

STL

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ANALYTICAL REPORT

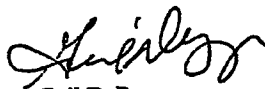
PFOA/PFOS Analysis

Lot #: D7G190493

Laura Vancho/Jane Hanuszczyk

NJ American Water
213 Carriage Lane
Delran, NJ 08075

TestAmerica Denver



Gail DeRuzzo
Project Manager

July 31, 2007

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Standard Deliverables

Report Contents

Total Number of Pages

Standard Deliverables

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Case Narrative

D7G190493

The results included in this report have been reviewed for compliance with the Laboratory Quality Manual. All results have been found to meet all requirements of NELAC and any exceptions are noted below.

This report shall not be reproduced except in full, without the written approval of the laboratory or sponsor. Dilution factors and footnotes have been provided on each datasheet to assist in the interpretation of the results.

Sample Arrival and Receipt

The three water samples presented in this report was received at the TestAmerica Denver laboratory at a temperature of 3.1°C on July 19, 2007.

Standards

Analytical standards were prepared using the acid form of the compound perfluorooctanoic acid (PFOA). PFOS is a commercial prepared and certified solution.

Perfluoro-n-[1,2,3,4-¹³C₄]octanoic acid was introduced at the extraction step and was used as an internal standard for quantitation of PFOA. Perfluoro-1-[1,2,3,4-¹³C₄]octanatesulfonate was introduced at the extraction step and was used as an internal standard for quantitation of PFOS.

Sample Extraction and Analysis

The samples presented in this report were analyzed for the target analytes by TestAmerica Denver's SOP DEN-LC-0012.

For water samples a 250 mL aliquot of each sample is acidified with 1 mL of 6N HCl solution and it is extracted using solid phase extraction technique with methanol conditioned C18 cartridges. Each sample is spiked with the internal standard, prior to extraction. After the sample is passed through the cartridge, the analytes are eluted with 4 mL of methanol. The final volume is brought to 5 mL using methanol and the extract is analyzed by LC/MS/MS.

Method QC Samples

The Method Blank is processed reagent water spiked with surrogate and prepared with each batch of 20 samples of the same matrix. The method blank was non-detect at the reporting limit for the target analytes.

Each batch is prepared with Laboratory Control Samples (LCS). The LCS recoveries for both levels were within established control limits.

Analytical Comments

The method required MS/MSD could not be performed for QC batch 7201367 due to insufficient sample volume. All other QC was in control.

No other anomalies were noted.

EXECUTIVE SUMMARY - Detection Highlights

D7G190493

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
BIRCH CREEK POE 07/17/07 10:10 002				
PFOS	0.0079 J	0.010	ug/L	DEN -LC-0012
PFOA	0.069	0.015	ug/L	DEN -LC-0012
DRRWTP POE 07/17/07 12:40 003				
PFOS	0.0085 J	0.010	ug/L	DEN -LC-0012
PFOA	0.011 J	0.015	ug/L	DEN -LC-0012

NJAW0006

METHODS SUMMARY

D7G190493

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
LC/MS/MS, PFOA	DEN -LC-0012	

References:

DEN Severn Trent Laboratores, Denver, Facility Standard
Operating Procedure.

NJAW0006

METHOD / ANALYST SUMMARY

D7G190493

<u>ANALYTICAL METHOD</u>	<u>ANALYST</u>	<u>ANALYST ID</u>
DEN -LC-0012	Jaqueline Bonnett	003601

References:

DEN Severn Trent Laboratores, Denver, Facility Standard
Operating Procedure.

NJAW000

SAMPLE SUMMARY

D7G190493

WO #	SAMPLE#	CLIENT	SAMPLE ID	SAMPLED DATE	SAMP TIME
J2751	001	BECKETT	POE	07/17/07	09:00
J2753	002	BIRCH CREEK	POE	07/17/07	10:10
J2754	003	DRRWTP	POE	07/17/07	12:40

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

American Water Company

Client Sample ID: BECKETT POB

HPLC

Lot-Sample #....: D7G190493-001 Work Order #....: J27511AA Matrix.....: WATER
 Date Sampled....: 07/17/07 09:00 Date Received...: 07/19/07
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #....: 7201367 Analysis Time...: 20:04
 Dilution Factor: 1

Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PFOS	ND	0.010	ug/L	0.0020
PFOA	ND	0.015	ug/L	0.0031

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	88	(50 - 200)
13C4 PFOS	62	(50 - 200)

American Water Company

Client Sample ID: BIRCH CREEK POE

HPLC

Lot-Sample #....: D7G190493-002 Work Order #....: J27531AA Matrix.....: WATER
 Date Sampled....: 07/17/07 10:10 Date Received...: 07/19/07
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #....: 7201367 Analysis Time...: 20:20
 Dilution Factor: 1 Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PFOS	0.0079 J	0.010	ug/L	0.0020
PFOA	0.069	0.015	ug/L	0.0031

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	100	(50 - 200)
13C4 PFOS	74	(50 - 200)

NOTE(S) :

J Estimated result. Result is less than RL.

NJAW0006

American Water Company

Client Sample ID: DRRWTP POE

HPLC

Lot-Sample #....: D7G190493-003 Work Order #....: J27541AA Matrix.....: WATER
 Date Sampled....: 07/17/07 12:40 Date Received...: 07/19/07
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #....: 7201367 Analysis Time...: 20:36
 Dilution Factor: 1 Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PFOS	0.0085 J	0.010	ug/L	0.0020
PFOA	0.011 J	0.015	ug/L	0.0031

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	91	(50 - 200)
13C4 PFOS	59	(50 - 200)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D7G190493

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	DEN -LC-0012		7201367	
002	WATER	DEN -LC-0012		7201367	
003	WATER	DEN -LC-0012		7201367	

METHOD BLANK REPORT

HPLC

Client Lot #...: D7G190493
 MB Lot-Sample #: R7G200000-367
 Analysis Date...: 07/28/07
 Dilution Factor: 1

Work Order #...: J3AED1AA
 Prep Date...: 07/20/07
 Prep Batch #...: 7201367

Matrix...: WATER
 Analysis Time...: 17:56

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>			<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>		
PFOA	ND	0.015	ug/L		DEN -LC-0012
PFOS	ND	0.010	ug/L		DEN -LC-0012
<u>SURROGATE</u>	<u>PERCENT</u>		<u>RECOVERY</u>		
	<u>RECOVERY</u>		<u>LIMITS</u>		
13C4 PFOA	93		(50 - 200)		
13C4 PFOS	66		(50 - 200)		

NOTE (S):

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

NJAW0006

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #....: D7G190493 Work Order #....: J3AED1AC Matrix.....: WATER
 LCS Lot-Sample#: R7G200000-367
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #....: 7201367 Analysis Time...: 18:12
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
PFOA	109	(70 - 130)	DEN -LC-0012
PFOS	104	(39 - 120)	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	95	(50 - 200)
13C4 PFOS	71	(50 - 200)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: D7G190493 Work Order #...: J3AED1AC Matrix.....: WATER
 LCS Lot-Sample#: R7G200000-367
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #...: 7201367 Analysis Time...: 18:12
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
PFOA	0.200	0.217	ug/L	109	DEN -LC-0012
PFOS	0.200	0.209	ug/L	104	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
13C4 PFOA	95	(50 - 200)
13C4 PFOS	71	(50 - 200)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #....: D7G190493 Work Order #....: J3AED1AD Matrix.....: WATER
 LCS Lot-Sample#: R7G200000-367
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #....: 7201357 Analysis Time...: 18:28
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
PFOA	119	(70 - 130)	DEN -LC-0012
PFOS	94	(39 - 120)	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	83	(50 - 200)
13C4 PFOS	54	(50 - 200)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: D7G190493 Work Order #...: J3AED1AD Matrix.....: WATER
 LCS Lot-Sample#: R7G200000-367
 Prep Date.....: 07/20/07 Analysis Date...: 07/28/07
 Prep Batch #...: 7201367 Analysis Time...: 18:28
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
PFOA	0.0200	0.0238	ug/L	119	DEN -LC-0012
PFOS	0.0200	0.0189	ug/L	94	DEN -LC-0012
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		
13C4 PFOA		83	(50 - 200)		
13C4 PFOS		54	(50 - 200)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

3.1.

STL

NJAW0007

Severn Trent Laboratories, Inc.	COC No:	Notes
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Phone 303-736-0100 fax 303-431-7171 Address: CO 80002		Project Manager: Laura Vaseho Client Contact: New Jersey American Water Tel/Fax: 856-764-4905 856-764-3889 213 Carriage Lane Delran NJ 08075		Site Contact: Gail DeRuzzo Lab Contact:		Date:		COC No:	
Analysis Turnaround Time Calendar (C) or Work Days (W)		TAT if different than Below ☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Job No.		SDG No.		Sample Specific Notes:	
Project Name: Site: P O # 74433		Sample Identification Beckett POE Birch Creek POE DRRWTP POE		Sample Date 7/17/2007 7/17/2007 7/17/2007		Sample Time 9:00 10:10 am 12:40 pm		Sample Type POE POE POE	
Matrix PFOA/PFOS		Matrix DW DW DW		Matrix 1 1 1		Matrix X X X		Matrix X X X	
Requisitioned by: Relinquished by:		Company: Company:		Date/Time: Date/Time:		Received by: Received by:		Company: Company:	
Possible Hazard Identification ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☒ Disposal By Lab ☐ Archive For		Months		Date/Time:		Date/Time:	