2 Spk C	Deer # 7 3.5 yr male-serum Spike C	LF	12	-	0.5	40	1	822293	383369	51.0	50	102
L19345-2	Deer # 7 3.5 yr male-serum	S	13	-	0.5	40	1	18517	368323	NQ	-	-
L19345-2 Dup	Deer # 7 3.5 yr male-serum Duplicate	S	14	-	0.5	40	1	20592	412407	NQ	-	-
L19345-1	Deer # 6 0.5 yr female-serum	S	15	-	0.5	40	1	7527	362334	ND	-	-
SS33615	-	CCV	16	1.00	1.0	-	-	479482	556775	1.02	1.0	102

Analyte Found (ng/mL) = ((((analyte peak area/IS peak area) - intercept) / slope) x IS conc.) x AF x DF

Recovery (%) = $\frac{\text{[Analyte found (ng/mL)-Analyte found in control (ng/mL)]}}{\text{amount Analyte added (ng/mL)}} \times 100$

Standard Curve : Linear (1/x weighted)
Intercept = 0.00876
Slope = 0.838
Coef. Of Det. = 0.9998

CS = Calibration standard
CCV = Continuing Calibration Verification
C = Control sample
S = Sample

LF = Lab fortified sample
FF = Field fortified sample
LCS = Laboratory Control Spike

W = Methanol Wash
ND = Not detected = Response between 0 and LOD
NQ = Not quantifiable = Response between LOD and LOQ

Spreadsheet prepared by: MNN / 11-6-09

MPI RESEARCH

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Phone: 814-272-1039
Fax: 814-231-1580

Internal Chain of Custody/Fortification Sheet

MPI Reseach Study Number: L19345 Matrix: Deer Serum
Sponsor Study/Protocol No: NA

The samples listed below were removed from Freezer No. 37
Time 8:45 AM Date 11-3-09 Initials MDM

CLIENT SAMPLE ID	MPI RESEARCH ID NUMBER	VOLUME (mL)	FORTIFICATION (ng)
na	MC4311 Control	1.0	-
na	MC4311 LCS A	1.0	10
na	MC4311 LCS B	1.0	50
Deer #7 3.5 yr male-serum	L19345-2 Spk C	1.0	50
Deer #7 3.5 yr male-serum	L19345-2	1.0	-
Deer #7 3.5 yr male-serum	L19345-2 Dup	1.0	-
Deer #7 0.5 yr female-serum	L19345-1	1.0	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

	Spiking Solution Used		Volume Used for Spiking	Initial/Date
MC4311 LCS A	SS0033620	(200 ng/mL)	50 µL (50-250µL auto-pipette)	MDM / 11-3-09
MC4311 LCS B	SS0033619	(1000 ng/mL)	50 µL (50-250µL auto-pipette)	MDM / 11-3-09
L19345-2 Spk C	SS0033619	(1000 ng/mL)	50 µL (50-250µL auto-pipette)	MDM / 11-3-09
All Samples	SS0032652	(100 ng/mL)	200 µL (50-250µL auto-pipette)	MDM / 11-3-09

All samples were measured using a digital autopipet IN 6814.
Time 10:40 AM Date 11-3-09 Initials MDM

After measuring samples were returned to Freezer No. 40
Time 10:44 AM Date 11-3-09 Initials MDM

Comments:

Analysis Summary:

Data Set: 110309A Initials/Date: MDM / 11-3-09
Data Set: 110509A Initials/Date: MDM / 11-5-09
Data Set: – Initials/Date: – / –

Set extraction/analysis data verified by: AMB Date: 11/09/09

MPI RESEARCH

3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

SAMPLE EXTRACTION AND ANALYSIS TRACKING SHEET

MPI STUDY NUMBER: L19345
MATRIX: Deer Serum

METHOD: V5821
ANALYTES: PFOA & PFOS

PROTOCOL NUMBER: NA

Client ID	MPI Research ID	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	Dilutions (mL/mL)	STEP 7	Dilutions (mL/mL)	STEP 8	Reagents/ Materials	ExyLims ID
na	MC4311 Control							—		—	—	Acetonitrile	RE47645
na	MC4311 LCS A							—		—	—	Water	RE47639
na	MC4311 LCS B							—		—	—	Methanol	RE47649
Deer #7 3.5 yr male-serum	L19345-2 Spk C							—		—	—	SPE Column	MA53782
Deer #7 3.5 yr male-serum	L19345-2							—		0.02/1.0		*Initials/Date*	MDN 11-3-09
Deer #7 3.5 yr male-serum	L19345-2 Dup							—		0.02/1.0		-	-
Deer #7 0.5 yr female-serum	L19345-1							—		—	—	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	HPLC	
-	-	-	-	-	-	-	-	-	-	-	-	Methanol	RE47680
-	-	-	-	-	-	-	-	-	-	-	-	2 mM Ammonium Acetate in Water	5243925
-	-	-	-	-	-	-	-	-	-	-	-		
*Initials/Date	-	MDN 11-3-09	MDN 11-3-09	MDN 11-3-09	MDN 11-3-09	MDN 11-3-09	MDN 11-3-09	—	MDN 11-3-09	MDN 11-5-09	MDN 11-5-09	*Initials/Date*	MDN 11-3-09

STEP 1: Measure 1 mL of serum into a 50 mL disposable centrifuge tube and fortify if appropriate. Add 0.2 mL of internal standard (100 ng/mL).
STEP 2: Add water to the sample for a final volume of 20 mL. Cap tightly and vortex for ~1 minute.
STEP 3: Transfer 1.0 mL of the sample to a 15 mL centrifuge tube. Add 5 mL of ACN and shake for ~20 minutes on a wrist action shaker.
STEP 4: Centrifuge tubes at ~3000 for ~5 minutes. Carefully decant supernatant into a 50 mL disposable centrifuge tube and add 35 mL of water.
STEP 5: SPE Cleanup: Condition column with ~10 mL of methanol followed by ~5 mL of water at a rate of ~1 drop/second. Discard all washes. Do not allow column to go dry.
STEP 6: Load the sample onto the SPE Column. Discard the eluate. Elute with 2 mL of methanol into a 15 mL centrifuge tube. Transfer the extract into autosampler vials.
STEP 7: LC/MS/MS analysis.
STEP 8: LC/MS/MS reanalysis.

*Initials and date under each step indicates the personnel that performed this step.

COMMENTS:

Final extracts stored in refrigerator 34 Initials: MDN Date: 11-3-09

Oct 30, 2009/1

MPI Study: L19345
MPI Set No.: 110309A

Operator: Mark Neeley
Instrument No.: LC/MS/MS #9

MNN 11-3-09

oject: \\sc1wp5556\mdrive\PE SCIEX DATA\Projects\P5195 Batch:09_110309A Serum Tab:Sample Set:SET1 AcqMethod:P5195_102
Sample

	Sample Name	Sample ID	Vial Position	Data File
	SS33618	Calibration Standard, 0.1 ng/mL	1	09_110309A\110309A
2	SS33617	Calibration Standard, 0.2 ng/mL	2	09_110309A\110309A
	SS33616	Calibration Standard, 0.5 ng/mL	3	09_110309A\110309A
	SS33615	Calibration Standard, 1.0 ng/mL	4	09_110309A\110309A
5	SS33614	Calibration Standard, 2.0 ng/mL	5	09_110309A\110309A
	SS33613	Calibration Standard, 5.0 ng/mL	6	09_110309A\110309A
.	Methanol Wash	Methanol Wash	91	09_110309A\110309A
8	Methanol Wash	Methanol Wash	91	09_110309A\110309A
	Control	MC4311 Deer Serum Control	41	09_110309A\110309A
.0	LCS A	MC4311 Deer Serum Spike A, 10 ng/mL	42	09_110309A\110309A
11	LCS B	MC4311 Deer Serum Spike B, 50 ng/mL	43	09_110309A\110309A
2	L19345-2 Spk C	Deer # 7 3.5 yr male-serum Spike C, 50 ng/mL	44	09_110309A\110309A
13	L19345-2	Deer # 7 3.5 yr male-serum	45	09_110309A\110309A
14	L19345-2 Dup	Deer # 7 3.5 yr male-serum Duplicate	46	09_110309A\110309A
5	L19345-1	Deer # 6 0.5 yr female-serum	47	09_110309A\110309A
16	SS33615	CCV, 1.0 ng/mL	4	09_110309A\110309A

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Protocol No: NA | MPI Study No: L19345

Instrument: AB API 4000 Biomolecular Mass Analyzer, **(LC/MS/MS #9)**
SCIEX Turbo Ion Spray Liquid Introduction Interface
Turbo Ion spray temperature = 450 °C

Computer: Dell OptiPlex GX 110

Software: PE Sciex Analyst 1.4

HPLC Equipment: Hewlett Packard (HP) Series 1100
HP Quat Pump — HP Vacuum Degasser
HP Autosampler — HP Column Oven

HPLC Column: Phenomenex Luna C8 (2) Mercury, 2cm x 4mm, 3 µm (ExyLIMS ID: MA0052622)

Column Temperature: 35°C

Mobile Phase (A): 2 mM Ammonium Acetate in Water (ExyLIMS ID: SL0045925)

Mobile Phase (B): Methanol (ExyLIMS ID: RE0047880)

Injected Volume: 15 µL

Time (min)	% A	% B	Flow Rate (µL/min)
0.0	90	10	750
0.5	90	10	750
2.0	10	90	750
5.0	10	90	750
5.1	0	100	750
6.0	0	100	750
6.1	90	10	750
10.0	90	10	750

Ions monitored:

Analyte	Parent ion	Daughter ion(s)	Dwell (secs)
PFOA	413	369	0.200
PFOS	499	80	0.200
^{13}C PFOA (m+2) Internal Standard	415	370	0.200
^{13}C PFOS (m+4) Internal Standard	503	80	0.200

Analyst: Mark Neeley MDN 11-3-09
MPI Research, Inc.
3058 Research Drive, State College, PA 16801
Phone: (814) 272-1039 FAX: (814) 231-1580

All Handwritten Peak ID's by: MDN 11-6-09 ~~MDN 11-6-09~~ MDN 11-6-09

MDN 11-3-09

Acquisition Information:

cquisition Method:	P5195_102909.dam
reated:	Thursday October 29 2009 09: 35: 12 AM
Last Modified:	Friday October 30 2009 10: 56: 20 AM
omment:	PFOA PFOS
ynchronization Mode:	LC Sync
uto-Equilibration:	Off
Acquisition Duration:	10min0sec
umber Of Scans:	732
eriods In File:	1
Acquisition Module:	Acquisition Method
Software version	Analyst 1.4.2

Period 1:

cans in Period:	732
elative Start Time:	0.00 msec
Experiments in Period:	1

eriod 1 Experiment 1:

Scan Type:	MRM (MRM)
olarity:	Negative
can Mode:	N/A
on Source:	Turbo Spray
Resolution Q1:	Unit
esolution Q3:	Unit
ntensity Thres.:	0.00 cps
settling Time:	0.0000 msec
MR Pause:	5.0070 msec
CA:	No
tep Size:	0.00 amu

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
13.00	369.00	200.00	DP	-32.00	-32.00
			CE	-18.00	-18.00
			CXP	-13.20	-13.20

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
415.00	370.00	200.00	DP	-32.00	-32.00
			CE	-18.00	-18.00
			CXP	-13.20	-13.20

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
499.00	80.00	200.00	DP	-83.00	-83.00
			CE	-88.00	-88.00
			CXP	-6.00	-6.00

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
503.00	80.00	200.00	DP	-83.00	-83.00
			CE	-88.00	-88.00

MON 11-3-09

CXP -6.00 -6.00

arameter Table(Period 1 Experiment 1):
AD: 7.00
CUR: 20.00
GS1: 50.00
S2: 40.00
S: -4500.00
TEM: 450.00
ihe: ON
P -10.00

Agilent LC Pump Method Properties
Pump Model: Agilent 1100 LC Quaternary Pump
inimum Pressure (psi): 0.0
aximum Pressure (psi): 5801.0
Compressibility: 100.0
Dead Volume (µl): 40.0
troke Volume (µl): -1.0
aximum Flow Ramp (ml/min²): 100.0
Maximum Pressure Ramp (psi/sec): 290.0

tep Table:

Step	Total Time(min)	Flow Rate(µl/min)	A (%)	B (%)	C (%)	D (%)	TE#1	TE#2	TE#3	TE#4
0	0.00	750	0.0	0.0	90.0	10.0	open	open	open	open
	0.50	750	0.0	0.0	90.0	10.0	open	open	open	open
	2.00	750	0.0	0.0	10.0	90.0	open	open	open	open
3	5.00	750	0.0	0.0	10.0	90.0	open	open	open	open
4	5.10	750	0.0	0.0	0.0	100.0	open	open	open	open
	6.00	750	0.0	0.0	0.0	100.0	open	open	open	open
	.10	750	0.0	0.0	90.0	10.0	open	open	open	open
7	10.00	750	0.0	0.0	90.0	10.0	open	open	open	open

rimary Flow Rate (ul/min): 200.0
Flow Sensor Calibration Table Index: 0

gilent Column Oven Properties
Left Temperature (°C): 35.00
Right Temperature (°C): 35.00
emperature Tolerance +/- (°C): 1.00
tart Acquisition Tolerance +/- (°C): 0.50
ime Table (Not Used)
Column Switching Valve Installed
osition for first sample in the batch: Left
se same position for all samples in the batch

Agilent Autosampler Properties
utosampler Model: Agilent 1100 Wellplate Autosampler
yringe Size (µl): 100
Injection Volume (µl): 15.00
Draw Speed (µl/min): 200.0
ject Speed (µl/min): 200.0
eedle Level (mm): 0.00
Temperature Control Enabled
Setpoint (4 - 40 C): 4
ush Location: Flush Port
ush Time (1 - 999 sec): 10

utomatic Delay Volume Reduction Not Used

MDH 11-3-09

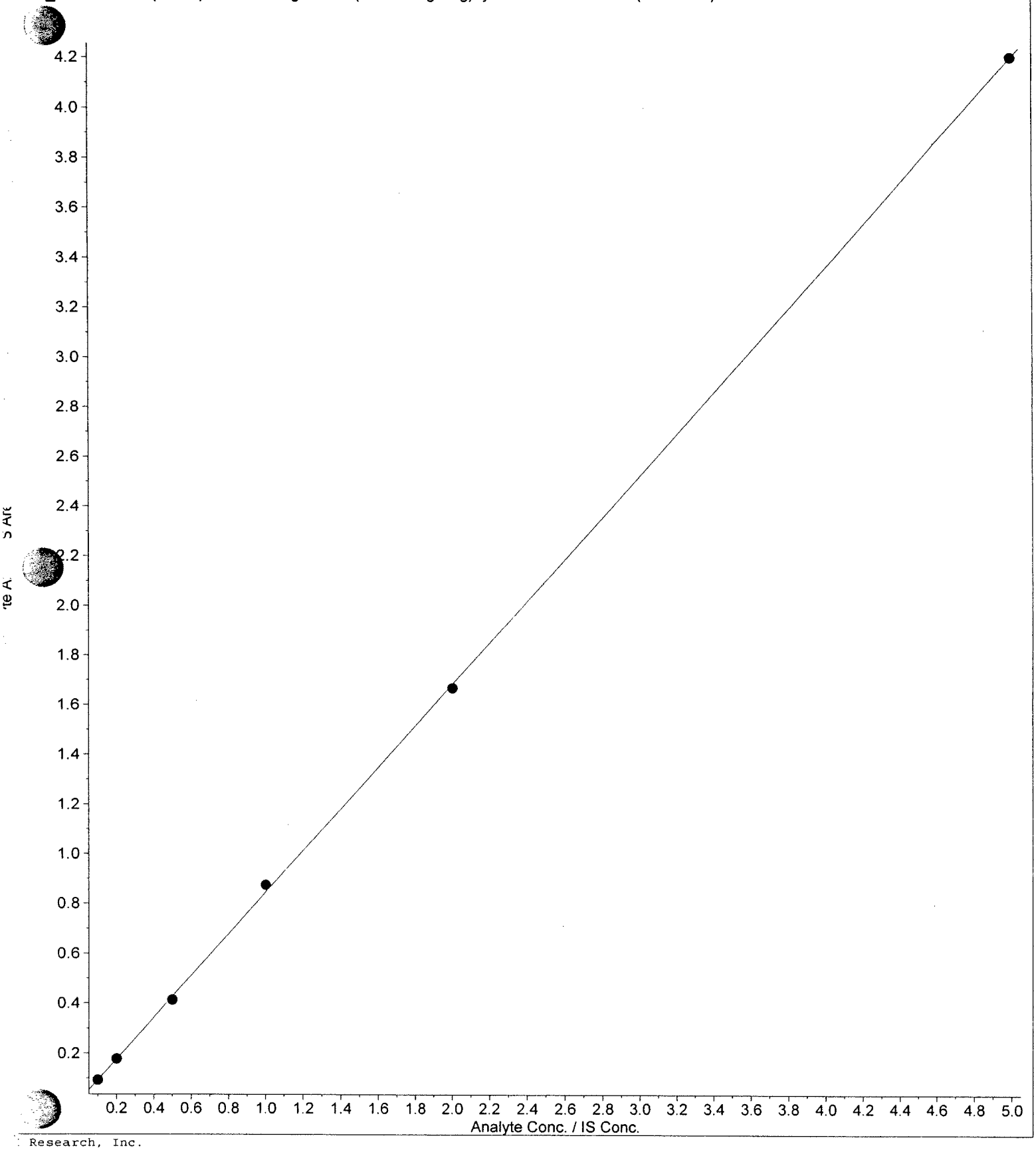
Equilibration Time (sec):	2
Enable Vial/Well Bottom Sensing	No
se Custom Injector Program	No

MPI Study: L19345
MPI Set No.: 110309A

Operator: Mark Neeley
Instrument No.: LC/MS/MS #9

MMS 11-6-09

09_110309A.rdb (PFOA): "Linear" Regression ("1 / x" weighting): y = 0.838 x + 0.00876 (r = 0.9999)



ılyst Version: 1.4.2
'rinting Time: 8:55:27 AM
'rinting Date: Friday, November 06, 2009

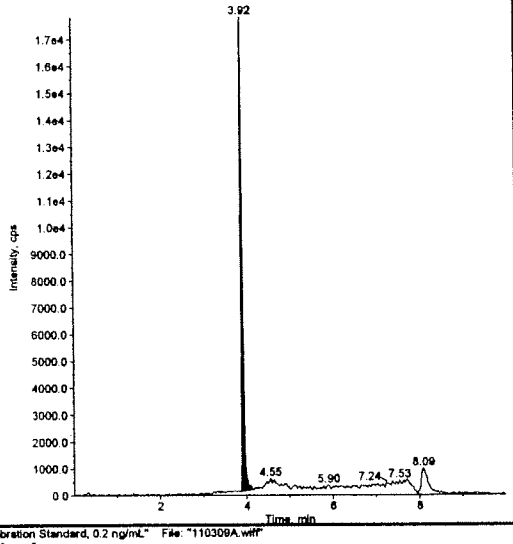
MPI Study: L19345
MPI Set No.: 110309A

Operator: Mark Neeley
Instrument No.: LC/MS/MS #9

Sample Name: "SS33618" Sample ID: "Calibration Standard, 0.1 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""
Sample Index: 17
Sample Type: Standard
Concentration: 0.100 ng/mL
culated Conc: 0.100 ng/mL
Date: 11/3/2009
Time: 7:26:41 PM

ified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
e Threshold: 200.04 cps
Smooths: 1
Width: 0.20
Height: 0.01
Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Relative RT: No

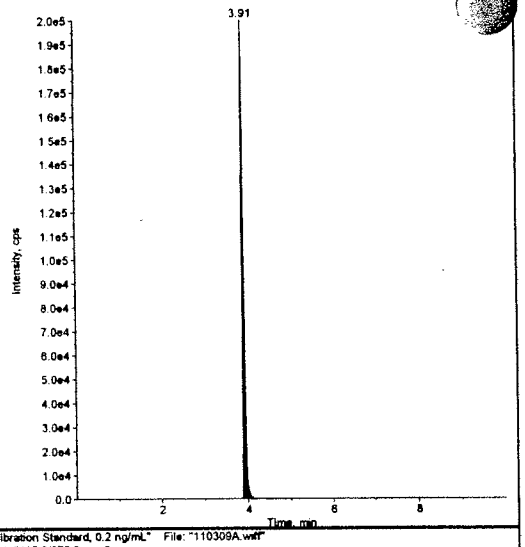
Type: Base To Base
ention Time: 3.92 min
Area: 53649 counts
Height: 18396 cps
Start Time: 3.83 min
End Time: 4.14 min



Sample Name: "SS33618" Sample ID: "Calibration Standard, 0.1 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""
Sample Index: 17
Sample Type: Standard
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 7:26:41 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

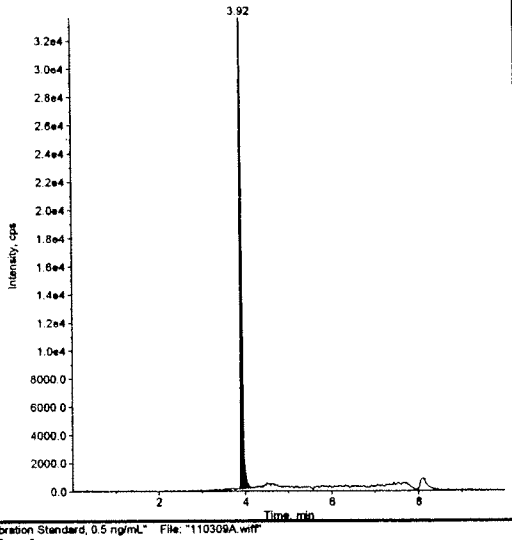
Int. Type: Base To Base
Retention Time: 3.91 min
Area: 578811 counts
Height: 205252 cps
Start Time: 3.85 min
End Time: 4.13 min



Sample Name: "SS33617" Sample ID: "Calibration Standard, 0.2 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""
ple Index: 18
ple Type: Standard
centration: 0.200 ng/mL
culated Conc: 0.202 ng/mL
Date: 11/3/2009
Acq. Time: 7:37:37 PM

Modified: No
c. Algorithm: Analyst Classic
ching Factor: 1
se Threshold: 40.01 cps
a Threshold: 200.04 cps
Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Val. Ratio: 3.00
Window: 30.0 sec
ected RT: 3.99 min
Relative RT: No

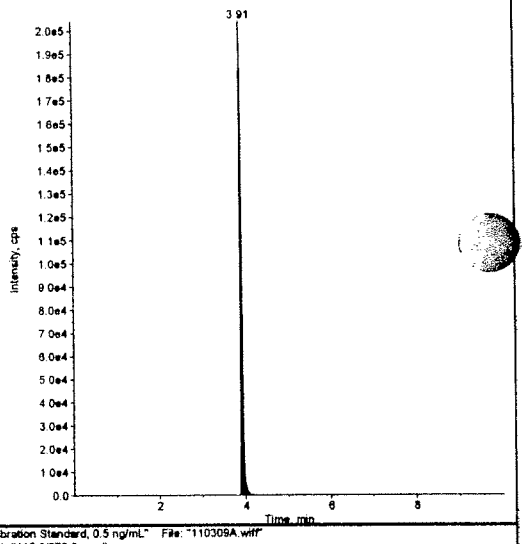
Int. Type: Base To Base
Retention Time: 3.92 min
Area: 102736 counts
ght: 35140 cps
rt Time: 3.85 min
Time: 4.14 min



Sample Name: "SS33617" Sample ID: "Calibration Standard, 0.2 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""
Sample Index: 18
Sample Type: Standard
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 7:37:37 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

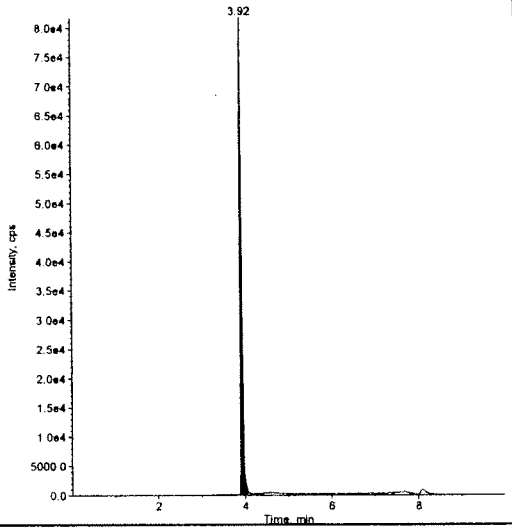
Int. Type: Base To Base
Retention Time: 3.91 min
Area: 577969 counts
Height: 207858 cps
Start Time: 3.85 min
End Time: 4.11 min



Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.5 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""
ple Index: 19
ple Type: Standard
Concentration: 0.500 ng/mL
Calculated Conc: 0.483 ng/mL
Acq. Date: 11/3/2009
Time: 7:48:32 PM

ified: No
c. Algorithm: Analyst Classic
ching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Height: 0.01
Peak Ratio: 5.00
Adj. Ratio: 4.00
Val. Ratio: 3.00
Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

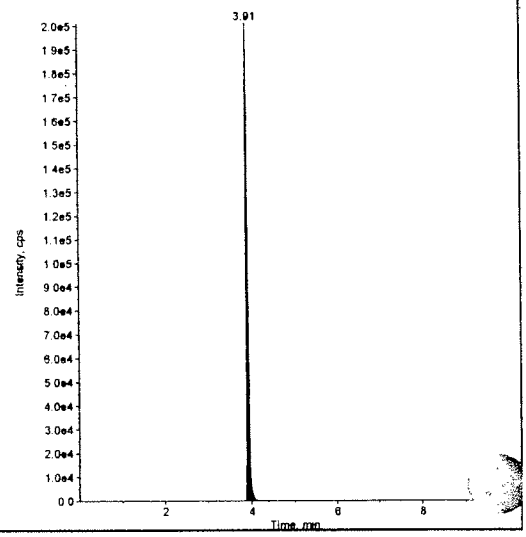
Type: Base To Base
ention Time: 3.92 min
a: 239879 counts
ght: 83889 cps
rt Time: 3.84 min
End Time: 4.10 min



Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.5 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""
Sample Index: 19
Sample Type: Standard
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 7:48:32 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 580849 counts
Height: 208749 cps
Start Time: 3.85 min
End Time: 4.11 min



M: Research, Inc.

Initials MDN

Date 11-6-09

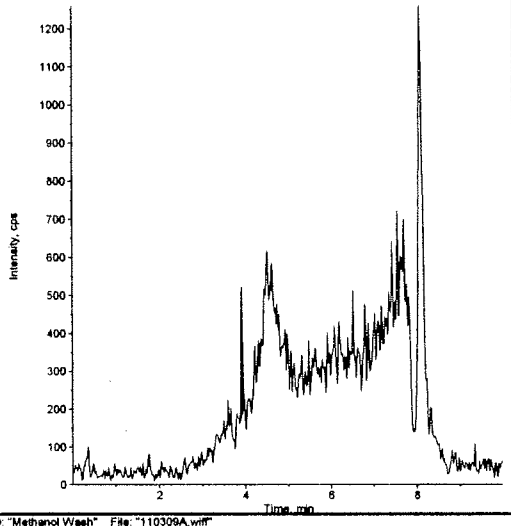
Sample Index 17 To 32

Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 23
Sample Type: Solvent
Concentration: 0.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:32:16 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

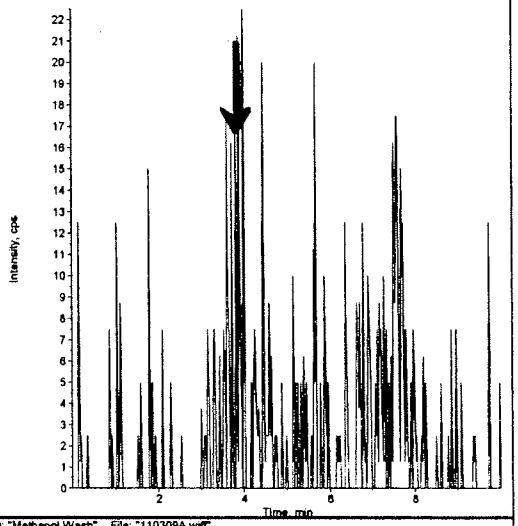
Int. Type: Base To Base
Retention Time: 3.92 min
Area: 1023 counts
Height: 348 cps
Start Time: 3.87 min
End Time: 3.99 min



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 23
Sample Type: Solvent
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:32:16 PM

Modified: No

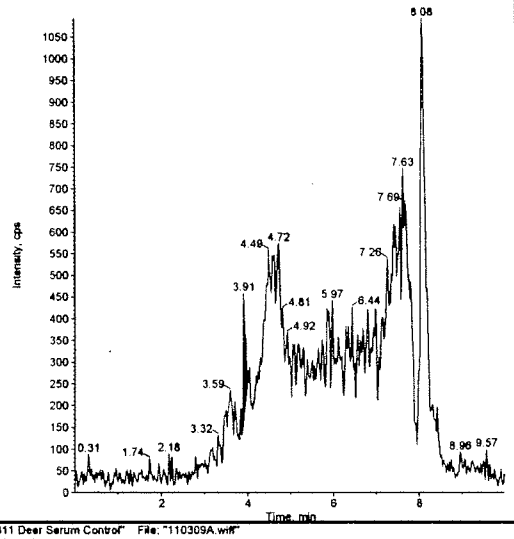


Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 24
Sample Type: Solvent
Concentration: 0.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:43:12 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

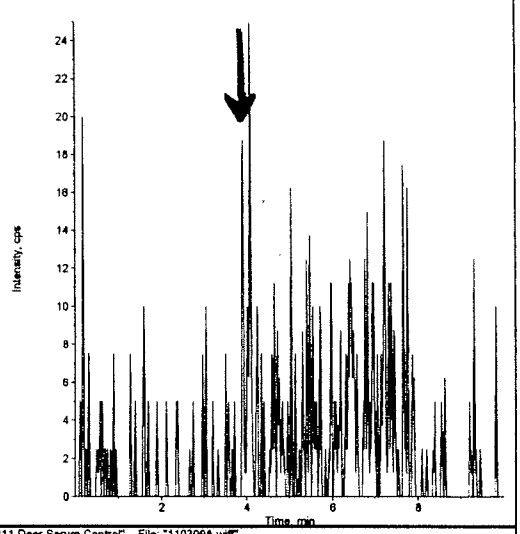
Int. Type: Base To Base
Retention Time: 3.91 min
Area: 1008 counts
Height: 290 cps
Start Time: 3.87 min
End Time: 3.99 min



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 24
Sample Type: Solvent
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:43:12 PM

Modified: No

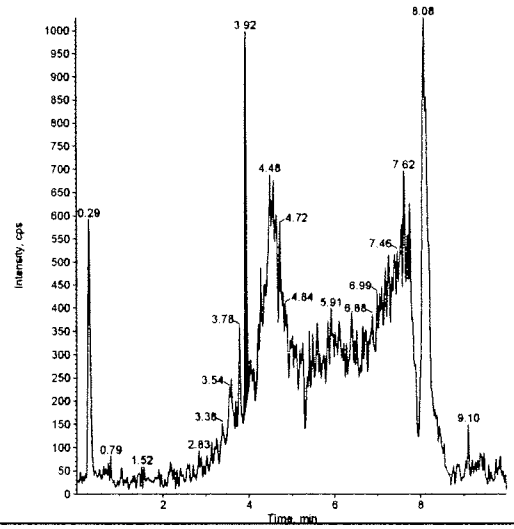


Sample Name: "Control" Sample ID: "MC4311 Deer Serum Control" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 25
Sample Type: Unknown
Concentration: N/A
Calculated Conc: < 0
Acq. Date: 11/3/2009
Acq. Time: 8:54:07 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.92 min
Area: 2392 counts
Height: 833 cps
Start Time: 3.85 min
End Time: 3.99 min

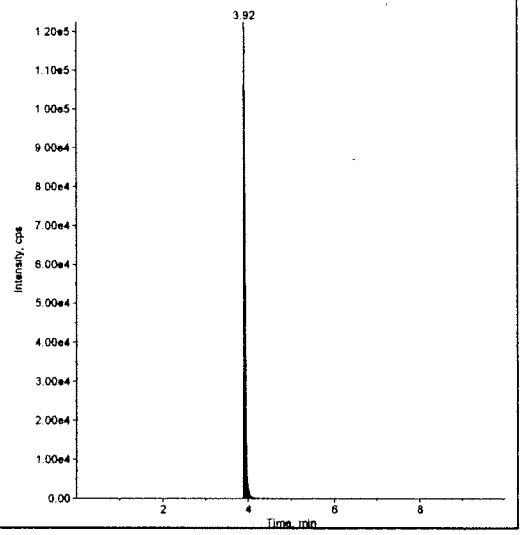


Sample Name: "Control" Sample ID: "MC4311 Deer Serum Control" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 25
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:54:07 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.92 min
Area: 347101 counts
Height: 129136 cps
Start Time: 3.87 min
End Time: 4.09 min

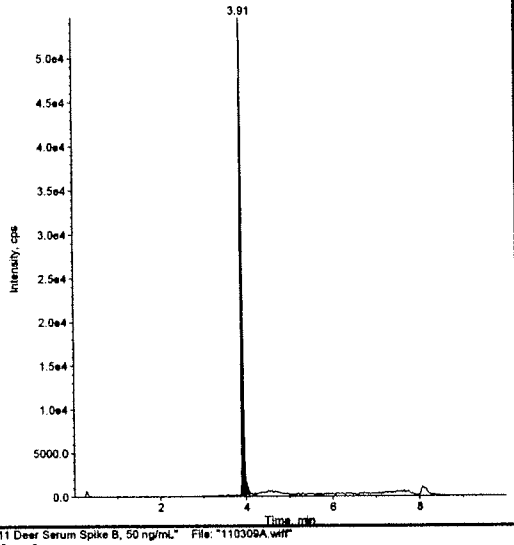


Sample Name: "LCS A" Sample ID: "MC4311 Deer Serum Spike A, 10 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        26
Sample Type:          QC
Concentration:       10.0     ng/mL
Calculated Conc:     10.1     ng/mL
Acq. Date:        11/3/2009
Acq. Time:        9:05:03 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:    40.01    cps
Area Threshold:    200.04    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Sep. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         3.99     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.91     min
Area:            154309     counts
Height:           56763     cps
Start Time:          3.81     min
End Time:            4.13     min
```

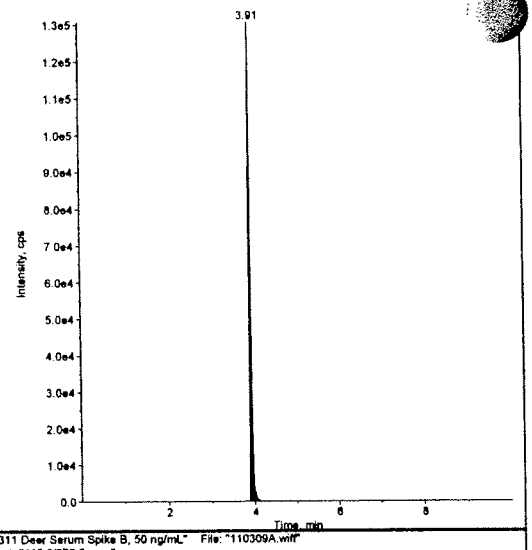


Sample Name: "LCS A" Sample ID: "MC4311 Deer Serum Spike A, 10 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        26
Sample Type:          QC
Concentration:       0.500    ng/mL
Calculated Conc:     N/A
Acq. Date:        11/3/2009
Acq. Time:        9:05:03 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:   256.47    cps
Area Threshold:   1282.36    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         3.98     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.91     min
Area:            355719     counts
Height:          132129     cps
Start Time:          3.85     min
End Time:            4.09     min
```

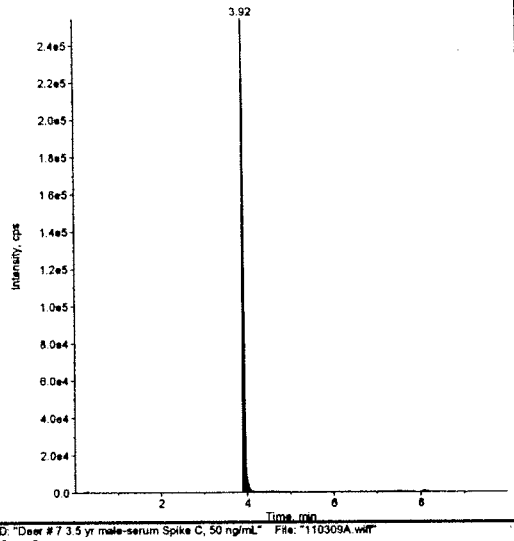


Sample Name: "LCS B" Sample ID: "MC4311 Deer Serum Spike B, 50 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        27
Sample Type:          QC
Concentration:       50.0     ng/mL
Calculated Conc:     47.7     ng/mL
Acq. Date:        11/3/2009
Acq. Time:        9:16:01 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:    40.01    cps
Area Threshold:    200.04    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         3.99     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.92     min
Area:            751597     counts
Height:          270613     cps
Start Time:          3.83     min
End Time:            4.18     min
```

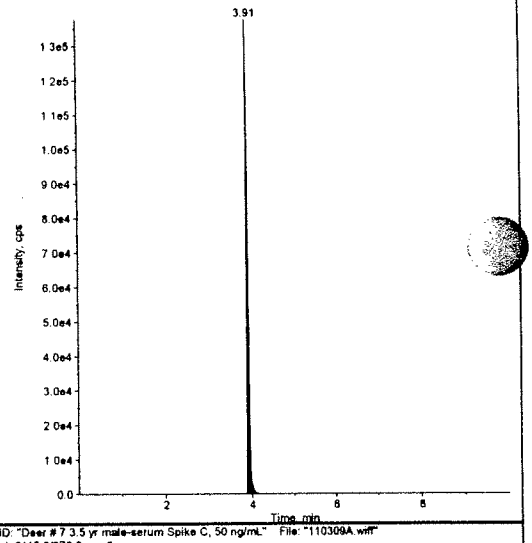


Sample Name: "LCS B" Sample ID: "MC4311 Deer Serum Spike B, 50 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        27
Sample Type:          QC
Concentration:       0.500    ng/mL
Calculated Conc:     N/A
Acq. Date:        11/3/2009
Acq. Time:        9:16:01 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:   256.47    cps
Area Threshold:   1282.36    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         3.98     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.91     min
Area:            374371     counts
Height:          139969     cps
Start Time:          3.85     min
End Time:            4.07     min
```

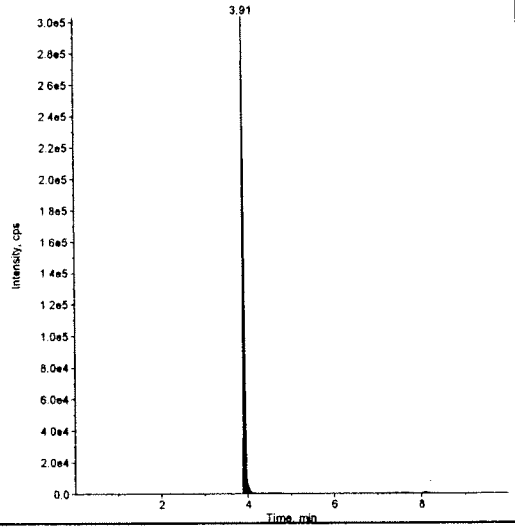


Sample Name: "L19345-2 Spk C" Sample ID: "Deer # 7 3.5 yr male-serum Spike C, 50 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        28
Sample Type:          QC
Concentration:       50.0     ng/mL
Calculated Conc:     51.0     ng/mL
Acq. Date:        11/3/2009
Acq. Time:        9:26:57 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:    40.01    cps
Area Threshold:    200.04    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Sep. Peak Ratio:     5.00
Sep. Adj. Ratio:     4.00
Sep. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         3.99     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.91     min
Area:            822293     counts
Height:          305382     cps
Start Time:          3.85     min
End Time:            4.16     min
```

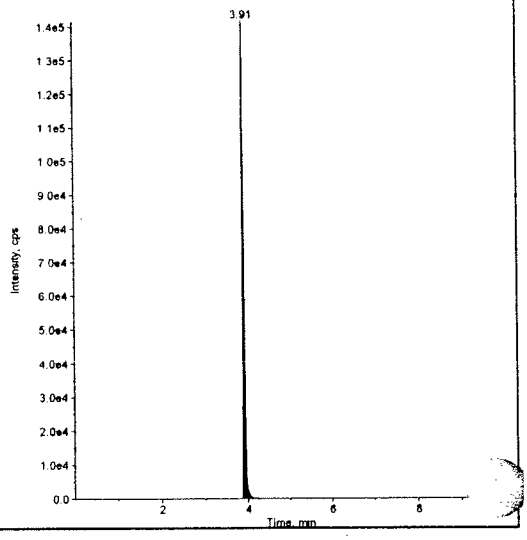


Sample Name: "L19345-2 Spk C" Sample ID: "Deer # 7 3.5 yr male-serum Spike C, 50 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        28
Sample Type:          QC
Concentration:       0.500    ng/mL
Calculated Conc:     N/A
Acq. Date:        11/3/2009
Acq. Time:        9:26:57 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:   256.47    cps
Area Threshold:   1282.36    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         3.98     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.91     min
Area:            383369     counts
Height:          141758     cps
Start Time:          3.85     min
End Time:            4.07     min
```

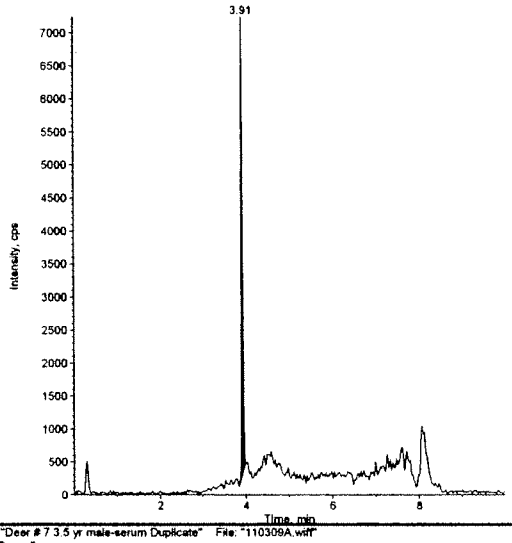


Sample Name: "L19345-2" Sample ID: "Deer # 7 3.5 yr male-serum" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 29
Sample Type: Unknown
Concentration: N/A
Calculated Conc: 0.991 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 9:37:54 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 18517 counts
Height: 7105 cps
Start Time: 3.84 min
End Time: 3.99 min

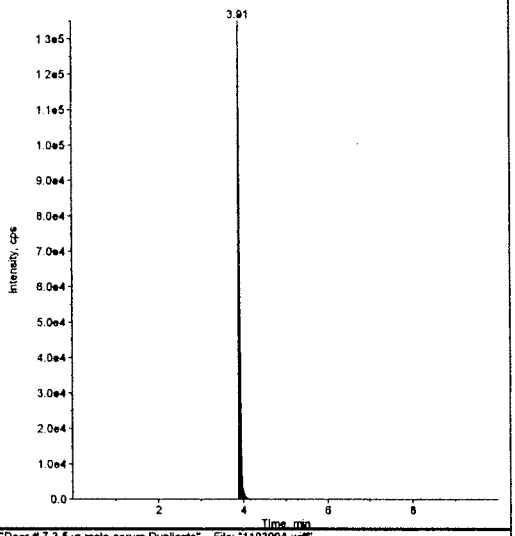


Sample Name: "L19345-2" Sample ID: "Deer # 7 3.5 yr male-serum" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 29
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 9:37:54 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 368323 counts
Height: 135272 cps
Start Time: 3.85 min
End Time: 4.10 min

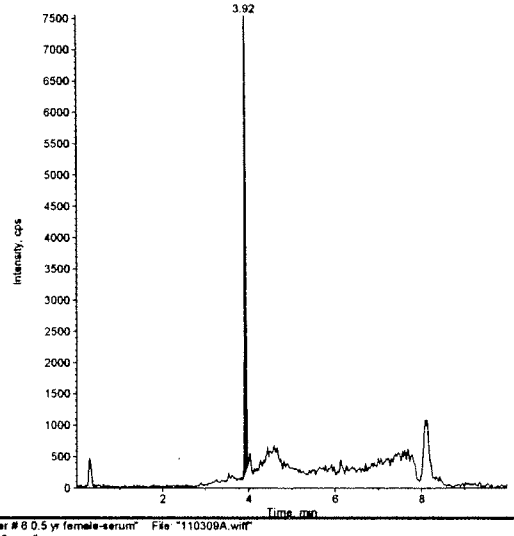


Sample Name: "L19345-2 Dup" Sample ID: "Deer # 7 3.5 yr male-serum Duplicate" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 30
Sample Type: Unknown
Concentration: N/A
Calculated Conc: 0.983 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 9:48:52 PM

Modified: Yes
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 80.49 cps
Area Threshold: 402.43 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.92 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.92 min
Area: 20592 counts
Height: 7638 cps
Start Time: 3.85 min
End Time: 4.00 min

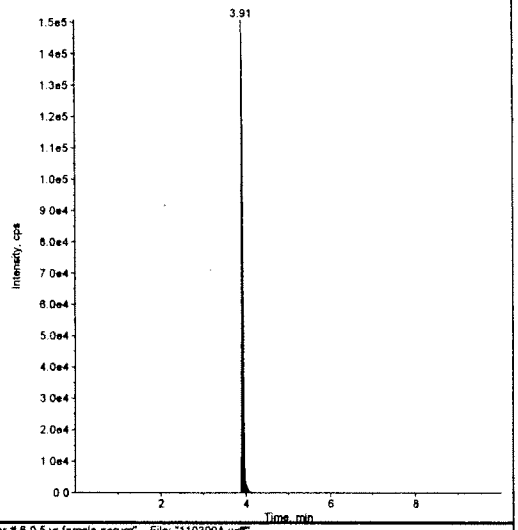


Sample Name: "L19345-2 Dup" Sample ID: "Deer # 7 3.5 yr male-serum Duplicate" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 30
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 9:48:52 PM

Modified: Yes
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 412407 counts
Height: 154890 cps
Start Time: 3.85 min
End Time: 4.10 min

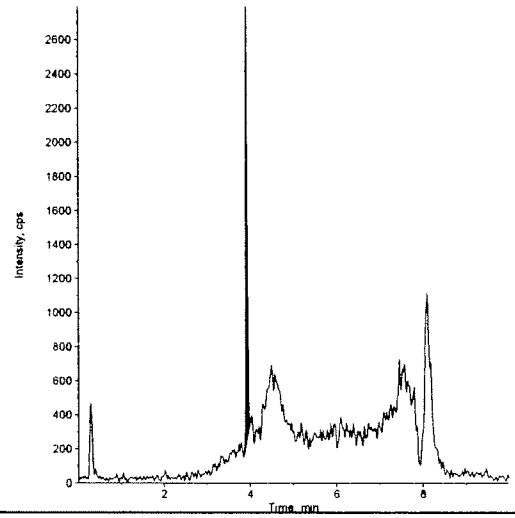


Sample Name: "L19345-1" Sample ID: "Deer # 6 0.5 yr female-serum" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 31
Sample Type: Unknown
Concentration: N/A
Calculated Conc: 0.287 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 9:59:48 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.92 min
Area: 7527 counts
Height: 2707 cps
Start Time: 3.85 min
End Time: 4.00 min

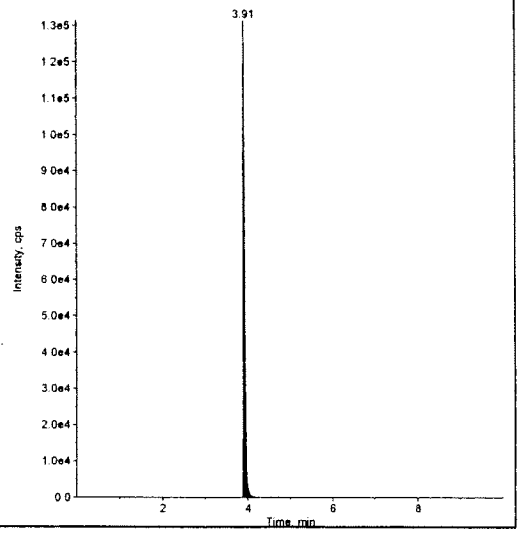


Sample Name: "L19345-1" Sample ID: "Deer # 6 0.5 yr female-serum" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 31
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 9:59:48 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 162334 counts
Height: 132313 cps
Start Time: 3.85 min
End Time: 4.10 min

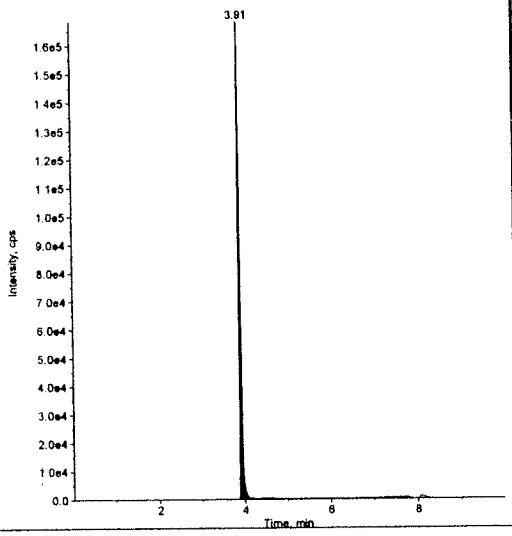


Sample Name: "SS33815" Sample ID: "CCV, 1.0 ng/mL" File: "110309A.wiff"
Peak Name: "PFOA" Mass(es): "413.0/369.0 amu"
Comment: "" Annotation: ""

Sample Index: 32
Sample Type: QC
Concentration: 1.00 ng/mL
Calculated Conc: 1.02 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 10:10:46 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 40.01 cps
Area Threshold: 200.04 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.99 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 479482 counts
Height: 169422 cps
Start Time: 3.83 min
End Time: 4.16 min

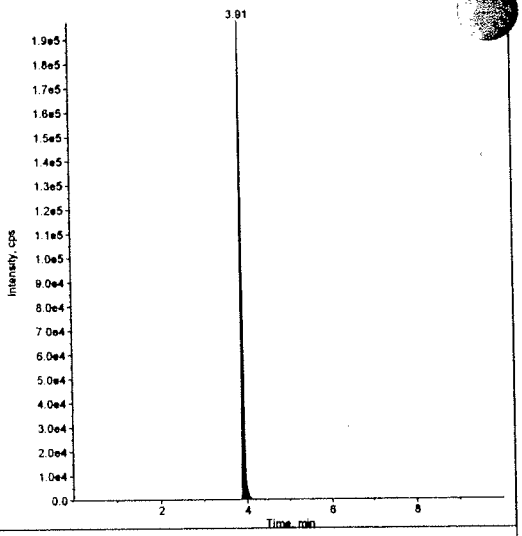


Sample Name: "SS33815" Sample ID: "CCV, 1.0 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOA(M+2)(IS)" Mass(es): "415.0/370.0 amu"
Comment: "" Annotation: ""

Sample Index: 32
Sample Type: QC
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 10:10:46 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 256.47 cps
Area Threshold: 1282.36 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 3.98 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.91 min
Area: 556775 counts
Height: 197412 cps
Start Time: 3.85 min
End Time: 4.11 min

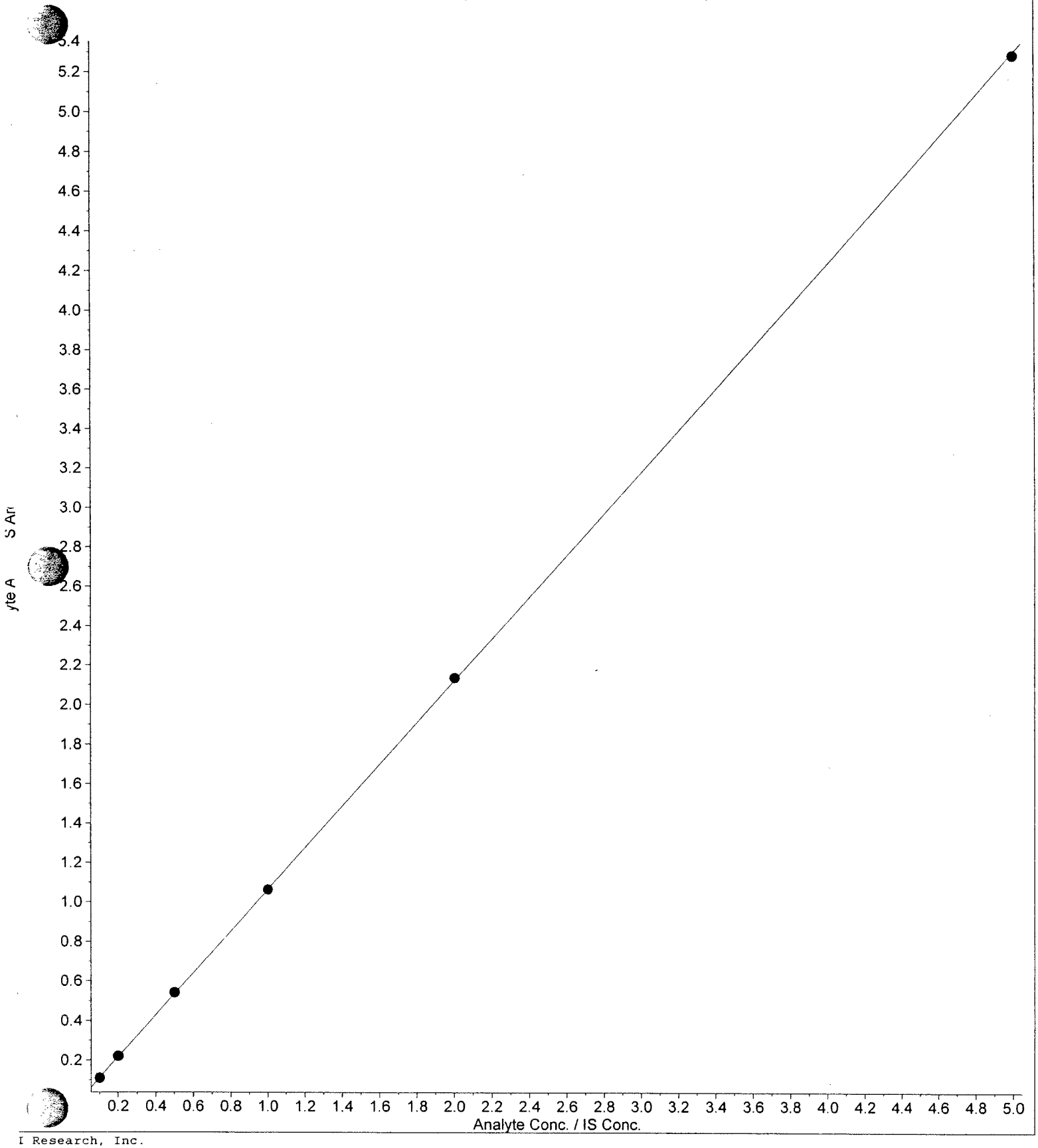


MPI Study: L19345
MPI Set No.: 110309A

Operator: Mark Neeley
Instrument No.: LC/MS/MS #9

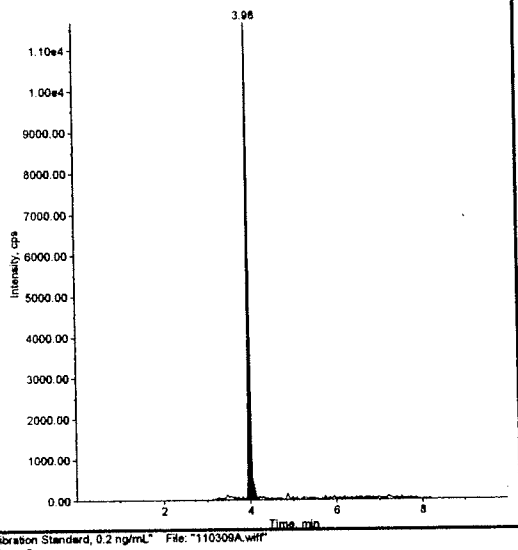
MDH 11-6-09

09_110309A.rdb (PFOS): "Linear" Regression ("1 / x" weighting): y = 1.06 x + 0.00618 (r = 1.0000)



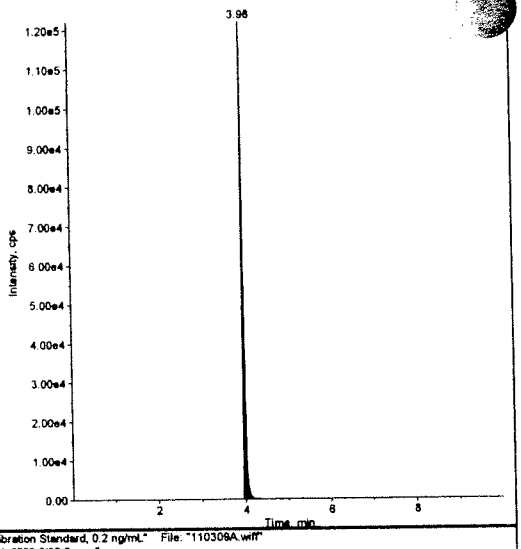
Sample Name: "SS33618" Sample ID: "Calibration Standard, 0.1 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index:	17
Sample Type:	Standard
Concentration:	0.100 ng/mL
Calculated Conc:	0.0979 ng/mL
Acq. Date:	11/3/2009
Acq. Time:	7:26:41 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	15.73 cps
Area Threshold:	78.65 cps
Num. Smooths:	1
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	4.06 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	3.98 min
Area:	38896 counts
Height:	12108 cps
Start Time:	3.87 min
End Time:	4.18 min



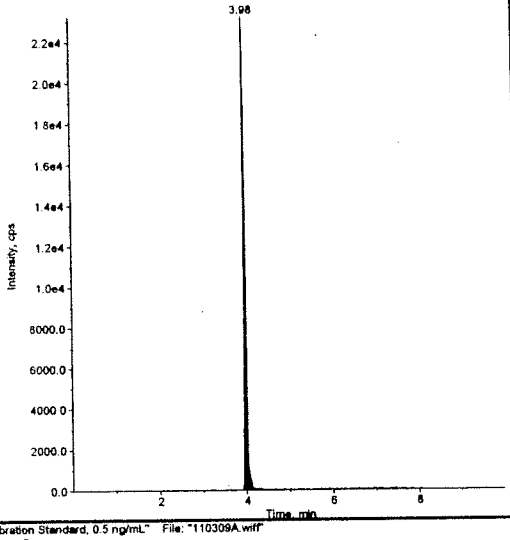
Sample Name: "SS33618" Sample ID: "Calibration Standard, 0.1 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index:	17
Sample Type:	Standard
Concentration:	1.00 ng/mL
Calculated Conc:	N/A
Acq. Date:	11/3/2009
Acq. Time:	7:26:41 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	140.21 cps
Area Threshold:	701.07 cps
Num. Smooths:	1
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	4.06 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	3.98 min
Area:	354321 counts
Height:	127415 cps
Start Time:	3.92 min
End Time:	4.16 min



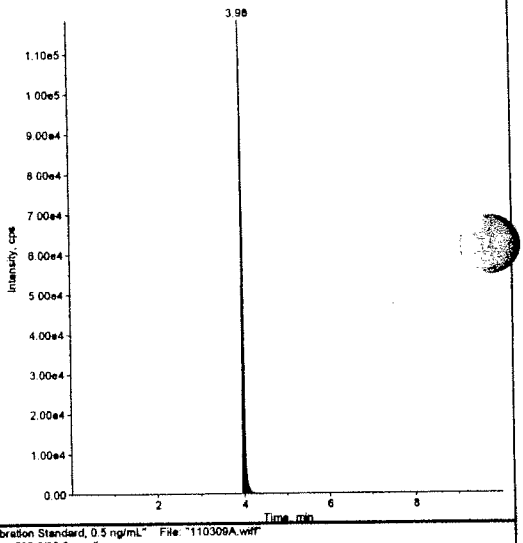
Sample Name: "SS33617" Sample ID: "Calibration Standard, 0.2 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index:	18
Sample Type:	Standard
Concentration:	0.200 ng/mL
Calculated Conc:	0.202 ng/mL
Acq. Date:	11/3/2009
Acq. Time:	7:37:37 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	15.73 cps
Area Threshold:	78.65 cps
Num. Smooths:	1
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	4.06 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	3.98 min
Area:	75206 counts
Height:	23699 cps
Start Time:	3.88 min
End Time:	4.17 min



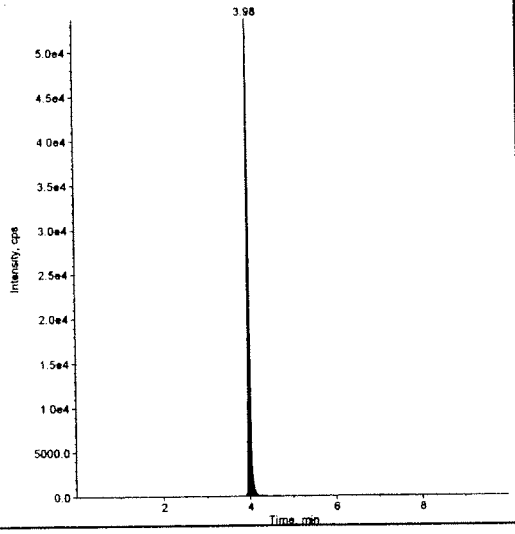
Sample Name: "SS33617" Sample ID: "Calibration Standard, 0.2 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index:	18
Sample Type:	Standard
Concentration:	1.00 ng/mL
Calculated Conc:	N/A
Acq. Date:	11/3/2009
Acq. Time:	7:37:37 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	140.21 cps
Area Threshold:	701.07 cps
Num. Smooths:	1
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	4.06 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	3.98 min
Area:	341704 counts
Height:	121701 cps
Start Time:	3.92 min
End Time:	4.20 min



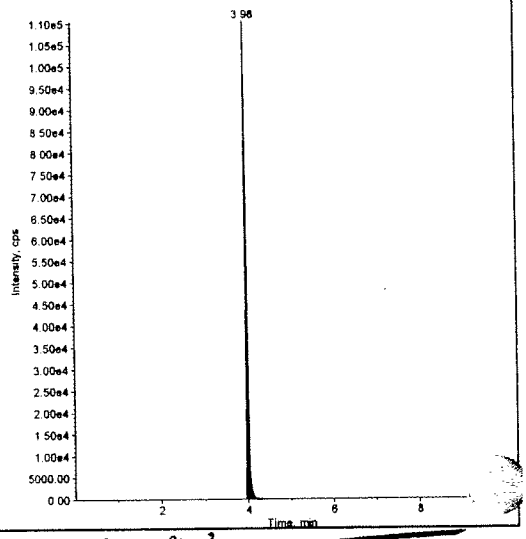
Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.5 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index:	19
Sample Type:	Standard
Concentration:	0.500 ng/mL
Calculated Conc:	0.505 ng/mL
Acq. Date:	11/3/2009
Acq. Time:	7:48:32 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	15.73 cps
Area Threshold:	78.65 cps
Num. Smooths:	1
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	4.06 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	3.98 min
Area:	179291 counts
Height:	55742 cps
Start Time:	3.88 min
End Time:	4.20 min



Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.5 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index:	19
Sample Type:	Standard
Concentration:	1.00 ng/mL
Calculated Conc:	N/A
Acq. Date:	11/3/2009
Acq. Time:	7:48:32 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	140.21 cps
Area Threshold:	701.07 cps
Num. Smooths:	1
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	4.06 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	3.98 min
Area:	331898 counts
Height:	117101 cps
Start Time:	3.92 min
End Time:	4.18 min



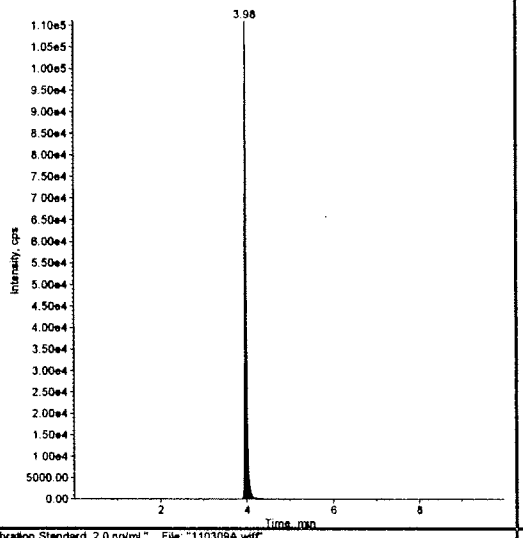
Initials MPN
Date 11-6-09
Sample Index 17 To 32

Sample Name: "SS33615" Sample ID: "Calibration Standard, 1.0 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        20
Sample Type:      Standard
Concentration:       1.00     ng/mL
Calculated Conc:     0.998    ng/mL
Acq. Date:        11/3/2009
Acq. Time:        7:59:27 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:    15.73    cps
Area Threshold:     78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.98     min
Area:            355848     counts
Height:          111208     cps
Start Time:          3.85     min
End Time:            4.36     min
```

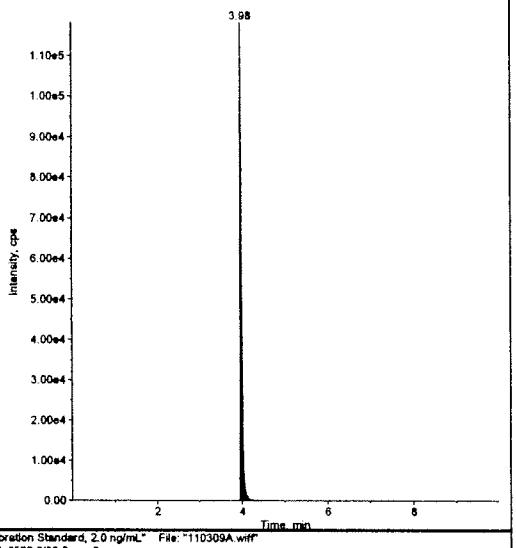


Sample Name: "SS33615" Sample ID: "Calibration Standard, 1.0 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        20
Sample Type:      Standard
Concentration:       1.00     ng/mL
Calculated Conc:     N/A
Acq. Date:        11/3/2009
Acq. Time:        7:59:27 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.98     min
Area:            334958     counts
Height:          118647     cps
Start Time:          3.92     min
End Time:            4.18     min
```

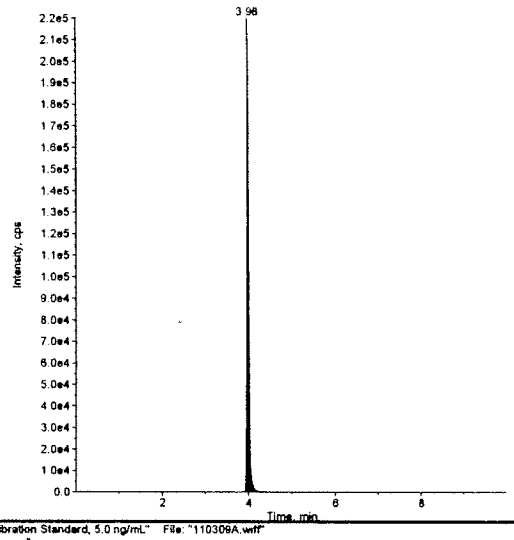


Sample Name: "SS33614" Sample ID: "Calibration Standard, 2.0 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        21
Sample Type:      Standard
Concentration:       2.00     ng/mL
Calculated Conc:     2.01     ng/mL
Acq. Date:        11/3/2009
Acq. Time:        8:10:24 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:    15.73    cps
Area Threshold:     78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.98     min
Area:            730486     counts
Height:          225121     cps
Start Time:          3.88     min
End Time:            4.28     min
```

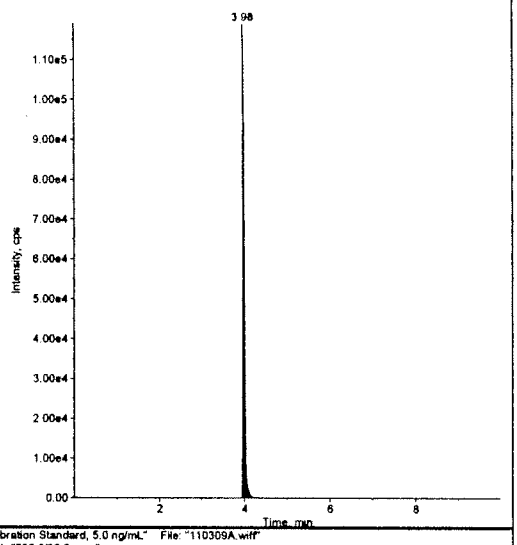


Sample Name: "SS33614" Sample ID: "Calibration Standard, 2.0 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        21
Sample Type:      Standard
Concentration:       1.00     ng/mL
Calculated Conc:     N/A
Acq. Date:        11/3/2009
Acq. Time:        8:10:24 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.98     min
Area:            342257     counts
Height:          122368     cps
Start Time:          3.92     min
End Time:            4.20     min
```

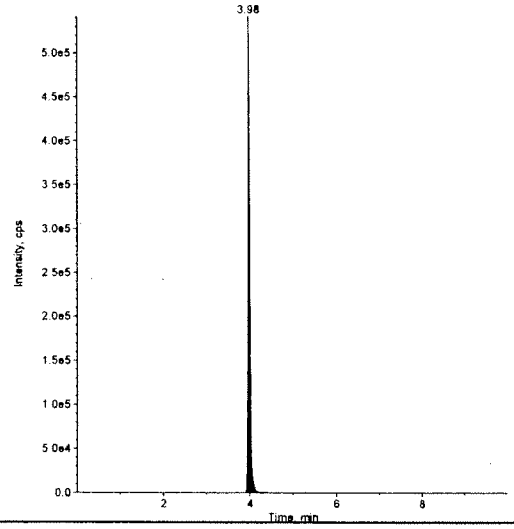


Sample Name: "SS33613" Sample ID: "Calibration Standard, 5.0 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        22
Sample Type:      Standard
Concentration:       5.00     ng/mL
Calculated Conc:     4.99     ng/mL
Acq. Date:        11/3/2009
Acq. Time:        8:21:20 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:    15.73    cps
Area Threshold:     78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.98     min
Area:           1742971     counts
Height:          546364     cps
Start Time:          3.88     min
End Time:            4.41     min
```

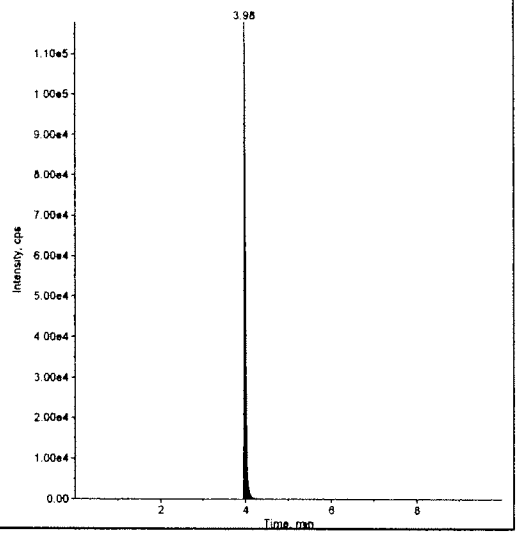


Sample Name: "SS33613" Sample ID: "Calibration Standard, 5.0 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        22
Sample Type:      Standard
Concentration:       1.00     ng/mL
Calculated Conc:     N/A
Acq. Date:        11/3/2009
Acq. Time:        8:21:20 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0      sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.98     min
Area:            329962     counts
Height:          119223     cps
Start Time:          3.92     min
End Time:            4.18     min
```



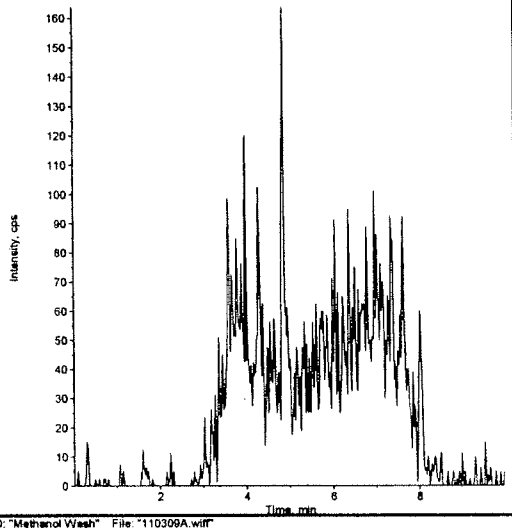
Research, Inc.

Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 23
Sample Type: Solvent
Concentration: 0.00 ng/mL
Calculated Conc: N/A
. Date: 11/3/2009
(. Time: 8:32:16 PM

ified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
. Smooths: 1
. Width: 0.20
. Height: 0.01
. Peak Ratio: 5.00
. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Relative RT: No

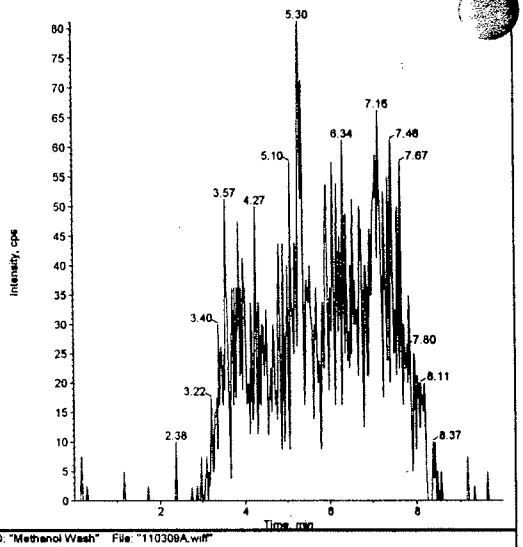
. Type: Base To Base
ention Time: 3.98 min
a: 209 counts
Height: 81 cps
Start Time: 3.95 min
End Time: 4.05 min



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 23
Sample Type: Solvent
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:32:16 PM

Modified: No

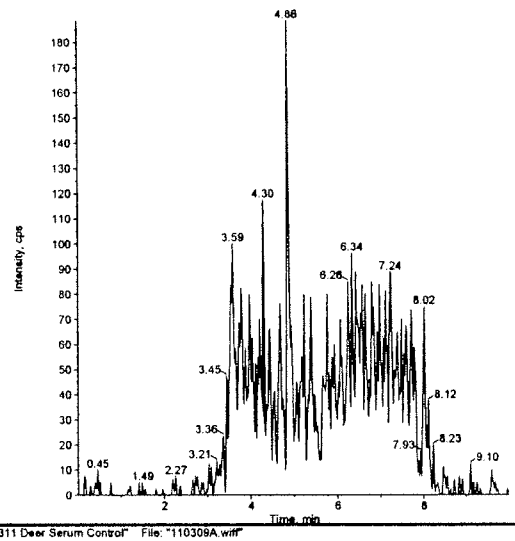


Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 24
ple Type: Solvent
ncentration: 0.00 ng/mL
culated Conc: N/A
. Date: 11/3/2009
Acq. Time: 8:43:12 PM

Modified: No
Proc. Algorithm: Analyst Classic
ching Factor: 1
se Threshold: 15.73 cps
a Threshold: 78.65 cps
. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
. Val. Ratio: 3.00
Window: 30.0 sec
ected RT: 4.06 min
Relative RT: No

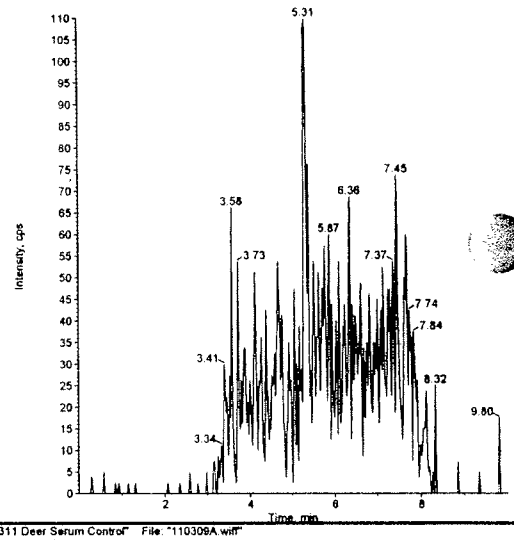
Int. Type: Base To Base
Retention Time: 4.30 min
Area: 200 counts
Height: 87 cps
rt Time: 4.25 min
Time: 4.35 min



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 24
Sample Type: Solvent
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:43:12 PM

Modified: No

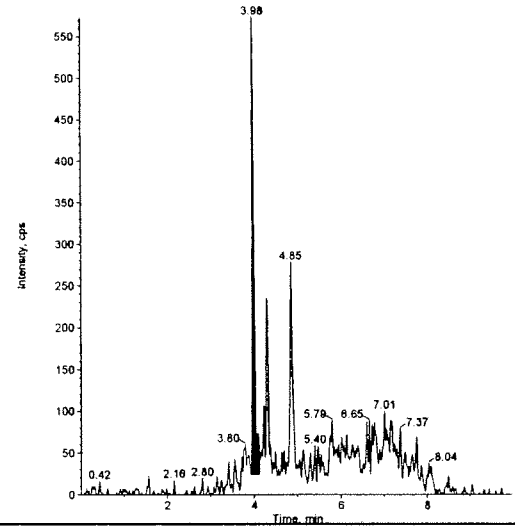


Sample Name: "Control" Sample ID: "MC4311 Deer Serum Control" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

ple Index: 25
ple Type: Unknown
Concentration: N/A
Calculated Conc: 0.153 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 8:54:07 PM

ified: No
c. Algorithm: Analyst Classic
ching Factor: 1
se Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
. Height: 0.01
. Peak Ratio: 5.00
. Adj. Ratio: 4.00
. Val. Ratio: 3.00
Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Valley
ention Time: 3.98 min
a: 1961 counts
ght: 568 cps
rt Time: 3.92 min
End Time: 4.13 min

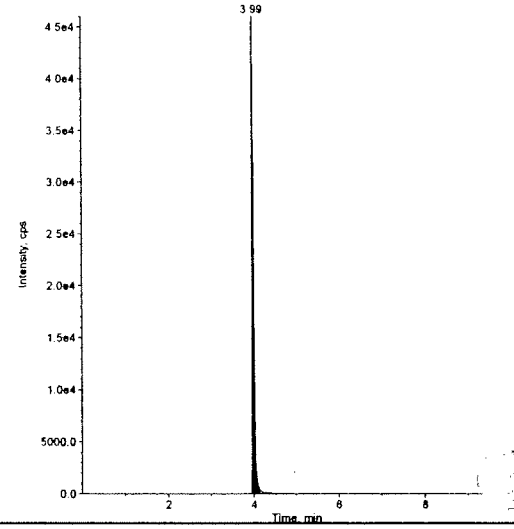


Sample Name: "Control" Sample ID: "MC4311 Deer Serum Control" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 25
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 8:54:07 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 137306 counts
Height: 47876 cps
Start Time: 3.91 min
End Time: 4.17 min

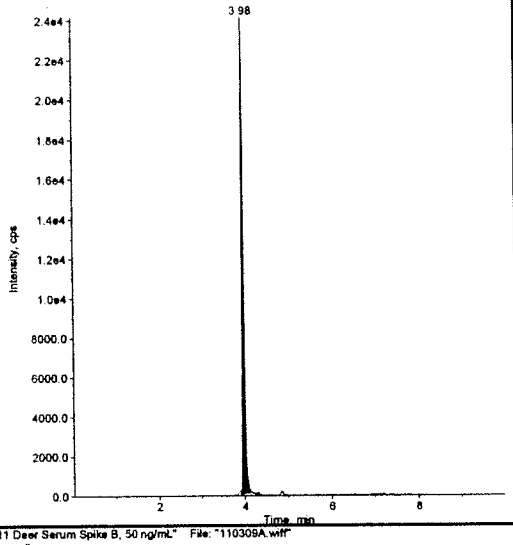


Sample Name: "LCS A" Sample ID: "MC4311 Deer Serum Spike A, 10 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 26
Sample Type: QC
Concentration: 10.0 ng/mL
Calculated Conc: 10.0 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 9:05:03 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Valley
Retention Time: 3.98 min
Area: 76698 counts
Height: 24304 cps
Start Time: 3.90 min
End Time: 4.13 min

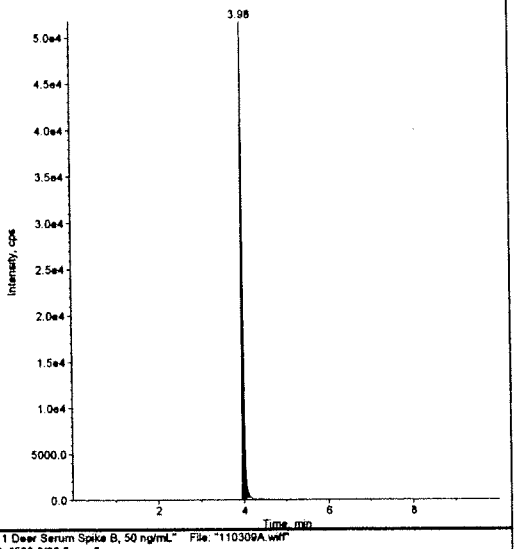


Sample Name: "LCS A" Sample ID: "MC4311 Deer Serum Spike A, 10 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 26
Sample Type: QC
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 9:05:03 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.98 min
Area: 143222 counts
Height: 52574 cps
Start Time: 3.92 min
End Time: 4.14 min

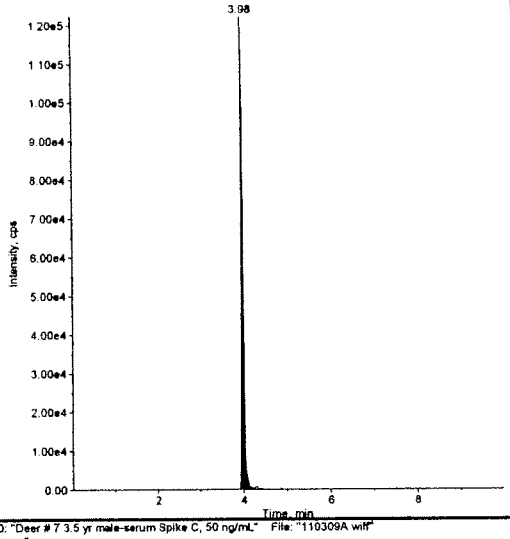


Sample Name: "LCS B" Sample ID: "MC4311 Deer Serum Spike B, 50 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 27
Sample Type: QC
Concentration: 50.0 ng/mL
Calculated Conc: 48.0 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 9:16:01 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Exponential Skim
Retention Time: 3.98 min
Area: 404559 counts
Height: 124526 cps
Start Time: 3.83 min
End Time: 4.14 min

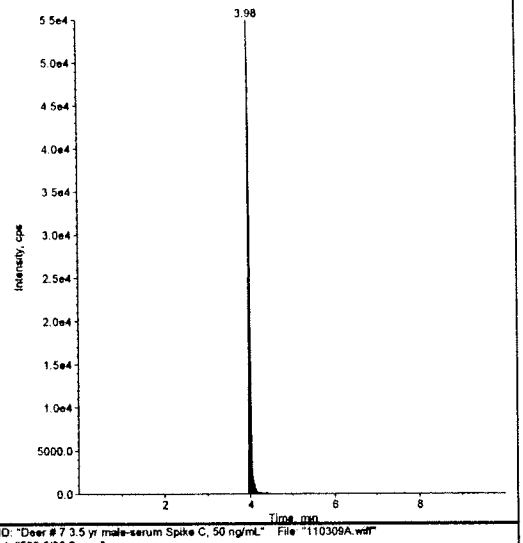


Sample Name: "LCS B" Sample ID: "MC4311 Deer Serum Spike B, 50 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 27
Sample Type: QC
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 9:16:01 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.98 min
Area: 158891 counts
Height: 56246 cps
Start Time: 3.92 min
End Time: 4.16 min

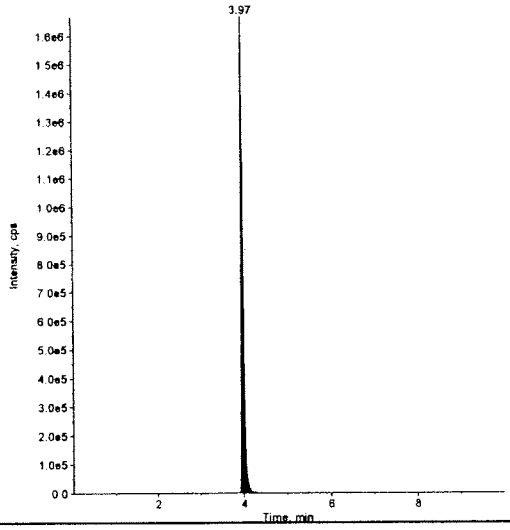


Sample Name: "L19345-2 Spk C" Sample ID: "Deer # 7 3.5 yr male-serum Spike C, 50 ng/mL" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 28
Sample Type: QC
Concentration: 50.0 ng/mL
Calculated Conc: 882. ng/mL
Acq. Date: 11/3/2009
Acq. Time: 9:26:57 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Valley
Retention Time: 3.97 min
Area: 6230547 counts
Height: 1678561 cps
Start Time: 3.81 min
End Time: 4.61 min

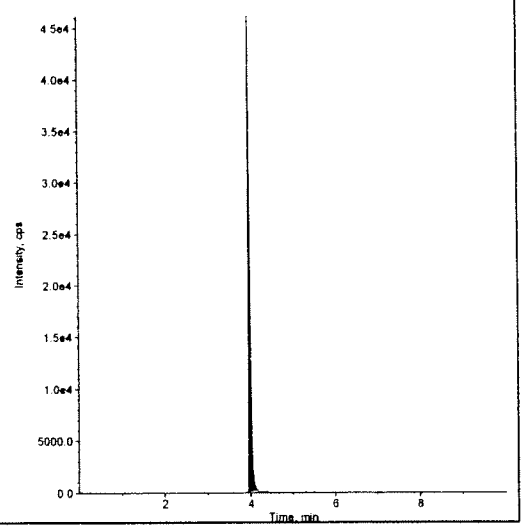


Sample Name: "L19345-2 Spk C" Sample ID: "Deer # 7 3.5 yr male-serum Spike C, 50 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 28
Sample Type: QC
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 9:26:57 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.98 min
Area: 133554 counts
Height: 46070 cps
Start Time: 3.92 min
End Time: 4.14 min

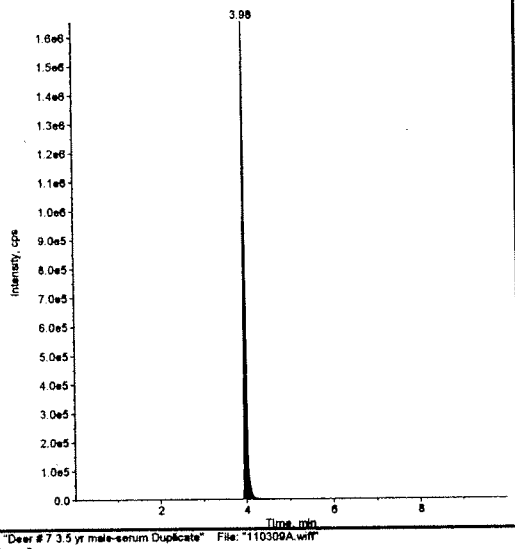


Sample Name: "L19345-2" Sample ID: "Deer # 7 3.5 yr male-serum" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        29
Sample Type:      Unknown
Concentration:      N/A
Calculated Conc:    845.     ng/mL
  Date:        11/3/2009
  Time:        9:37:54 PM

  ified:           No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   15.73    cps
Area Threshold:    78.65    cps
  Smooths:           1
  Width:           0.20
  Height:          0.01
  Peak Ratio:      5.00
  Adj. Ratio:      4.00
Exp. Val. Ratio:   3.00
RT Window:         30.0     sec
Expected RT:       4.06     min
  Relative RT:     No

  Type:        Base To Base
  ention Time:     3.98     min
  a:         6070940    counts
Height:        1653914   cps
Start Time:        3.81     min
End Time:          4.52     min
```

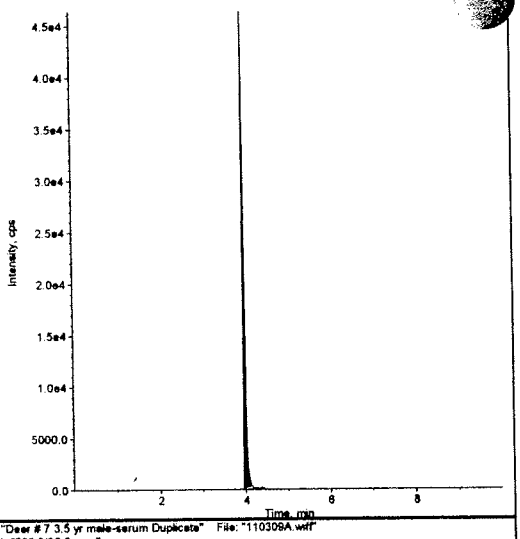


Sample Name: "L19345-2" Sample ID: "Deer # 7 3.5 yr male-serum" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        29
Sample Type:      Unknown
Concentration:      0.500    ng/mL
Calculated Conc:    N/A
Acq. Date:       11/3/2009
Acq. Time:       9:37:54 PM

Modified:           No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:        0.20
Sep. Height:       0.01
Exp. Peak Ratio:   5.00
Exp. Adj. Ratio:   4.00
Exp. Val. Ratio:   3.00
RT Window:         30.0     sec
Expected RT:       4.06     min
Use Relative RT:    No

Int. Type:       Base To Base
Retention Time:     3.98     min
Area:            135799    counts
Height:           46466   cps
Start Time:        3.92     min
End Time:          4.14     min
```

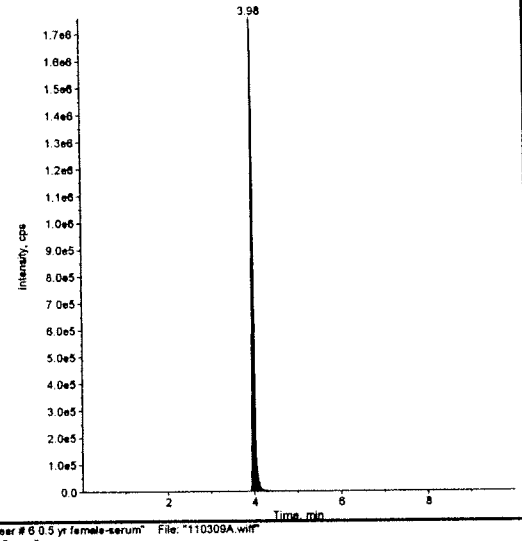


Sample Name: "L19345-2 Dup" Sample ID: "Deer # 7 3.5 yr male-serum Duplicate" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        30
  ple Type:      Unknown
  centration:      N/A
  culated Conc:    852.     ng/mL
  Date:        11/3/2009
Acq. Time:       9:48:52 PM

Modified:           No
Proc. Algorithm: Analyst Classic
  ching Factor:      1
  se Threshold:    15.73    cps
  a Threshold:     78.65    cps
  Smooths:           1
Sep. Width:        0.20
Sep. Height:       0.01
Exp. Peak Ratio:   5.00
Exp. Adj. Ratio:   4.00
  Val. Ratio:      3.00
  Window:          30.0     sec
  ected RT:        4.06     min
  Relative RT:     No

Int. Type:       Exponential Skim
Retention Time:     3.98     min
Area:          6512065    counts
Height:        1773958   cps
  rt Time:         3.85     min
  l Time:          4.11     min
```

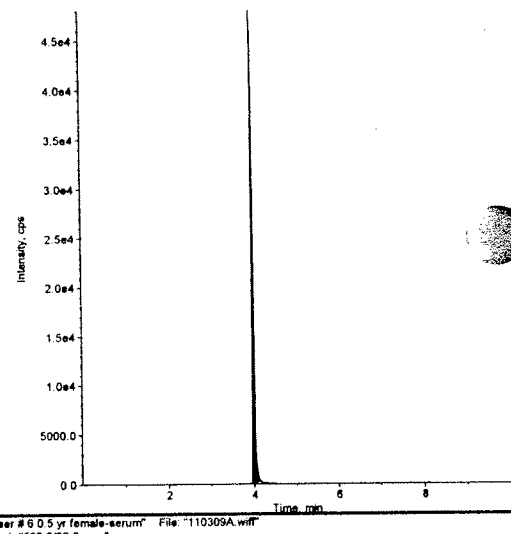


Sample Name: "L19345-2 Dup" Sample ID: "Deer # 7 3.5 yr male-serum Duplicate" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        30
Sample Type:      Unknown
Concentration:      0.500    ng/mL
Calculated Conc:    N/A
Acq. Date:       11/3/2009
Acq. Time:       9:48:52 PM

Modified:           No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:        0.20
Sep. Height:       0.01
Exp. Peak Ratio:   5.00
Exp. Adj. Ratio:   4.00
Exp. Val. Ratio:   3.00
RT Window:         30.0     sec
Expected RT:       4.06     min
Use Relative RT:    No

Int. Type:       Base To Base
Retention Time:     3.98     min
Area:            144401    counts
Height:           49871   cps
Start Time:        3.94     min
End Time:          4.16     min
```

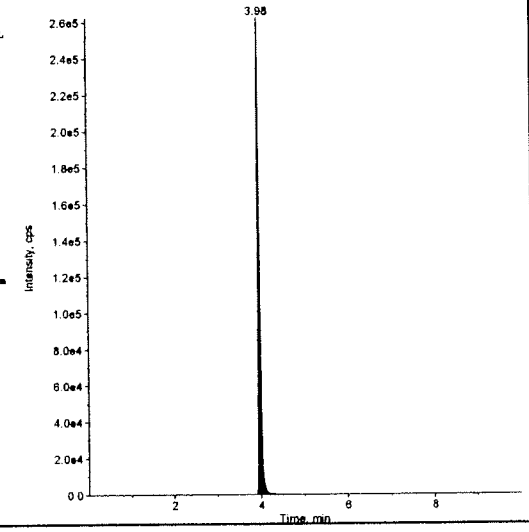


Sample Name: "L19345-1" Sample ID: "Deer # 6 0.5 yr female-serum" File: "110309A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
  ple Index:         31
  ple Type:      Unknown
Concentration:      N/A
Calculated Conc:    114.     ng/mL
Acq. Date:       11/3/2009
Acq. Time:       9:59:48 PM

  ified:           No
  c. Algorithm: Analyst Classic
  ching Factor:      1
  ise Threshold:   15.73    cps
Area Threshold:    78.65    cps
Num. Smooths:        1
Sep. Width:        0.20
  Height:          0.01
  Peak Ratio:      5.00
  Adj. Ratio:      4.00
  Val. Ratio:      3.00
  Window:          30.0     sec
Expected RT:       4.06     min
Use Relative RT:    No

  Type:        Exponential Skim
  ention Time:     3.98     min
  a:           886292    counts
  ght:           262642   cps
  rt Time:         3.84     min
End Time:          4.14     min
```

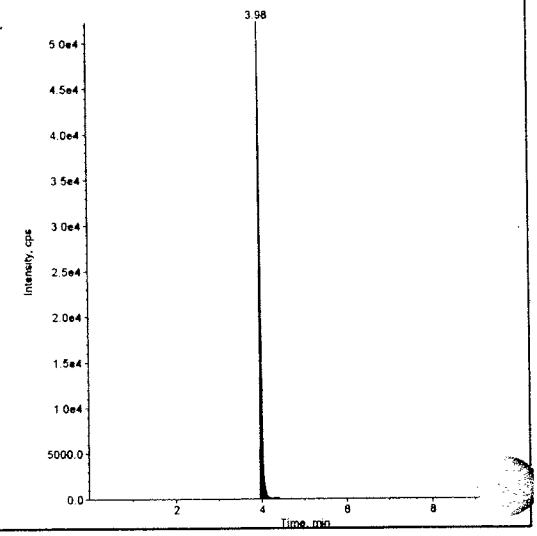


Sample Name: "L19345-1" Sample ID: "Deer # 6 0.5 yr female-serum" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        31
Sample Type:      Unknown
Concentration:      0.500    ng/mL
Calculated Conc:    N/A
Acq. Date:       11/3/2009
Acq. Time:       9:59:48 PM

Modified:           No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:        0.20
Sep. Height:       0.01
Exp. Peak Ratio:   5.00
Exp. Adj. Ratio:   4.00
Exp. Val. Ratio:   3.00
RT Window:         30.0     sec
Expected RT:       4.06     min
Use Relative RT:    No

Int. Type:       Base To Base
Retention Time:     3.98     min
Area:            147425    counts
Height:           53003   cps
Start Time:        3.92     min
End Time:          4.16     min
```

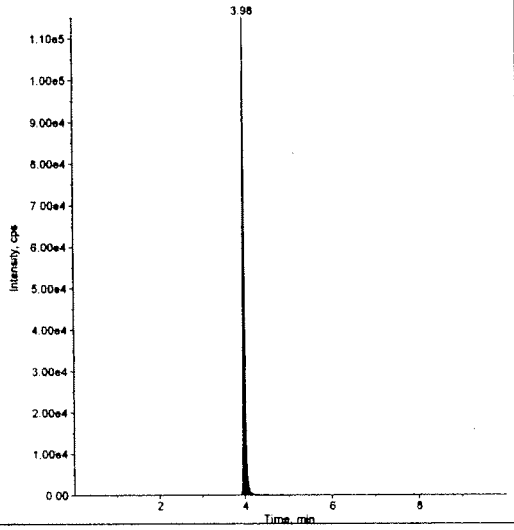


ample Name: "SS33615" Sample ID: "CCV, 1.0 ng/mL" File: "110309A.wiff"
eak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 32
Sample Type: QC
Concentration: 1.00 ng/mL
Calculated Conc: 1.05 ng/mL
Acq. Date: 11/3/2009
Acq. Time: 10:10:46 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 70.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.98 min
Area: 368441 counts
Height: 115045 cps
Start Time: 3.88 min
End Time: 4.26 min

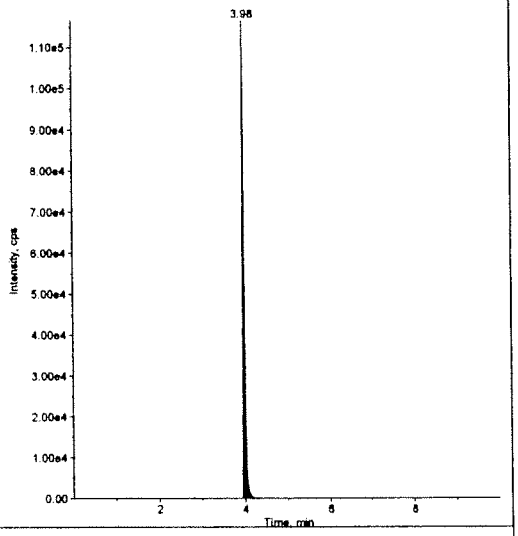


Sample Name: "SS33615" Sample ID: "CCV, 1.0 ng/mL" File: "110309A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 32
Sample Type: QC
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/3/2009
Acq. Time: 10:10:46 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.98 min
Area: 329728 counts
Height: 116504 cps
Start Time: 3.92 min
End Time: 4.18 min



RAW DATA REPORT

Sponsor Study No:	NA	Limit of Quantitation:	10 ng/mL	Set No:	110509A
MPI Study No:	L19345	Injection Volume:	15 µL	Analyst:	Mark Neeley
Analyte:	PFOS	Matrix:	Deer Serum	Instrument Type:	LC/MS/MS Unit # 9
Ions Monitored:	499 -> 80			Extraction Date:	11/03,05/09
Site:	NA			Analyzed on:	11/05/09

MPI Research ID	Sponsor ID	Sample Code	Sample Index No.	Std. Conc. (ng/mL)	Internal Std. Conc. (ng/mL)	Aliquot Factor (AF)	Dilution Factor (DF)	Peak Area	Internal Standard Peak Area	Analyte Found (ng/mL)	Amount Analyte Added (ng/mL)	Recovery (%)
SS33618	-	CS	1	0.100	1.0	-	-	37967	327142	-	-	-
SS33617	-	CS	2	0.200	1.0	-	-	73226	332455	-	-	-
SS33616	-	CS	3	0.500	1.0	-	-	178604	319945	-	-	-
SS33615	-	CS	4	1.00	1.0	-	-	364800	328714	-	-	-
SS33614	-	CS	5	2.00	1.0	-	-	701769	321742	-	-	-
SS33613	-	CS	6	5.00	1.0	-	-	1710276	315704	-	-	-
Methanol Wash	-	W	7	-	-	-	-	0	0	-	-	-
Methanol Wash	-	W	8	-	-	-	-	0	0	-	-	-
Control	MC4311 Deer Serum Control	C	9	-	0.5	40	1	1278	78792	ND	-	-
LCS A	MC4311 Deer Serum Spike A	LCS	10	-	0.5	40	1	45665	78483	10.5	10	105
LCS B	MC4311 Deer Serum Spike B	LCS	11	-	0.5	40	1	242262	90148	49.2	50	98
L19345-2 Spk C	Deer # 7 3.5 yr male-serum Spike C	LF	12	-	0.5	40	50	240880	162940	1349	1000	68
L19345-2	Deer # 7 3.5 yr male-serum	S	13	-	0.5	40	50	117915	159785	670	-	-
L19345-2 Dup	Deer # 7 3.5 yr male-serum Duplicate	S	14	-	0.5	40	50	120178	162619	671	-	-
SS33615	-	CCV	15	-	1.0	-	-	374895	336883	1.01	-	-

Analyte Found (ng/mL) = ((((analyte peak area/IS peak area) - intercept) / slope) x IS conc.) x AF x DF

Standard Curve : Linear (1/x weighted)
Intercept = 0.00786
Slope = 1.09
Coef. Of Det. = 1.000

$$\text{Recovery (\%)} = \frac{[\text{Analyte found (ng/mL)} - \text{Analyte found in control (ng/mL)}]}{\text{amount Analyte added (ng/mL)}} \times 100$$

CS = Calibration standard
CCV = Continuing Calibration Verification
C = Control sample
S = Sample

LF = Lab fortified sample
FF = Field fortified sample
LCS = Laboratory Control Spike

W = Methanol Wash
ND = Not detected = Response between 0 and LOD
NQ = Not quantifiable = Response between LOD and LOQ

Spreadsheet prepared by: MNL / 11-6-09

MPI RESEARCH

3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

Internal Chain of Custody/Fortification Sheet

MPI Reseach Study Number: L19345 Matrix: Deer Serum
Sponsor Study/Protocol No: NA

The samples listed below were removed from Freezer No. 40
Time 7:51 AM Date 11-5-09 Initials MDM

CLIENT SAMPLE ID	MPI RESEARCH ID NUMBER	VOLUME (mL)	FORTIFICATION (ng)
na	MC4311 Control	1.0	-
na	MC4311 LCS A	1.0	10
na	MC4311 LCS B	1.0	50
Deer #7 3.5 yr male-serum	L19345-2 Spk C	1.0	1000
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

	Spiking Solution Used		Volume Used for Spiking	Initial/Date
MC4311 LCS A	SS0033620	(200 ng/mL)	50 µL (50-250µL auto-pipette)	MDM / 11-5-09
MC4311 LCS B	SS0033619	(1000 ng/mL)	50 µL (50-250µL auto-pipette)	MDM / 11-5-09
L19345-2 Spk C	SS0032983	(100000 ng/mL)	10 µL (0.5-10µL auto-pipette)	MDM / 11-5-09
All Samples	SS0032652	(100 ng/mL)	200 µL (50-250µL auto-pipette)	MDM / 11-5-09

All samples were measured using a digital autopipet IN 6914.
Time 10:00 AM Date 11-5-09 Initials MDM

After measuring samples were returned to Freezer No. 36
Time 10:27 AM Date 11-5-09 Initials MDM

Comments:

Analysis Summary:

Data Set: 110509A Initials/Date: MDM / 11-5-09
Data Set: — Initials/Date: — / —
Data Set: — Initials/Date: — / —

Set extraction/analysis data verified by: AMG Date: 11/09/09

MPI RESEARCH

3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

SAMPLE EXTRACTION AND ANALYSIS TRACKING SHEET

MPI STUDY NUMBER: L19345
MATRIX: Deer Serum

METHOD: V5821
ANALYTES: PFOA & PFOS

PROTOCOL NUMBER: NA

Client ID	MPI Research ID	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	Dilutions (mL/mL)	STEP 7	Dilutions (mL/mL)	STEP 8	Reagents/ Materials	ExyLims ID
								—		—	—	Acetonitrile	RE47377
na	MC4311 Control							—		—	—	Water	RE47635
na	MC4311 LCS A							—		—	—	Methanol	RE47975
na	MC4311 LCS B							0.02/1.0		—	—	SPE Column	M48043
Deer #7 3.5 yr male-serum	L19345-2 Spk C									-	-	*Initials/Date*	MDN 11-5-09
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	**HPLC**	
-	-	-	-	-	-	-	-	-	-	-	-	Methanol	RE47380
-	-	-	-	-	-	-	-	-	-	-	-	2 mM Ammonium Acetate in Water	SL45425
-	-	-	-	-	-	-	-	-	-	-	-		
**Initials/Date*	-	MDN 11-5-09	MDN 11-5-09	MDN 11-5-09	MDN 11-5-09	MDN 11-5-09	MDN 11-5-09	MDN 11-5-09	MDN 11-5-09	—	—	*Initials/Date*	MDN 11-5-09

STEP 1: Measure 1 mL of serum into a 50 mL disposable centrifuge tube and fortify if appropriate. Add 0.2 mL of internal standard (100 ng/mL).
STEP 2: Add water to the sample for a final volume of 20 mL. Cap tightly and vortex for ~1 minute.
STEP 3: Transfer 1.0 mL of the sample to a 15 mL centrifuge tube. Add 5 mL of ACN and shake for ~20 minutes on a wrist action shaker.
STEP 4: Centrifuge tubes at ~3000 for ~5 minutes. Carefully decant supernatant into a 50 mL disposable centrifuge tube and add 35 mL of water.
STEP 5: SPE Cleanup: Condition column with ~10 mL of methanol followed by ~5 mL of water at a rate of ~1 drop/second. Discard all washes. Do not allow column to go dry.
STEP 6: Load the sample onto the SPE Column. Discard the eluate. Elute with 2 mL of methanol into a 15 mL centrifuge tube. Transfer the extract into autosampler vials.
STEP 7: LC/MS/MS analysis.
STEP 8: LC/MS/MS reanalysis.

*Initials and date under each step indicates the personnel that performed this step.

COMMENTS:

Final extracts stored in refrigerator 3+ Initials: MDN Date: 11-5-09

MDN 11-5-09

oject: \\sc1wp5556\mdrive\PE SCIEX DATA\Projects\P5195 Batch:09_110509A Serum Tab:Sample Set:SET1 AcqMethod:P5195_102

Sa

	Sample Name	Sample ID	Vial Position	Data File
	SS33618	Calibration Standard, 0.1 ng/mL	1	09_110509A\110509A
_	SS33617	Calibration Standard, 0.2 ng/mL	2	09_110509A\110509A
3	SS33616	Calibration Standard, 0.5 ng/mL	3	09_110509A\110509A
	SS33615	Calibration Standard, 1.0 ng/mL	4	09_110509A\110509A
	SS33614	Calibration Standard, 2.0 ng/mL	5	09_110509A\110509A
6	SS33613	Calibration Standard, 5.0 ng/mL	6	09_110509A\110509A
	Methanol Wash	Methanol Wash	91	09_110509A\110509A
o	Methanol Wash	Methanol Wash	91	09_110509A\110509A
9	Control	MC4311 Deer Serum Control	41	09_110509A\110509A
0	LCS A	MC4311 Deer Serum Spike A, 10 ng/mL	42	09_110509A\110509A
11	LCS B	MC4311 Deer Serum Spike B, 50 ng/mL	43	09_110509A\110509A
12	L19345-2 Spk C	Deer # 7 3.5 yr male-serum Spike C, 1000 ng/mL, DF=50	44	09_110509A\110509A
3	L19345-2	Deer # 7 3.5 yr male-serum, DF=50	45	09_110509A\110509A
14	L19345-2 Dup	Deer # 7 3.5 yr male-serum Duplicate, DF=50	46	09_110509A\110509A
5	SS33615	CCV, 1.0 ng/mL	4	09_110509A\110509A

MDN 11-5-09

LC/MS/MS SYSTEM AND OPERATING CONDITIONS

Protocol No: NA

MPI Study No: L19345

Instrument: AB API 4000 Biomolecular Mass Analyzer, **(LC/MS/MS #9)**
SCIEX Turbo Ion Spray Liquid Introduction Interface
Turbo Ion spray temperature = 450 °C

Computer: Dell OptiPlex GX 110

Software: PE Sciex Analyst 1.4

HPLC Equipment: Hewlett Packard (HP) Series 1100
HP Quat Pump — HP Vacuum Degasser
HP Autosampler — HP Column Oven

HPLC Column: Phenomenex Luna C8 (2) Mercury, 2cm x 4mm, 3 µm (ExyLIMS ID: MA0052622)

Column Temperature: 35°C

Mobile Phase (A): 2 mM Ammonium Acetate in Water (ExyLIMS ID: SL0045925)

Mobile Phase (B): Methanol (ExyLIMS ID: RE0047880)

Injected Volume: 15 µL

Time (min)	% A	% B	Flow Rate (µL/min)
0.0	90	10	750
0.5	90	10	750
2.0	10	90	750
5.0	10	90	750
5.1	0	100	750
6.0	0	100	750
6.1	90	10	750
10.0	90	10	750

Ions monitored:

Analyte	Parent ion	Daughter ion(s)	Dwell (secs)
PFOA	413	369	0.200
PFOS	499	80	0.200
^{13}C PFOA (m+2) Internal Standard	415	370	0.200
^{13}C PFOS (m+4) Internal Standard	503	80	0.200

Analyst: Mark Neeley MDN 11-5-09
MPI Research, Inc.
3058 Research Drive, State College, PA 16801
Phone: (814) 272-1039 FAX: (814) 231-1580

All Handwritten Peak ID's by: MDN 11-6-09

MDJ 11-5-09

CXF -6.00 -6.00

arameter Table(Period 1 Experiment 1):
AD: 7.00
CUR: 20.00
GS1: 50.00
S2: 40.00
3: -4500.00
TEM: 450.00
he: ON
E -10.00

Agilent LC Pump Method Properties
Pump Model: Agilent 1100 LC Quaternary Pump
inimum Pressure (psi): 0.0
aximum Pressure (psi): 5801.0
Compressibility: 100.0
ead Volume (µl): 40.0
troke Volume (µl): -1.0
aximum Flow Ramp (ml/min²): 100.0
Maximum Pressure Ramp (psi/sec): 290.0

tep Table:

Step	Total Time(min)	Flow Rate(µl/min)	A (%)	B (%)	C (%)	D (%)	TE#1	TE#2	TE#3	TE#4
0	0.00	750	0.0	0.0	90.0	10.0	open	open	open	open
	0.50	750	0.0	0.0	90.0	10.0	open	open	open	open
	2.00	750	0.0	0.0	10.0	90.0	open	open	open	open
3	5.00	750	0.0	0.0	10.0	90.0	open	open	open	open
4	5.10	750	0.0	0.0	0.0	100.0	open	open	open	open
	[illegible].00	750	0.0	0.0	0.0	100.0	open	open	open	open
	[illegible].10	750	0.0	0.0	90.0	10.0	open	open	open	open
7	10.00	750	0.0	0.0	90.0	10.0	open	open	open	open

rimary Flow Rate (ul/min): 200.0
Flow Sensor Calibration Table Index: 0

gilent Column Oven Properties
eft Temperature (°C): 35.00
Right Temperature (°C): 35.00
emperature Tolerance +/- (°C): 1.00
tart Acquisition Tolerance +/- (°C): 0.50
ime Table (Not Used)
Column Switching Valve Installed
osition for first sample in the batch: Left
se same position for all samples in the batch

Agilent Autosampler Properties
utosampler Model: Agilent 1100 Wellplate Autosampler
yringe Size (µl): 100
Injection Volume (µl): 15.00
Draw Speed (µl/min): 200.0
ject Speed (µl/min): 200.0
eedle Level (mm): 0.00
Temperature Control Enabled
etpoint (4 - 40 C): 4
ush Location: Flush Port
ush Time (1 - 999 sec): 10

[illegible]c Delay Volume Reduction Not Used

MDH 11-5-09

Equilibration Time (sec):	2
Enable Vial/Well Bottom Sensing	No
se Custom Injector Program	No

MN 11-5-09

Acquisition Information:

cquisition Method:	P5195_102909.dam
reated:	Thursday October 29 2009 09: 35: 12 AM
Last Modified:	Friday October 30 2009 10: 56: 20 AM
omment:	PFOA PFOS
ynchronization Mode:	LC Sync
uto-Equilibration:	Off
Acquisition Duration:	10min0sec
umber Of Scans:	732
eriods In File:	1
cquisition Module:	Acquisition Method
Software version	Analyst 1.4.2

Period 1:

cans in Period:	732
elative Start Time:	0.00 msec
Experiments in Period:	1

eriod 1 Experiment 1:

Scan Type:	MRM (MRM)
olarity:	Negative
can Mode:	N/A
on Source:	Turbo Spray
Resolution Q1:	Unit
esolution Q3:	Unit
ntensity Thres.:	0.00 cps
ettling Time:	0.0000 msec
MR Pause:	5.0070 msec
A:	No
tep Size:	0.00 amu

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
13.00	369.00	200.00	DP	-32.00	-32.00
			CE	-18.00	-18.00
			CXP	-13.20	-13.20

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
415.00	370.00	200.00	DP	-32.00	-32.00
			CE	-18.00	-18.00
			CXP	-13.20	-13.20

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
499.00	80.00	200.00	DP	-83.00	-83.00
			CE	-88.00	-88.00
			CXP	-6.00	-6.00

Q1 Mass (amu)	Q3 Mass (amu)	Dwell (msec)	Param	Start	Stop
503.00	80.00	200.00	DP	-83.00	-83.00
			CE	-88.00	-88.00

MDL 11-5-09

CXP -6.00 -6.00

arameter Table(Period 1 Experiment 1):
AD: 7.00
CUR: 20.00
GS1: 50.00
S2: 40.00
3: -4500.00
TEM: 450.00
ihe: ON
E -10.00

Agilent LC Pump Method Properties
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inimum Pressure (psi): 0.0
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Compressibility: 100.0
ead Volume (µl): 40.0
troke Volume (µl): -1.0
aximum Flow Ramp (ml/min²): 100.0
Maximum Pressure Ramp (psi/sec): 290.0

tep Table:

Step	Total Time(min)	Flow Rate(µl/min)	A (%)	B (%)	C (%)	D (%)	TE#1	TE#2	TE#3	TE#4
0	0.00	750	0.0	0.0	90.0	10.0	open	open	open	open
	0.50	750	0.0	0.0	90.0	10.0	open	open	open	open
	2.00	750	0.0	0.0	10.0	90.0	open	open	open	open
3	5.00	750	0.0	0.0	10.0	90.0	open	open	open	open
4	5.10	750	0.0	0.0	0.0	100.0	open	open	open	open
	6.00	750	0.0	0.0	0.0	100.0	open	open	open	open
	6.10	750	0.0	0.0	90.0	10.0	open	open	open	open
7	10.00	750	0.0	0.0	90.0	10.0	open	open	open	open

rimary Flow Rate (ul/min): 200.0
Flow Sensor Calibration Table Index: 0

gilent Column Oven Properties
eft Temperature (°C): 35.00
Right Temperature (°C): 35.00
emperature Tolerance +/- (°C): 1.00
tart Acquisition Tolerance +/- (°C): 0.50
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Column Switching Valve Installed
osition for first sample in the batch: Left
se same position for all samples in the batch

Agilent Autosampler Properties
utosampler Model: Agilent 1100 Wellplate Autosampler
yringe Size (µl): 100
Injection Volume (µl): 15.00
Draw Speed (µl/min): 200.0
ject Speed (µl/min): 200.0
eedle Level (mm): 0.00
Temperature Control Enabled
etpoint (4 - 40 C): 4
ash Location: Flush Port
ush Time (1 - 999 sec): 10

utomatic Delay Volume Reduction Not Used

MON 11-5-09

Eqv ration Time (sec):	2
En Vial/Well Bottom Sensing	No
se Custom Injector Program	No

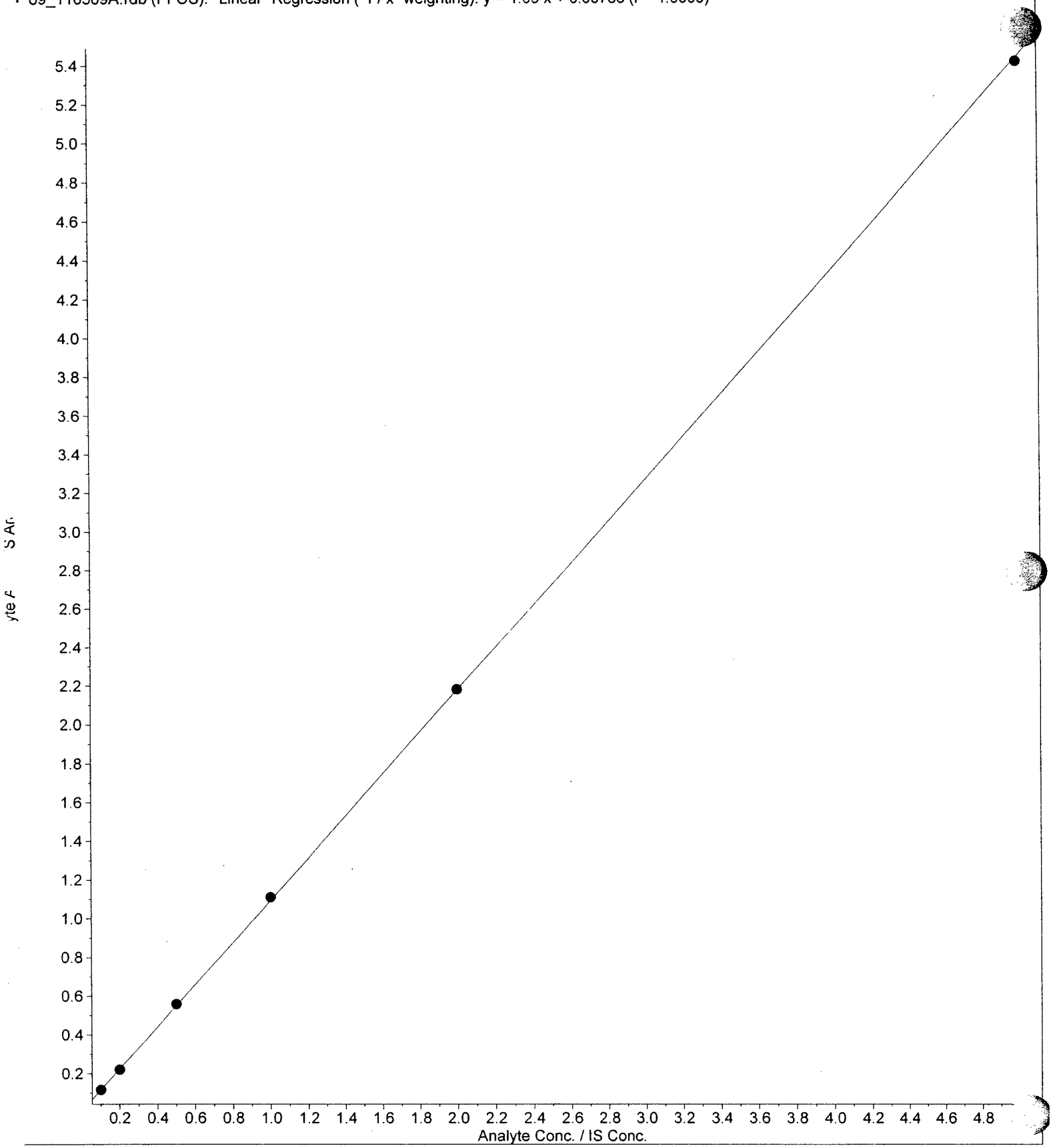
lyst Version: 1.4.2
rinting Time: 8:51:45 AM
rinting Date: Friday, November 06, 2009

MPI Study: L19345
MPI Set No.: 110509A

Operator: Mark Neeley
Instrument No.: LC/MS/MS #9

MDP 11-6-09

09_110509A.rdb (PFOS): "Linear" Regression ("1 / x" weighting): y = 1.09 x + 0.00786 (r = 1.0000)



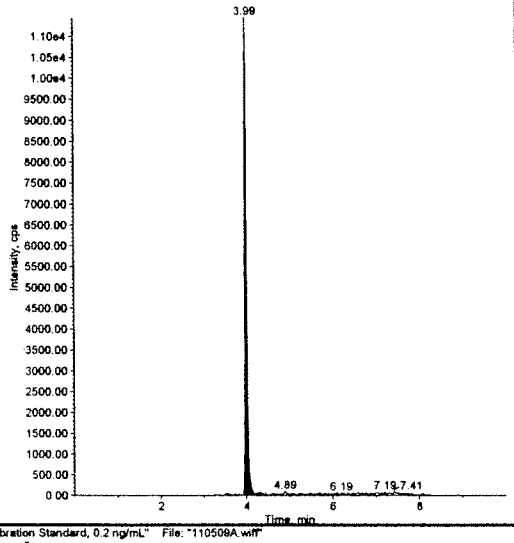
Research, Inc.

Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.1 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 1
Sample Type: Standard
Concentration: 0.100 ng/mL
Calculated Conc: 0.0996 ng/mL
Acq. Date: 11/5/2009
Acq. Time: 5:36:33 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 37967 counts
Height: 11514 cps
Start Time: 3.90 min
End Time: 4.21 min

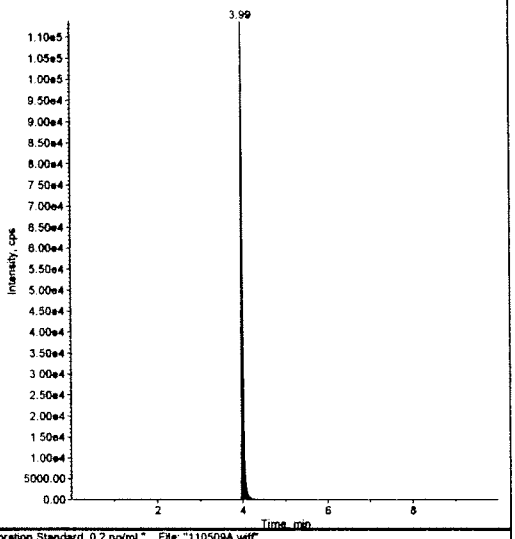


Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.1 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 1
Sample Type: Standard
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 5:36:33 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 327142 counts
Height: 114750 cps
Start Time: 3.94 min
End Time: 4.18 min

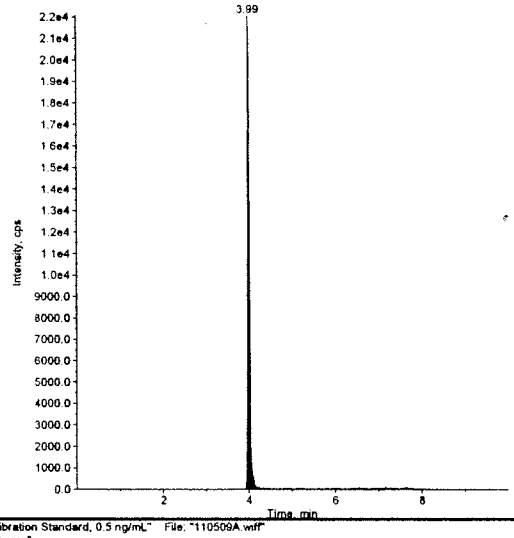


Sample Name: "SS33617" Sample ID: "Calibration Standard, 0.2 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

ple Index: 2
ple Type: Standard
centration: 0.200 ng/mL
culated Conc: 0.196 ng/mL
Date: 11/5/2009
Acq. Time: 5:48:37 PM

Modified: No
c. Algorithm: Analyst Classic
ching Factor: 1
se Threshold: 15.73 cps
a Threshold: 78.65 cps
Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Val. Ratio: 3.00
Window: 30.0 sec
4.06 min
RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 73226 counts
ght: 22370 cps
rt Time: 3.88 min
Time: 4.28 min

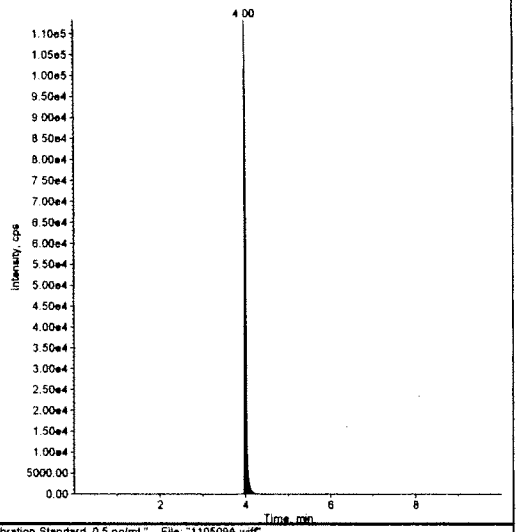


Sample Name: "SS33617" Sample ID: "Calibration Standard, 0.2 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 2
Sample Type: Standard
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 5:48:37 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 4.00 min
Area: 332455 counts
Height: 115792 cps
Start Time: 3.92 min
End Time: 4.21 min

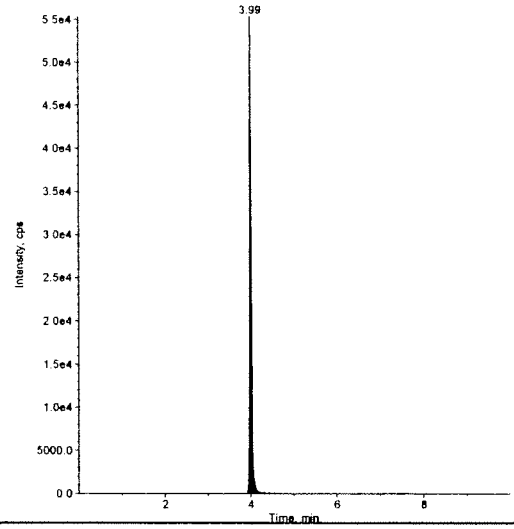


Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.5 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

ple Index: 3
ple Type: Standard
Concentration: 0.500 ng/mL
Calculated Conc: 0.507 ng/mL
Acq. Date: 11/5/2009
Acq. Time: 5:59:34 PM

ified: No
c. Algorithm: Analyst Classic
ching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Height: 0.01
Peak Ratio: 5.00
Adj. Ratio: 4.00
Val. Ratio: 3.00
Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Type: Base To Base
ention Time: 3.99 min
a: 178604 counts
ght: 55621 cps
rt Time: 3.90 min
End Time: 4.24 min

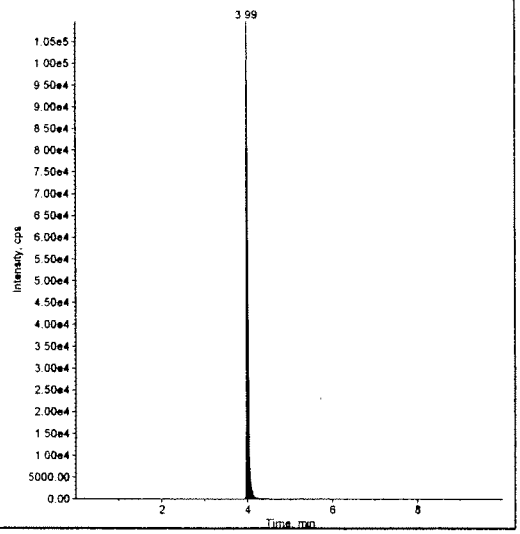


Sample Name: "SS33616" Sample ID: "Calibration Standard, 0.5 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 3
Sample Type: Standard
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 5:59:34 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 319945 counts
Height: 110674 cps
Start Time: 3.94 min
End Time: 4.20 min



Research, Inc.

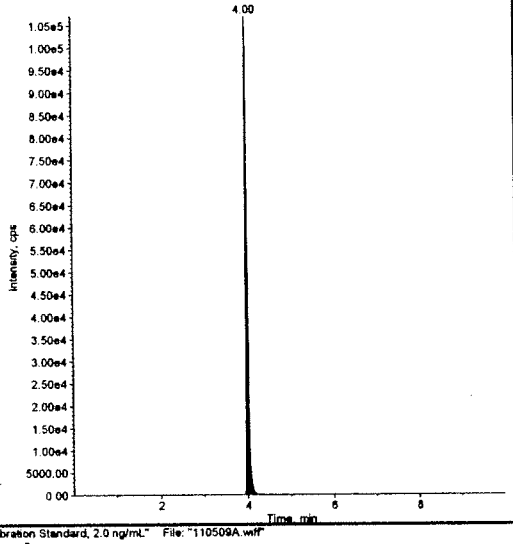
Initials MDN

Date 11-6-09

Sample Index 1 To 15

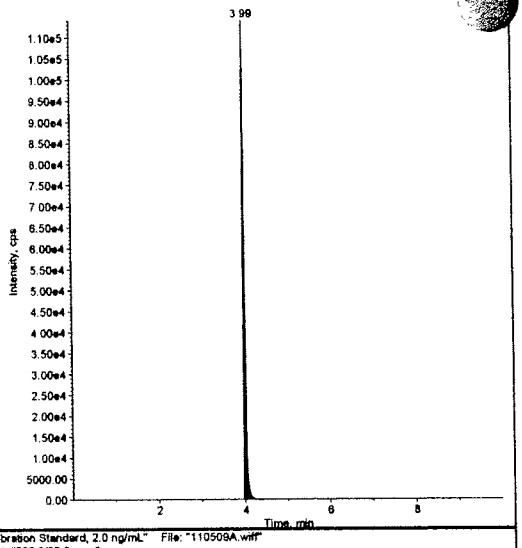
Sample Name: "SS33615" Sample ID: "Calibration Standard, 1.0 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        4
Sample Type:     Standard
Concentration:      1.00     ng/mL
Calculated Conc:    1.01     ng/mL
Date:          11/5/2009
Time:          6:10:31 PM

Modified:            No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   15.73    cps
Area Threshold:    78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0     sec
Expected RT:         4.06    min
Use Relative RT:     No

Int. Type:       Base To Base
Retention Time:      4.00    min
Area:          364800    counts
Height:        108831    cps
Start Time:          3.87    min
End Time:            4.22    min
```



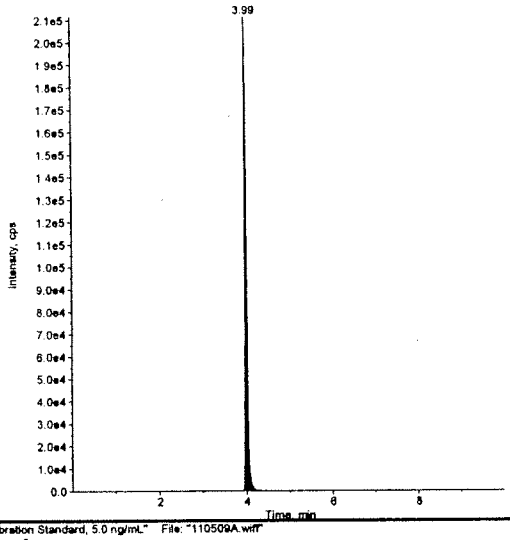
Sample Name: "SS33615" Sample ID: "Calibration Standard, 1.0 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        4
Sample Type:     Standard
Concentration:      1.00     ng/mL
Calculated Conc:    N/A
Acq. Date:     11/5/2009
Acq. Time:     6:10:31 PM

Modified:            No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0     sec
Expected RT:         4.06    min
Use Relative RT:     No

Int. Type:       Base To Base
Retention Time:      3.99    min
Area:          328714    counts
Height:        116088    cps
Start Time:          3.94    min
End Time:            4.18    min
```



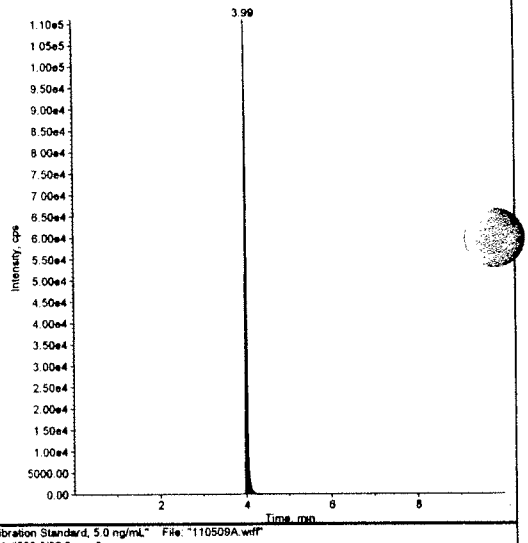
Sample Name: "SS33614" Sample ID: "Calibration Standard, 2.0 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
ple Index:           5
ple Type:        Standard
centration:         2.00     ng/mL
culated Conc:       2.00     ng/mL
Date:          11/5/2009
Acq. Time:     6:21:29 PM

Modified:            No
Proc. Algorithm: Analyst Classic
ching Factor:        1
se Threshold:      15.73    cps
a Threshold:       78.65    cps
Smooths:             1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Val. Ratio:          3.00
Window:             30.0     sec
ected RT:            4.06    min
Relative RT:         No

Int. Type:       Base To Base
Retention Time:      3.99    min
Area:          701769    counts
ght:           211830    cps
rt Time:             3.87    min
Time:                4.39    min
```



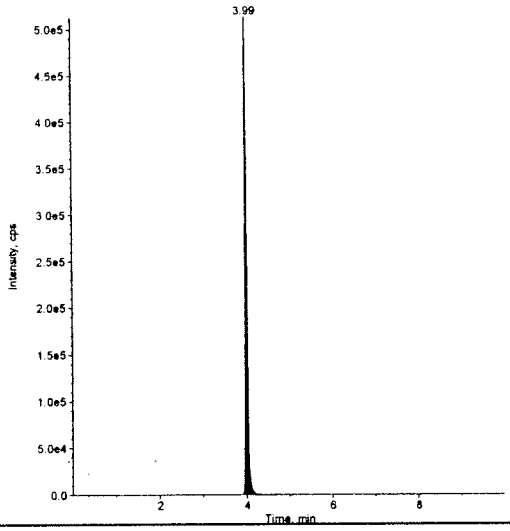
Sample Name: "SS33614" Sample ID: "Calibration Standard, 2.0 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        5
Sample Type:     Standard
Concentration:      1.00     ng/mL
Calculated Conc:    N/A
Acq. Date:     11/5/2009
Acq. Time:     6:21:29 PM

Modified:            No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0     sec
Expected RT:         4.06    min
Use Relative RT:     No

Int. Type:       Base To Base
Retention Time:      3.99    min
Area:          321742    counts
Height:        111168    cps
Start Time:          3.94    min
End Time:            4.18    min
```



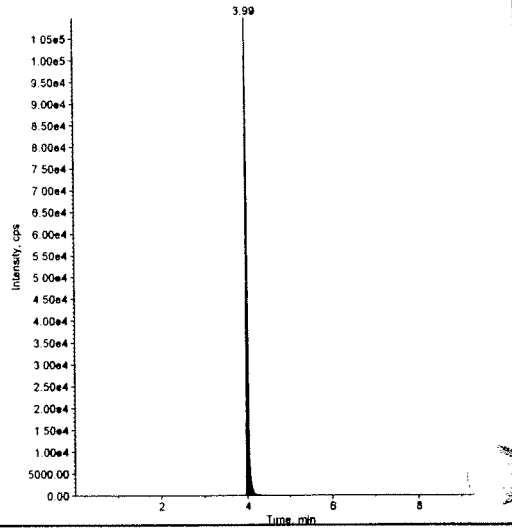
Sample Name: "SS33613" Sample ID: "Calibration Standard, 5.0 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
ple Index:           6
ple Type:        Standard
Concentration:      5.00     ng/mL
Calculated Conc:    4.98     ng/mL
Acq. Date:     11/5/2009
Acq. Time:     6:32:27 PM

ified:               No
c. Algorithm: Analyst Classic
ching Factor:        1
Noise Threshold:   15.73    cps
Area Threshold:    78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Height:              0.01
Peak Ratio:          5.00
Adj. Ratio:          4.00
Val. Ratio:          3.00
Window:             30.0     sec
Expected RT:         4.06    min
Use Relative RT:     No

Type:            Base To Base
ention Time:         3.99    min
a:             1710276    counts
ght:           513413    cps
rt Time:             3.84    min
End Time:            4.43    min
```



Sample Name: "SS33613" Sample ID: "Calibration Standard, 5.0 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

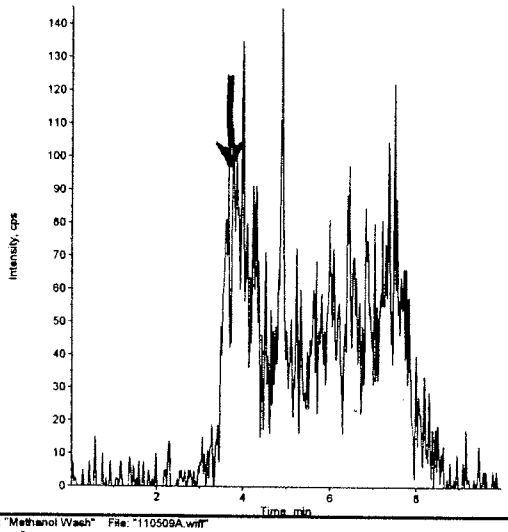
```
Sample Index:        6
Sample Type:     Standard
Concentration:      1.00     ng/mL
Calculated Conc:    N/A
Acq. Date:     11/5/2009
Acq. Time:     6:32:27 PM

Modified:            No
Proc. Algorithm: Analyst Classic
Bunching Factor:     1
Noise Threshold:   140.21    cps
Area Threshold:    701.07    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:          30.0     sec
Expected RT:         4.06    min
Use Relative RT:     No

Int. Type:       Base To Base
Retention Time:      3.99    min
Area:          315704    counts
Height:        110140    cps
Start Time:          3.91    min
End Time:            4.21    min
```



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 7
Sample Type: Solvent
Concentration: 0.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 6:43:25 PM

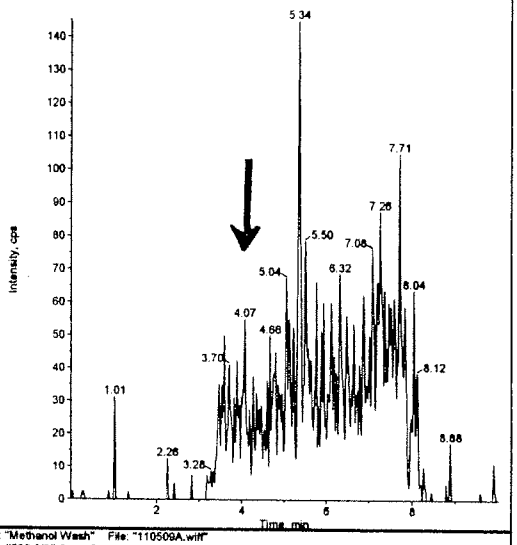
Modified: Yes



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 7
Sample Type: Solvent
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 6:43:25 PM

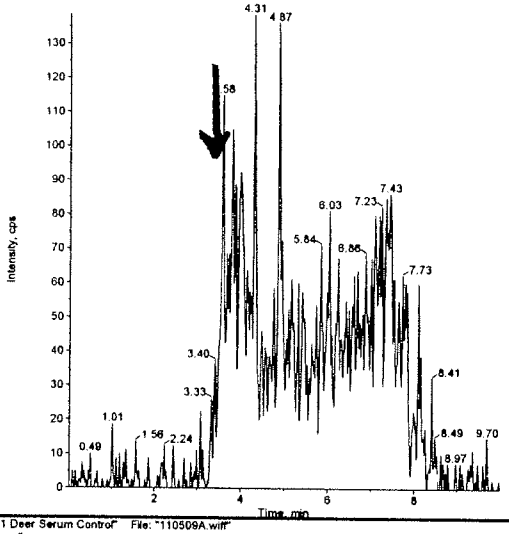
Modified: Yes



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 8
Sample Type: Solvent
Concentration: 0.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 6:54:22 PM

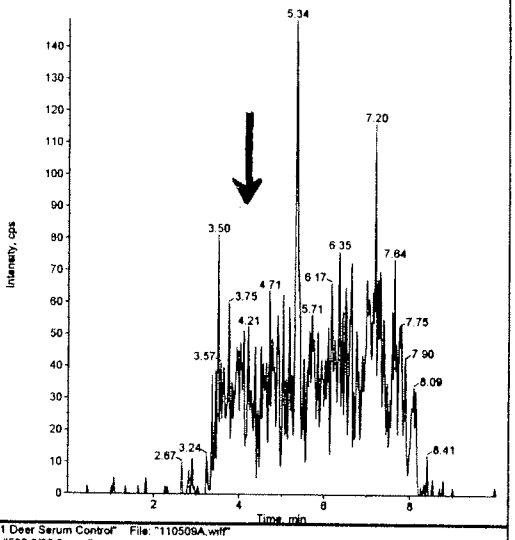
Modified: Yes



Sample Name: "Methanol Wash" Sample ID: "Methanol Wash" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 8
Sample Type: Solvent
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 6:54:22 PM

Modified: Yes

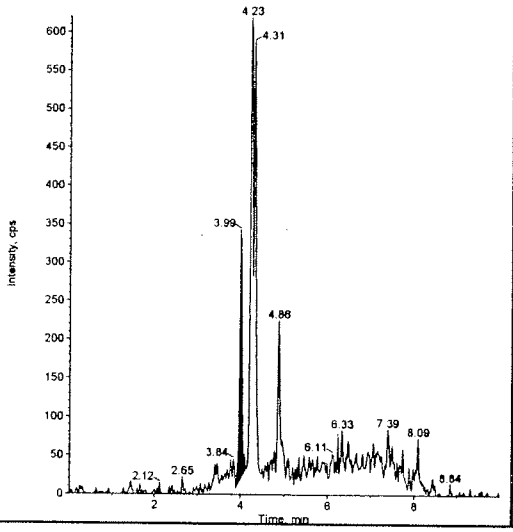


Sample Name: "Control" Sample ID: "MC4311 Deer Serum Control" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 9
Sample Type: Unknown
Concentration: N/A
Calculated Conc: 0.0771 ng/mL
Acq. Date: 11/5/2009
Acq. Time: 7:05:18 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 1278 counts
Height: 324 cps
Start Time: 3.90 min
End Time: 4.11 min

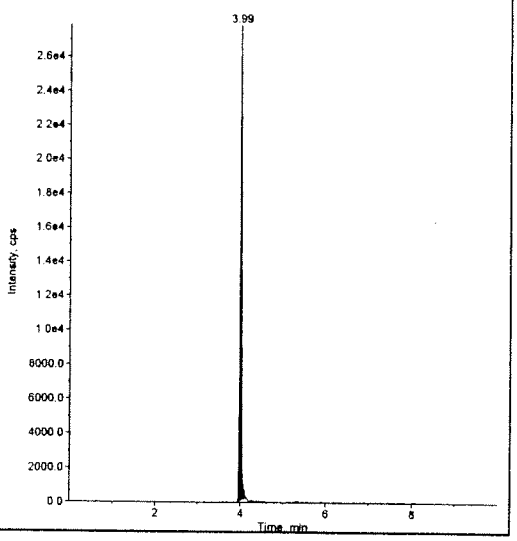


Sample Name: "Control" Sample ID: "MC4311 Deer Serum Control" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 9
Sample Type: Unknown
Concentration: 0.250 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 7:05:18 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 78792 counts
Height: 27766 cps
Start Time: 3.94 min
End Time: 4.14 min



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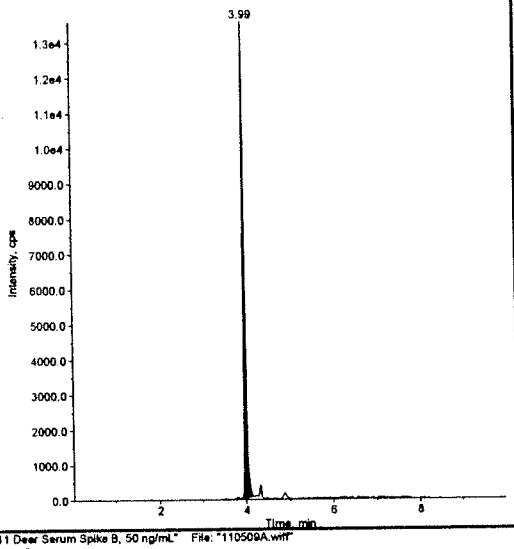
Sample Name: "LCS A" Sample ID: "MC4311 Deer Serum Spike A, 10 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        10
Sample Type:         QC
Concentration:       10.0     ng/mL
Calculated Conc:     10.4     ng/mL
Acq. Date:        11/5/2009
Acq. Time:        7:16:16 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:     15.73    cps
Area Threshold:      78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:           30.0     sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.99     min
Area:            45665     counts
Height:          13600     cps
Start Time:          3.84     min
End Time:            4.18     min
```

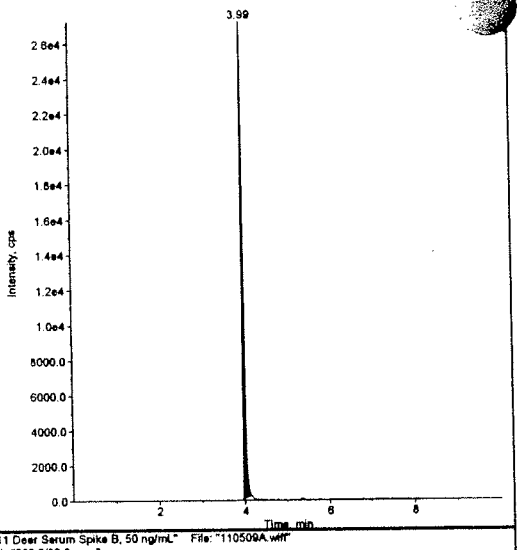


Sample Name: "LCS A" Sample ID: "MC4311 Deer Serum Spike A, 10 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        10
Sample Type:         QC
Concentration:       0.500    ng/mL
Calculated Conc:     N/A
Acq. Date:        11/5/2009
Acq. Time:        7:16:16 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:     140.21   cps
Area Threshold:      701.07   cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:           30.0     sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.99     min
Area:            78483     counts
Height:          27696     cps
Start Time:          3.94     min
End Time:            4.14     min
```

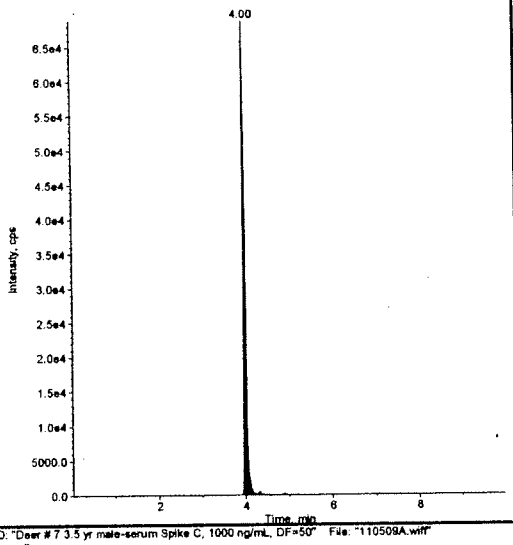


Sample Name: "LCS B" Sample ID: "MC4311 Deer Serum Spike B, 50 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        11
Sample Type:         QC
Concentration:       50.0     ng/mL
Calculated Conc:     49.4     ng/mL
Acq. Date:        11/5/2009
Acq. Time:        7:27:14 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:     15.73    cps
Area Threshold:      78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:           30.0     sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Valley
Retention Time:      4.00     min
Area:           242262     counts
Height:          70406     cps
Start Time:          3.87     min
End Time:            4.26     min
```

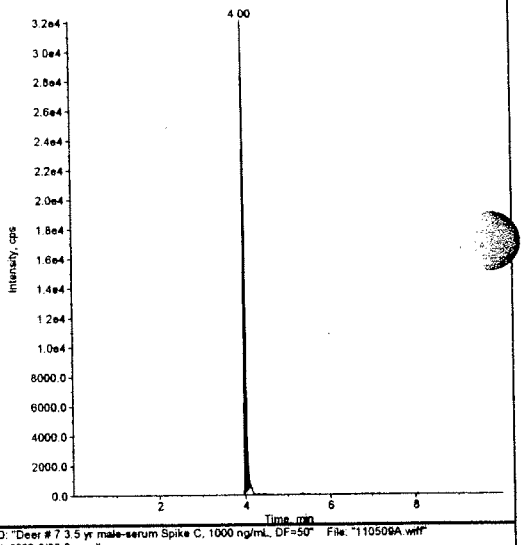


Sample Name: "LCS B" Sample ID: "MC4311 Deer Serum Spike B, 50 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        11
Sample Type:         QC
Concentration:       0.500    ng/mL
Calculated Conc:     N/A
Acq. Date:        11/5/2009
Acq. Time:        7:27:14 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:     140.21   cps
Area Threshold:      701.07   cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:           30.0     sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      4.00     min
Area:            90148     counts
Height:          32251     cps
Start Time:          3.95     min
End Time:            4.13     min
```

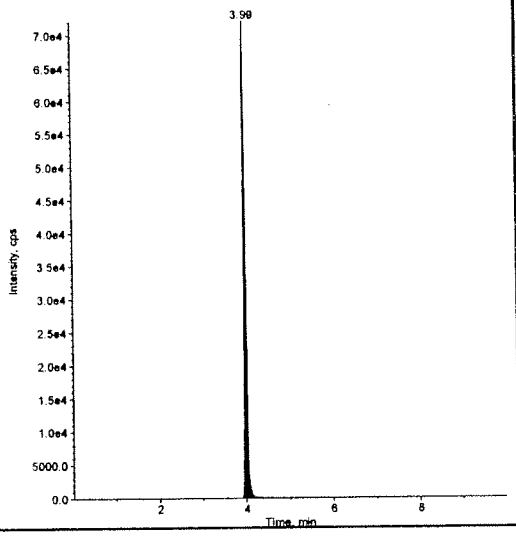


Sample Name: "L19345-2 Spk C" Sample ID: "Deer # 7 3.5 yr male-serum Spike C, 1000 ng/mL, DF=50" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        12
Sample Type:         QC
Concentration:       1000.    ng/mL
Calculated Conc:     1350.    ng/mL
Acq. Date:        11/5/2009
Acq. Time:        7:38:12 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:     15.73    cps
Area Threshold:      78.65    cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:           30.0     sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.99     min
Area:           240880     counts
Height:          72318     cps
Start Time:          3.88     min
End Time:            4.21     min
```

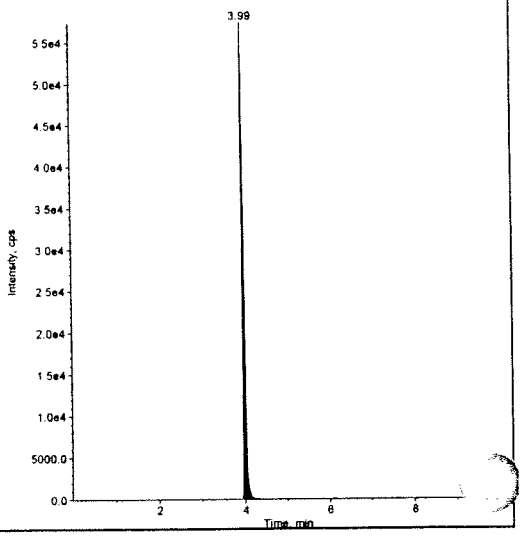


Sample Name: "L19345-2 Spk C" Sample ID: "Deer # 7 3.5 yr male-serum Spike C, 1000 ng/mL, DF=50" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

```
Sample Index:        12
Sample Type:         QC
Concentration:       0.500    ng/mL
Calculated Conc:     N/A
Acq. Date:        11/5/2009
Acq. Time:        7:38:12 PM

Modified:            No
Proc. Algorithm:  Analyst Classic
Bunching Factor:     1
Noise Threshold:     140.21   cps
Area Threshold:      701.07   cps
Num. Smooths:        1
Sep. Width:          0.20
Sep. Height:         0.01
Exp. Peak Ratio:     5.00
Exp. Adj. Ratio:     4.00
Exp. Val. Ratio:     3.00
RT Window:           30.0     sec
Expected RT:         4.06     min
Use Relative RT:     No

Int. Type:        Base To Base
Retention Time:      3.99     min
Area:           162940     counts
Height:          57377     cps
Start Time:          3.92     min
End Time:            4.16     min
```

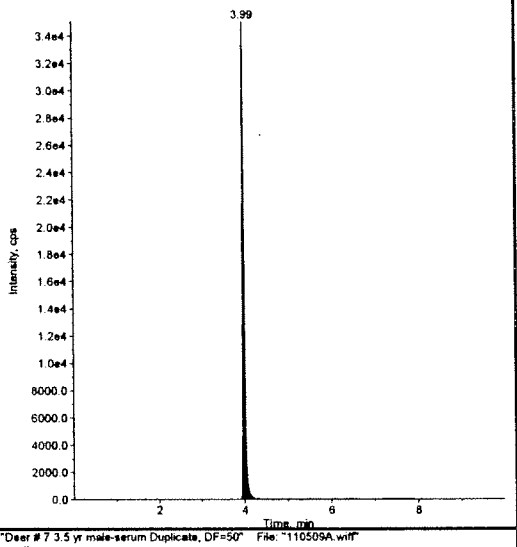


Sample Name: "L19345-2" Sample ID: "Deer # 7 3.5 yr male-serum, DF=50" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 13
Sample Type: Unknown
Concentration: N/A
Calculated Conc: 672. ng/mL
Acq. Date: 11/5/2009
Acq. Time: 7:49:11 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 117915 counts
Height: 35078 cps
Start Time: 3.87 min
End Time: 4.28 min

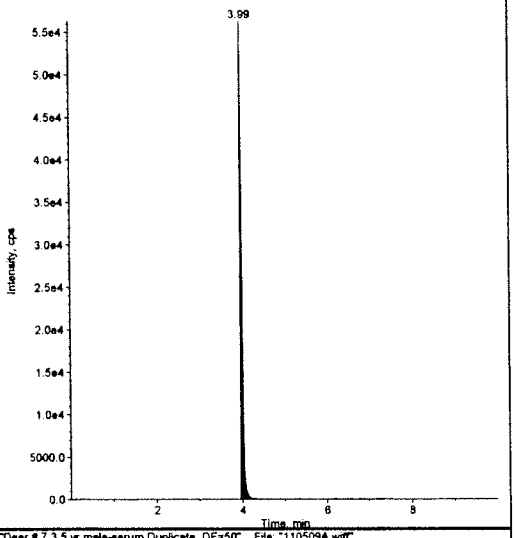


Sample Name: "L19345-2" Sample ID: "Deer # 7 3.5 yr male-serum, DF=50" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 13
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 7:49:11 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 159785 counts
Height: 56315 cps
Start Time: 3.94 min
End Time: 4.17 min

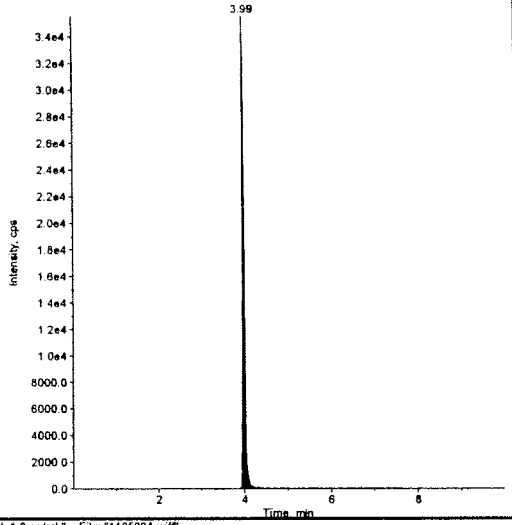


Sample Name: "L19345-2 Dup" Sample ID: "Deer # 7 3.5 yr male-serum Duplicate, DF=50" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 14
Sample Type: Unknown
Concentration: N/A
Calculated Conc: 673. ng/mL
Acq. Date: 11/5/2009
Acq. Time: 8:00:10 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 120178 counts
Height: 35601 cps
Start Time: 3.87 min
End Time: 4.18 min

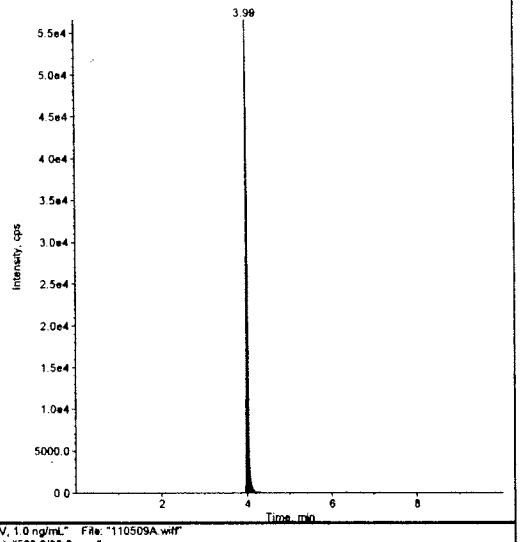


Sample Name: "L19345-2 Dup" Sample ID: "Deer # 7 3.5 yr male-serum Duplicate, DF=50" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 14
Sample Type: Unknown
Concentration: 0.500 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 8:00:10 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 162619 counts
Height: 56620 cps
Start Time: 3.94 min
End Time: 4.18 min

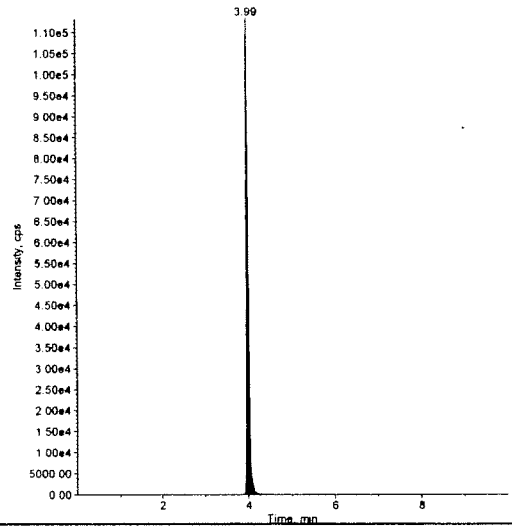


Sample Name: "SS33615" Sample ID: "CCV, 1.0 ng/mL" File: "110509A.wiff"
Peak Name: "PFOS" Mass(es): "499.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 15
Sample Type: QC
Concentration: 1.00 ng/mL
Calculated Conc: 1.02 ng/mL
Acq. Date: 11/5/2009
Acq. Time: 8:11:09 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 15.73 cps
Area Threshold: 78.65 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 374895 counts
Height: 114055 cps
Start Time: 3.85 min
End Time: 4.33 min

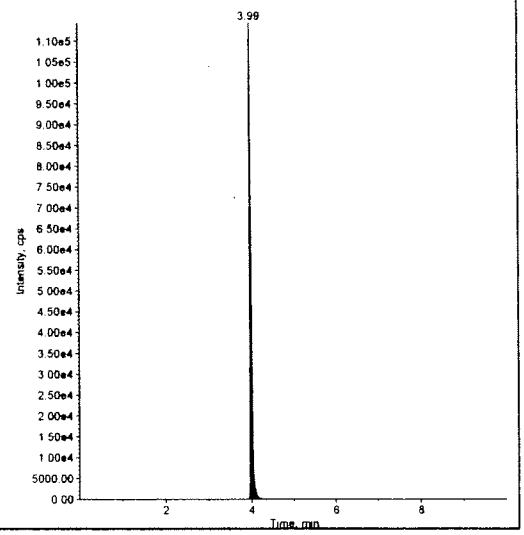


Sample Name: "SS33615" Sample ID: "CCV, 1.0 ng/mL" File: "110509A.wiff"
Peak Name: "13CPFOS(M+4)(IS)" Mass(es): "503.0/80.0 amu"
Comment: "" Annotation: ""

Sample Index: 15
Sample Type: QC
Concentration: 1.00 ng/mL
Calculated Conc: N/A
Acq. Date: 11/5/2009
Acq. Time: 8:11:09 PM

Modified: No
Proc. Algorithm: Analyst Classic
Bunching Factor: 1
Noise Threshold: 140.21 cps
Area Threshold: 701.07 cps
Num. Smooths: 1
Sep. Width: 0.20
Sep. Height: 0.01
Exp. Peak Ratio: 5.00
Exp. Adj. Ratio: 4.00
Exp. Val. Ratio: 3.00
RT Window: 30.0 sec
Expected RT: 4.06 min
Use Relative RT: No

Int. Type: Base To Base
Retention Time: 3.99 min
Area: 336883 counts
Height: 115496 cps
Start Time: 3.92 min
End Time: 4.18 min



BIORECLAMATION INC.
123 FROST STREET
WESTBURY, NEW YORK 11590
516-483-1196 FAX 516-483-4683
E-MAIL:techs@Bioreclamation.com

CERTIFICATE OF ANALYSIS

PRODUCT: DEER PROJECT
CATALOG # DER-PROJECT
LOT# DERBREC.101 – DERBREC.103
STORAGE TEMPERATURE: -20^0 C OR COLDER

DATE: 10/21/09

PURCHASE ORDER: SC11-04103

PROJECT NUMBER: 1061420

PRESENTATION:

1. 100 ML SERUM mc 4311/mc 4312
   LOT: DERBREC.101
2. 1 DEER LIVER mc 4313
   LOT: DERBREC.102
3. 500 G DEER MUSCLE mc 4314
   LOT: DERBREC.103

FILTRATION: NONE

EXPIRATION: 10/2011

BIOHAZARD INFO: THIS MATERIAL SHOULD BE HANDLED AS IF CAPABLE OF TRANSMITTING INFECTIOUS AGENTS. PLEASE USE UNIVERSAL PRECAUTIONS.

THIS PRODUCT IS BEING SOLD FOR RESEARCH AND, OR MANUFACTURING PURPOSES ONLY. IT IS NOT TO BE USED IN HUMANS OR ANIMALS. FOR IN VITRO USE ONLY. THE USER ASSUMES ALL RESPONSIBILITY FOR ITS USAGE AND DISPOSAL, IN ACCORDANCE WITH ALL REGULATIONS.

PLEASE FOLD THIS SHIPPING DOCUMENT IN HALF AND PLACE IT IN A WAYBILL POUCH AFFIXED TO YOUR SHIPMENT SO THAT THE BARCODE PORTION OF THE LABEL CAN BE READ AND SCANNED. WARNING: USE ONLY THE PRINTED ORIGINAL LABEL FOR SHIPPING. USING A PHOTOCOPY OF THIS LABEL FOR SHIPPING PURPOSES IS FRAUDULENT AND COULD RESULT IN ADDITIONAL BILLING CHARGES, ALONG WITH THE CANCELLATION OF YOUR FEDEX ACCOUNT NUMBER.

From: Origin ID: RMEA (516) 483-1196
GLENN FRUCHTNIS
BIORECLAMATION INC.
123 FROST ST

WESTBURY, NY 11590

FedEx. Express

E

CLS050107/21/23

Ship Date: 20OCT09 Dry Ice: 0.5 KGS
ActWgt: 5.0 LB MAN
System#: 397072/CAFE2361
Account#: S 011515100

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (814) 231-8032 BILL SENDER

PAUL CONNOLLY
MPI RESEARCH (EXYGEN)
3048 RESEARCH DRIVE

STATE COLLEGE, PA 16801

STANDARD OVERNIGHT **WED**

Deliver By: 21OCT09

TRK# 9887 6350 1371 FORM 0201

PIT AA

16801 -PA-US
DSR-ICE

NA SCEA