

The Borough Of Sayreville

WATER DEPARTMENT

167 MAIN STREET • SAYREVILLE, N.J. 08872
TEL. (732) 390-7060 • FAX (732) 238-2147

January 4, 2008

State of New Jersey
Department of Environmental Protection
Bureau of Safe Drinking Water
P.O. Box 426
Trenton, New Jersey, 08625-0426

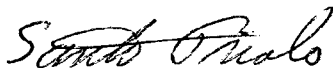
Attn: Ms. Betty Boros-Russo

Re: PFOA Sampling

Dear Ms. Boros-Russo:

Enclosed are the results required according to sampling procedures. Should you require further information relative to the above, please do not hesitate to contact me at 732-390-7067.

Very truly yours,



Santo Triolo,
Director

ST:js

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BUREAU OF SAFE
DRINKING WATER

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

PFOA/PFOS Analysis

Lot #: D7K290317

Sandy Triolo

Borough of Sayreville Water Department
167 Main Street
Sayreville, NJ 08872

TestAmerica Denver



Gail DeRuzzo
Project Manager

December 21, 2007

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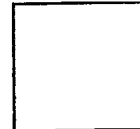
Standard Deliverables

Report Contents

Total Number of Pages

Standard Deliverables

The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.



- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Case Narrative

D7K290317

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 four water samples presented in this report were received at the TestAmerica Denver laboratory at a temperature of 2.5°C on November 29, 2007. The sample containers were received in an acceptable condition.

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 recoveries of two concentration levels of Laboratory Control Samples were within control limits.

Sample #1 BORDENTOWN PLANT was selected for laboratory matrix spike/matrix spike duplicate. The MS/MSD spike recoveries and RPD results were within control limits.

Analytical Comments

The results pages print "MDL", which is actually the limit of detection (LOD). The LOD is defined as the concentration that would correspond to 3 times the peak-to-peak amplitude of the baseline noise in the vicinity of the PFOA peak using a method blank.

The "Reporting Limit" on the results pages is the limit of quantitation (LOQ), which is defined as 5 times the LOD. PFOA levels below the LOD are considered not detected, "ND". PFOA levels greater than the LOD but less than the LOQ can be considered detected but not accurately quantifiable but are estimated values and are therefore flagged with "J". PFOA levels greater than the LOQ will be reported with numeric values without qualification and flagging.

The internal standard recovery for 13C4 PFOS was below the lower control limit in the method blank, and the mid-level LCS. The control limits for this internal standard have not yet been determined; therefore, no corrective action was necessary.

The method required MS/MSD could not be performed for QC batch 7337433, due to insufficient sample volume submitted. The acceptable LCS analyte recoveries for two levels provide evidence that the laboratory is performing the method within acceptable guidelines.

No other anomalies were noted.

EXECUTIVE SUMMARY - Detection Highlights

D7K290317

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
#1 BORDENTOWN PLANT 11/28/07 09:27 001				
PFOA	0.0062 J	0.015	ug/L	DEN -LC-0012
PFOS	0.0033 J	0.010	ug/L	DEN -LC-0012
#2 MIDDLESEX INTERCONNECTION 11/28/07 08:40 002				
PFOA	0.0071 J	0.015	ug/L	DEN -LC-0012
PFOS	0.0053 J	0.010	ug/L	DEN -LC-0012
#3 MELROSE FIRE HOUSE 11/28/07 09:02 003				
PFOA	0.0080 J	0.015	ug/L	DEN -LC-0012
PFOS	0.0060 J	0.010	ug/L	DEN -LC-0012
#4 WEST MARINE 11/28/07 08:53 004				
PFOA	0.0064 J	0.015	ug/L	DEN -LC-0012
PFOS	0.0041 J	0.010	ug/L	DEN -LC-0012

METHODS SUMMARY

D7K290317

<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.

METHOD / ANALYST SUMMARY

D7K290317

<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.

SAMPLE SUMMARY

D7K290317

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
KC46A	001	#1 BORDENTOWN PLANT	11/28/07	09:27
KC46F	002	#2 MIDDLESEX INTERCONNECTION	11/28/07	08:40
KC46J	003	#3 MELROSE FIRE HOUSE	11/28/07	09:02
KC46K	004	#4 WEST MARINE	11/28/07	08:53

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.

Sayreville Water & Sewer

Client Sample ID: #1 BORDENTOWN PLANT

HPLC

Lot-Sample #....: D7K290317-001 Work Order #....: KC46A1AA Matrix.....: WATER
Date Sampled....: 11/28/07 09:27 Date Received...: 11/29/07
Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
Prep Batch #....: 7337433 Analysis Time...: 01:06
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PFOA	0.0062 J	0.015	ug/L	0.0031
PFOS	0.0033 J	0.010	ug/L	0.0020

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	82	(50 - 200)
13C4 PFOS	52	(50 - 200)

NOTE (S) :

J: Estimated result. Result is less than RL.

Sayreville Water & Sewer.

Client Sample ID: #2 MIDDLESEX INTERCONNECTION

HPLC

Lot-Sample #...: D7K290317-002 Work Order #...: KC46F1AA Matrix.....: WATER
Date Sampled...: 11/28/07 08:40 Date Received...: 11/29/07
Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
Prep Batch #...: 7337433 Analysis Time...: 01:22
Dilution Factor: 1
Method.....: DEN -LC-0012

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
PFOA	0.0071 J	0.015	ug/L	0.0031
PFOS	0.0053 J	0.010	ug/L	0.0020

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	86	(50 - 200)
13C4 PFOS	54	(50 - 200)

NOTE(S) :

J Estimated result. Result is less than RL.

Sayreville Water & Sewer

Client Sample ID: #3 MELROSE FIRE HOUSE

HPLC

Lot-Sample #....: D7K290317-003 Work Order #....: KC46J1AA Matrix.....: WATER
 Date Sampled....: 11/28/07 09:02 Date Received...: 11/29/07
 Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
 Prep Batch #....: 7337433 Analysis Time...: 01:38
 Dilution Factor: 1
 Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
PFOA	0.0080 J	0.015	ug/L	0.0031
PFOS	0.0060 J	0.010	ug/L	0.0020
SURROGATE	PERCENT RECOVERY	RECOVERY		
		LIMITS		
13C4 PFOA	86	(50 - 200)		
13C4 PFOS	55	(50 - 200)		

NOTE (S) :

J Estimated result. Result is less than RL.

Sayreville Water & Sewer

Client Sample ID: #4 WEST MARINE

HPLC

Lot-Sample #....: D7K290317-004 Work Order #....: KC46K1AA Matrix.....: WATER
Date Sampled....: 11/28/07 08:53 Date Received...: 11/29/07
Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
Prep Batch #....: 7337433 Analysis Time...: 01:54
Dilution Factor: 1
Method.....: DEN -LC-0012

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
PFOA	0.0064 J	0.015	ug/L	0.0031
PFOS	0.0041 J	0.010	ug/L	0.0020

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
13C4 PFOA	87	(50 - 200)
13C4 PFOS	56	(50 - 200)

NOTE(S) :

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D7K290317

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		7337433	
002	WATER	DEN -LC-0012		7337433	
003	WATER	DEN -LC-0012		7337433	
004	WATER	DEN -LC-0012		7337433	

METHOD BLANK REPORT

HPLC

Client Lot #....: D7K290317 Work Order #....: KDCRX1AA Matrix.....: WATER
 MB Lot-Sample #: R7L030000-433 Prep Date.....: 12/03/07 Analysis Time...: 02:10
 Analysis Date...: 12/09/07 Prep Batch #....: 7337433
 Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
PFOA	ND	0.015	ug/L	DEN -LC-0012
PFOS	ND	0.010	ug/L	DEN -LC-0012

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	70	(50 - 200)
13C4 PFOS	48 *	(50 - 200)

NOTE (S) :

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

- * Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: D7K290317 Work Order #...: KOCRXLAC Matrix.....: WATER
 LCS Lot-Sample#: R7L030000-433
 Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
 Prep Batch #...: 7337433 Analysis Time...: 00:34
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
PFOS	89	(39 - 120)	DEN -LC-0012
PFOA	82	(70 - 130)	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	59	(50 - 200)
13C4 PFOS	31 *	(50 - 200)

NOTE (S) :

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #....: D7K290317 Work Order #....: KDCRX1AC Matrix.....: WATER
 LCS Lot-Sample#: R7L030000-433
 Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
 Prep Batch #....: 7337433 Analysis Time...: 00:34
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
PFOS	0.200	0.179	ug/L	89	DEN -LC-0012
PFOA	0.200	0.164	ug/L	82	DEN -LC-0012

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	59	(50 - 200)
13C4 PFOS	31 *	(50 - 200)

NOTE(S) :

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #....: D7K290317 Work Order #....: KDCRX1AD Matrix.....: WATER
 LCS Lot-Sample#: R7L030000-433
 Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
 Prep Batch #....: 7337433 Analysis Time...: 00:50
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
PFOS	93	(39 - 120)	DEN -LC-0012
PFOA	85	(70 - 130)	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	71	(50 - 200)
13C4 PFOS	57	(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 #...: D7K290317 Work Order #...: KDCRX1AD Matrix.....: WATER
 LCS Lot-Sample#: R7L030000-433
 Prep Date.....: 12/03/07 Analysis Date...: 12/09/07
 Prep Batch #...: 7337433 Analysis Time...: 00:50
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
PPOS	0.0200	0.0185	ug/L	93	DEN -LC-0012
PFOA	0.0200	0.0170	ug/L	85	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	71	(50 - 200)
13C4 PFOS	57	(50 - 200)

NOTE(S) :

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

Bold print denotes control parameters

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