City of Salem
F00345

L2468313

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

PFOA/PFOS Analysis

Lot #: D7J150133

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Southampton, PA 18966

TestAmerica Denver

Gail DeRuzzo
Project Manager

November 5, 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.*	

Case Narrative

D7J150133

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 one sample received 10/15/07, according to documented sample acceptance procedures. The sample was received in good condition at a temperature of 16.8°C. The receipt temperature is above the recommended temperature range of 2-6°C. The client was notified. No other 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-$^{13}C_4$]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-$^{13}C_4$]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.

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

Analytical Comments

The internal standard recovery for 13C4 PFOS was below the lower control limit in the method blank associated with QC batch 7289213. The internal standard was in control in the associated sample and PFOS was non-detect; therefore, no corrective action was taken.

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

No other anomalies were observed.

EXECUTIVE SUMMARY - Detection Highlights

D7J150133

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
L2468313-1 10/10/07 07:30 001				
PFOA	0.0082 J	0.010	ug/L	DEN -LC-0012

METHODS SUMMARY

D7J150133

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

References:

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

METHOD / ANALYST SUMMARY

D7J150133

ANALYTICAL METHOD	ANALYST	ANALYST ID
DEN -LC-0012	Jaqueline Bonnett	003601

References:

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

SAMPLE SUMMARY

D7J150133

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J804C	001	L2468313-1	10/10/07	07:30

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: L2468313-1

HPLC

Lot-Sample #...: D7J150133-001 Work Order #...: J804C1AA Matrix.....: WATER
Date Sampled...: 10/10/07 07:30 Date Received..: 10/15/07
Prep Date.....: 10/16/07 Analysis Date..: 10/25/07
Prep Batch #...: 7289213 Analysis Time..: 14:58
Dilution Factor: 1
Method.....: DEN -LC-0012

PARAMETER	RESULT	REPORTING LIMIT	UNITS
PFOA	**0.0082 J**	**0.010**	**ug/L**
PFOS	ND	0.010	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	82	(50 - 200)
13C4 PFOS	63	(50 - 200)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D7J150133

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	DEN -LC-0012		7289213	

METHOD BLANK REPORT

HPLC

Client Lot #...: D7J150133 Work Order #...: J82N41AA Matrix.....: WATER
MB Lot-Sample #: R7J160000-213

Prep Date.....: 10/16/07 Analysis Time..: 12:49
Analysis Date..: 10/25/07 Prep Batch #...: 7289213
Dilution Factor: 1

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	63	(50 - 200)
13C4 PFOS	46 *	(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 #...: D7J150133 Work Order #...: J82N41AC Matrix.....: WATER
LCS Lot-Sample#: R7J160000-213
Prep Date.....: 10/16/07 Analysis Date..: 10/25/07
Prep Batch #...: 7289213 Analysis Time..: 13:05
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
PFOA	**97**	**(70 - 130)**	**DEN -LC-0012**
PFOS	**92**	**(39 - 120)**	**DEN -LC-0012**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	70	(50 - 200)
13C4 PFOS	61	(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 #...: D7J150133
LCS Lot-Sample#: R7J160000-213
Prep Date.....: 10/16/07
Prep Batch #...: 7289213
Dilution Factor: 1

Work Order #...: J82N41AC
Analysis Date..: 10/25/07
Analysis Time..: 13:05

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
PFOA	0.200	0.194	ug/L	97	DEN -LC-0012
PFOS	0.200	0.183	ug/L	92	DEN -LC-0012

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	70	(50 - 200)
13C4 PFOS	61	(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 #...: D7J150133 Work Order #...: J82N41AD Matrix.....: WATER
LCS Lot-Sample#: R7J160000-213
Prep Date.....: 10/16/07 Analysis Date..: 10/25/07
Prep Batch #...: 7289213 Analysis Time..: 13:21
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
PFOA	**101**	**(70 - 130)**	**DEN -LC-0012**
PFOS	**78**	**(39 - 120)**	**DEN -LC-0012**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	69	(50 - 200)
13C4 PFOS	59	(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 #...: D7J150133 Work Order #...: J82N41AD Matrix.....: WATER
LCS Lot-Sample#: R7J160000-213
Prep Date.....: 10/16/07 Analysis Date..: 10/25/07
Prep Batch #...: 7289213 Analysis Time..: 13:21
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
PFOA	**0.0200**	**0.0202**	**ug/L**	**101**	**DEN -LC-0012**
PFOS	**0.0200**	**0.0157**	**ug/L**	**78**	**DEN -LC-0012**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C4 PFOA	69	(50 - 200)
13C4 PFOS	59	(50 - 200)

NOTE(S):

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

Bold print denotes control parameters

STL Denver

16.8°c

QC Laboratories

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Southampton, PA 18966-0514
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Fax: 215-355-7231

CHAIN OF CUSTODY

Page 1 of 1

Client/Acct. No. QC Laboratories
Address see above
City/State/Zip
Phone/Fax ext 3360
Client Contact Nicki Smith

Bill to/Report to: (if different)
Sampling Site Address: (if different)
P.O. No.
QC Contact

Lab LIMS No:

LAB USE ONLY
Ascorbic/HCl Vials # HCl Vials
$Na_2S_2O_3$
NaOH/Zn acetate pH
HNO_3 pH
H_2SO_4 pH
NaOH pH
Unpreserved
HCl pH
Temp control ID#

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

Field pH, Temp (C or F), DO, Cl_2, S. Cond. etc.

LAB USE ONLY

PROJECT / FIELD ID	Collection Date	Collection Military Time	GRAB	COMP	Matrix Code	Number of Containers Total	H_2SO_4	HCl	Vial	HNO_3	NaOH	ZnAc	Unpres	Bact	ANALYSIS REQUESTED
L2468313-1	10/10/07	0730			DW	1									PFOA / PFOS

SAMPLED BY: (Name/Company)

Verbal/fax data due: / /
Hardcopy due: / /

Report Format: ☑ Standard ☐ Forms ☐ Standard + QC ☐ NJ Reduced ☐ Disk

Please call for pricing and availability on rush (<14-21 day) turnaround and on all but standard format.

Field Parameters Analyzed By:
Sig:
Date/Time:

SAMPLE CUSTODY EXCHANGES MUST BE DOCUMENTED BELOW. 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
1 RELINQUISHED BY SAMPLER			1		
2 [signature]	10/11/07	1630	2 UPS		
3			3 [signature]	10/15/07	1145
4			4		
5			5		

DELIVERY METHOD: ☐ QC COURIER ☐ CLIENT ☐ UPS ☐ FEDEX ☐ OTHER

Custody Seal Number

COMMENTS: 2 copies of final report

Hazardous: yes / no

For example to aid completion, see reverse side.

FINAL REPORT

DEP2-SDWB-000254