

Pennsville Water
AP00023

L2517314



ANALYTICAL REPORT

PFOA/PFOS Analysis

Lot #: D7L140421

Nicki Smith

QC Laboratories, Inc.
1205 Industrial Highway
Southampton, PA 18966

TestAmerica Denver



Gail DeRuzzo
Project Manager

January 7, 2008

Case Narrative

D7L140421

TestAmerica Denver utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the methods summary page in accordance with the methods indicated. Dilution factors and footnotes are provided on each datasheet to assist in the interpretation of the results.

The results relate only to the samples in this report and meet all requirements of NELAC. All data have been reviewed for compliance with the laboratory QA/QC plan and have found to be compliant with laboratory protocols with any exceptions noted below.

Please note that Non-Detect (ND) results have been evaluated down to the Method Detection Limit (MDL) and should be considered ND at the MDL. Unless otherwise noted, results for solids have been dry weight corrected.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Sample Arrival and Receipt

The following report contains the analytical results for three samples received 12/14/07, according to documented sample acceptance procedures. The samples were received in good condition at a temperature of 1.2°C. No anomalies were encountered during sample receipt.

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 sample presented in this report was analyzed for the target analyte by TestAmerica Denver's SOP DEN-LC-0012A.

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 in both batches.

Each batch is prepared with a Laboratory Control Sample (LCS). The recoveries of two concentration levels of Laboratory Control Samples were within control limits for both batches.

Analytical Comments

The method required MS/MSD could not be performed for QC batch 7353153, 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 observed.

EXECUTIVE SUMMARY - Detection Highlights

D7L140421

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
L2517314-2 12/12/07 09:30 002				
PFOA	0.0058 J	0.010	ug/L	DEN -LC-0012
L2517314-3 12/12/07 10:00 003				
PFOA	0.0069 J	0.010	ug/L	DEN -LC-0012

METHODS SUMMARY

D7L140421

<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

D7L140421

<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

D7L140421

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
KD8MK	001	L2517314-1	12/12/07	09:00
KD8ML	002	L2517314-2	12/12/07	09:30
KD8MM	003	L2517314-3	12/12/07	10:00

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.

QC Laboratories

Client Sample ID: L2517314-1

HPLC

Lot-Sample #...: D7L140421-001 Work Order #...: KD8MK1AA Matrix.....: WATER
 Date Sampled...: 12/12/07 09:00 Date Received...: 12/14/07
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #...: 7353153 Analysis Time...: 21:10
 Dilution Factor: 1

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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	<u>UNITS</u>
PFOA	ND	0.010	ug/L
PFOS	ND	0.010	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
13C4 PFOA	78	(50 - 200)	
13C4 PFOS	57	(50 - 200)	

QC Laboratories

Client Sample ID: L2517314-2

HPLC

Lot-Sample #...: D7L140421-002 Work Order #...: KD8ML1AA Matrix.....: WATER
 Date Sampled...: 12/12/07 09:30 Date Received...: 12/14/07
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #...: 7353153 Analysis Time...: 21:42
 Dilution Factor: 1
 Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS
PFOA	0.0058 J	0.010	ug/L
PFOS	ND	0.010	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	84	(50 - 200)
13C4 PFOS	65	(50 - 200)

NOTE(S) :

J Estimated result. Result is less than RL.

QC Laboratories

Client Sample ID: L2517314-3

HPLC

Lot-Sample #...: D7L140421-003 Work Order #...: KD8MM1AA Matrix.....: WATER
 Date Sampled...: 12/12/07 10:00 Date Received...: 12/14/07
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #...: 7353153 Analysis Time...: 21:59
 Dilution Factor: 1
 Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
PFOA	0.0069 J	0.010	ug/L
PFOS	ND	0.010	ug/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
13C4 PFOA	81	(50 - 200)	
13C4 PFOS	57	(50 - 200)	

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D7L140421

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		7353153	
002	WATER	DEN -LC-0012		7353153	
003	WATER	DEN -LC-0012		7353153	

METHOD BLANK REPORT

HPLC

Client Lot #...: D7L140421 Work Order #...: KEE591AA Matrix.....: WATER
 MB Lot-Sample #: R7L190000-153
 Analysis Date...: 12/21/07 Prep Date.....: 12/19/07 Analysis Time...: 20:06
 Dilution Factor: 1 Prep Batch #...: 7353153

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	<u>UNITS</u>	<u>METHOD</u>
PFOA	ND	0.010	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	83	(50 - 200)
13C4 PFOS	62	(50 - 200)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: D7L140421 Work Order #...: KEE591AC Matrix.....: WATER
 LCS Lot-Sample#: R7L190000-153
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #...: 7353153 Analysis Time...: 20:22
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
PFOA	94	(70 - 130)	DEN -LC-0012
PFOS	98	(39 - 120)	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	85	(50 - 200)
13C4 PFOS	69	(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 #....: D7L140421 Work Order #....: KEE591AC Matrix.....: WATER
 LCS Lot-Sample#: R7L190000-153
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #....: 7353153 Analysis Time...: 20:22
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
PFOA	0.200	0.189	ug/L	94	DEN -LC-0012
PFOS	0.200	0.196	ug/L	98	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	85	(50 - 200)
13C4 PFOS	69	(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 #....: D7L140421 Work Order #....: KEE591AD Matrix.....: WATER
 LCS Lot-Sample#: R7L190000-153
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #....: 7353153 Analysis Time...: 20:38
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
PFOA	92	(70 - 130)	DEN -LC-0012
PFOS	93	(39 - 120)	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C4 PFOA	84	(50 - 200)
13C4 PFOS	68	(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 #....: D7L140421 Work Order #....: KEE591AD Matrix.....: WATER
 LCS Lot-Sample#: R7L190000-153
 Prep Date.....: 12/19/07 Analysis Date...: 12/21/07
 Prep Batch #....: 7353153 Analysis Time...: 20:38
 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	0.0200	0.0185	ug/L	92	DEN -LC-0012
PFOS	0.0200	0.0186	ug/L	93	DEN -LC-0012

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
13C4 PFOA	84	(50 - 200)
13C4 PFOS	68	(50 - 200)

NOTE(S) :

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

STL Shaver

12e 12/14/02 JEL



QCL Laboratories

CHAIN OF CUSTODY

Lab LIMS No:

MATRIX CODES

1205 Industrial Blvd.
Southampton, PA 18966-0514
Phone: 215-355-3900
Fax: 215-355-7231

Bill to/Report to: (if different)

LAB USE ONLY:
____ Ascorbic/HCl Vials # ____ HCl Vials
____ Na₂S₂O₃
____ NaOH/Zn acetate pH
____ HNO₃ pH
____ H₂SO₄ pH
____ NaOH pH
____ Unpreserved
____ H₂O pH
____ Temp control ID#

DW: DRINKING WATER
GW: GROUND WATER
WW: WASTEWATER
SO: SOIL
SL: SLUDGE
OI: OIL
SOL: NON SOIL SOLID
MI: MISCELLANEOUS
X: OTHER

Client/Account No. 0230100000

Address same as above

Sampling Site Address: (if different)

City/State/Zip

P.O. No.

Field pH, Temp (C or F), DO, Cl₂, S, Cond, etc.

Phone/Fax

QC Contact

Field Parameters Analyzed By:

Client Contact Michelle Smith x3860

QC Contact

Field Parameters Analyzed By:

Field Parameters Analyzed By:

PROJECT

Collection

ANALYSIS REQUESTED

Field Parameters Analyzed By:

FIELD ID

Date

PEAA

Field Parameters Analyzed By:

L22517314-1

12/14/02

1

Field Parameters Analyzed By:

-2

1

1

Field Parameters Analyzed By:

-3

1

1

Field Parameters Analyzed By:

1

1

1

Field Parameters Analyzed By:

2

1

1

Field Parameters Analyzed By:

3

1

1

Field Parameters Analyzed By:

4

1

1

Field Parameters Analyzed By:

5

1

1

Field Parameters Analyzed By:

SAMPLED BY: (Name/Company)

Verbal/Text date due: 1/1/03

Report Format: ☐ Standard ☐ Forms

Field Parameters Analyzed By:

Hardcopy due: 1/1/03

Field Parameters Analyzed By:

SAFETY: call for pricing and availability on rush (1-2 day) turnaround and on all but standard format.

DELIVERY METHOD: ☐ QC COURIER ☐ CLIENT

COMMENTS: 2 copies of final report

Hazardous: yes / no



JACK LYNCH
PENNSVILLE WATER DEPARTMENT
2 SANDERLIN ROAD
PENNSVILLE, NJ 08070

Regarding:

JACK LYNCH
PENNSVILLE WATER DEPARTMENT
TUFTS ROAD
PENNSVILLE, NJ 08070

Account No: AP0223, PENNSVILLE WATER DEPARTMENT
Project No: AP0223, PENNSVILLE WATER DEPARTMENT

P.O. No: Voucher
PWSID No: 1708001

Inv. No: 940417

Sample Number L2517314-1
Sample Description TPO05010 TUFT RD POE
Received Temp: 38 F Iced (Y/N): Y

Samp. Date/Time/Temp
12/12/07 09:00am NA F

Sampled by
Customer Sampled

Parameter	Method	Result	RLs	Test Date, Time, Analyst
PFOA		ATTACHED		

Sample Number L2517314-2
Sample Description TPO03003 WATER ST POE
Received Temp: 38 F Iced (Y/N): Y

Samp. Date/Time/Temp
12/12/07 09:30am NA F

Sampled by
Customer Sampled

Parameter	Method	Result	RLs	Test Date, Time, Analyst
PFOA		ATTACHED		

- A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs.
- Definitions: ND=not detected; NEG=negative; POS=positive; COL=colonies; RLs=laboratory reporting limits; L/A=laboratory accident; TNTC=too numerous to count
- A result marked with "DRY" indicates that the result was calculated and reported on a dry weight basis.
- All analysis, except field tests are conducted in Southampton, PA unless otherwise identified.
- The test "pH lab" is analyzed upon receipt at the laboratory, the result will not be suitable for regulatory purposes.
- Actual times of analysis for parameters reported <24 hrs are available upon request. All testing is completed within the required holding time unless otherwise noted.
- QC NELAP ID's: PA 09-00131, NJ PA166, FL E87954, NY 11223, CT PH-0768, DE PA-018, KY 90228, MD 206, EPA PA00018, Bioassay: PA 09-03574, NJ PA034, FL E87953, KS E10373, SC 89020001.
- QC STATE ID's: Wind Gap, NJ PA001, PA 48-01334; E RUTHERFORD NJ02015; Vineland NJ06005; Reading PA 06-03543.
- All samples are collected as "grab" samples unless otherwise identified.
- MCL= is the EPA recommended "maximum contaminant level" for a parameter. PLS=customer specific permit limits.

Regulatory authorities are assessing substantial fines for testing omissions. Please track your sample collections and results on a weekly, monthly, or quarterly basis to ensure compliance. QC's internet program 'LIVE ACCESS' will provide you with real-time access to collection dates and results. Please contact Customer Service for further information on acquiring LIVE ACCESS.

Thomas J. Hines
Thomas J. Hines, President

QC Laboratories

Analytical Report



Account No: APO223, PENNSVILLE WATER DEPARTMENT
Project No: APO223, PENNSVILLE WATER DEPARTMENT

P.O. No: Voucher
PWSID No: 1708001

Inv. No: 940417

Sample Number: L2517314-3
Sample Description: TPO04006 HERON AVE POE
Received Temp: 38 F Iced (Y/N): Y

Samp. Date/Time/Temp
12/12/07 10:00am NA F

Sampled by
Customer Sampled

Parameter	Method	Result	RLs	Test Date, Time, Analyst
PFOA		ATTACHED		

- A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs.
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Regulatory authorities are assessing substantial fines for testing omissions. Please track your sample collections and results on a weekly, monthly, or quarterly basis to ensure compliance. QC's internet program 'LIVE ACCESS' will provide you with real-time access to collection dates and results. Please contact Customer Service for further information on acquiring LIVE ACCESS.

Thomas J. Hines
Thomas J. Hines, President



CHAIN OF CUSTODY

Page 1 of 2

MATRIX CODES

1205 Industrial Blvd.
Southampton, PA 18966-0514

Phone: 215-355-3900
Fax: 215-355-7231

Bill to/Report to: (if different)

DW: DRINKING WATER
GW: GROUND WATER
WW: WASTEWATER
SO: SOIL
SL: SLUDGE
OL: OIL
SOL: NON SOLID
ML: MISCELLANEOUS
X: OTHER

Client/Account No. Lebanonville Little
Address 2 Sandvick Rd

Sampling Site Address: (if different)

City/State/Zip Lebanonville MS 38632

Phone/Fax (662) 678-4560/4164

P.O. No.

Client Contact Joe

QC Contact

PROJECT	FIELD ID	Collection		Matrix	Number of Containers											
		Date	Military Time		G	A	M	P	Total	1	2	3	4	5	6	7

LAB USE ONLY																
ANALYSIS REQUESTED																

Field pH, Temp (C or F)
DO, O₂, S Cond, etc

SAMPLED BY: (Name/Company)

Verbal/fax date due: 1/1

Report Format: ☐ Standard ☐ Forms

Std

Field Parameters Analyzed By:

Hardcopy due: 1/1

Std

Date/TIME

SAMPLE CUSTODY EXCHANGES MUST BE DOCUMENTED BEL, JW, USE, FULL LEGAL SIGNATURE, DATE AND MILITARY TIME (24 HOUR CLOCK, I.E. 8AM IS 0800, 4 PM IS 1600)

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME	DELIVERY METHOD: ☐ UPS ☐ FEDEX ☐ OTHER	CLIENT	Comments
1. <u>Joe</u>	12/1/07	12:30	1. <u>Joe</u>	12/1/07	12:30			
2. <u>Joe</u>	12/1/07	13:00	2. <u>Joe</u>	12/1/07	13:00			
3. <u>Joe</u>	12/1/07	13:10	3. <u>Joe</u>	12/1/07	13:10			
4. <u>Joe</u>	12/1/07	13:10	4. <u>Joe</u>	12/1/07	13:10			
5. <u>Joe</u>	12/1/07	13:10	5. <u>Joe</u>	12/1/07	13:10			

For example to aid completion, see reverse side.