TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-5099-1

Job Description: Dalton PFC Analysis

For:
Dalton Utilities
1200 V.D. Parrott Jr. Parkway
Dalton, GA 30721

Attention: Ms. Dena Haverland

Approved for release.
Michelle Johnston
Project Manager I
7/27/2010 11:03 AM

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Project Manager I
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07/27/2010

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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CASE NARRATIVE
Client: Dalton Utilities
Project: PFC Analysis
Report Number: 280-5099-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Receipt
The following report contains the analytical results for two water samples received at TestAmerica Denver on July 7, 2010, according to documented sample acceptance procedures. The samples were received in good condition at a temperature of 1.7°C. No anomalies were encountered during sample receipt.

PFC
Samples 705 PEEK RD (280-5099-1) and DUP (280-5099-2) were analyzed for PFC in accordance with SOP DV-LC-0012. The samples were prepared on 07/09/2010 and analyzed on 07/14/2010.

Internal standards 13C2 PFUnA and/or 13C2 PFDoA recovered below the control limits in sample DUP (280-5099-2) and in the LCS and LCSD associated with prep batch 280-2262. These recoveries are within the laboratory's historical limits; therefore, corrective action was deemed unnecessary. Historical limits are used because this is an isotope dilution method; therefore, the internal standard is added to the samples prior to extraction.

DUP (280-5099-2)	13C2 PFUnA at 44% (historical limits 37-130%)
DUP (280-5099-2)	13C2 PFDoA at 36% (historical limits 26-130%)
LCS	13C2 PFDoA at 45% (historical limits 26-130%)
LCSD	13C2 PFDoA at 36% (historical limits 26-130%)

The LCS/LCSD associated with prep batch 280-22262 exhibited relative percent difference (RPD) data above the QC control limit for Perfluorotridecanoic Acid (PFTriA). Both the LCS and LCSD were recovered within the QC control limits. The acceptable LCS and LCSD analyte recoveries provide evidence that the laboratory performed the method within acceptable guidelines; therefore, corrective action is deemed unnecessary.

The method required MS/MSD analyses could not be performed on prep batch 280-22262 (analytical batch 280-22854), due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD data.

Refer to the QC report for details.

No other difficulties were encountered during the PFC analyses.

All other quality control parameters were within the acceptance limits.

FOSA
Samples 705 PEEK RD (280-5099-1) and DUP (280-5099-2) were analyzed for FOSA in accordance with SOP DV-LC-0012. The samples were prepared on 07/09/2010 and analyzed on 07/12/2010.

The method required MS/MSD analyses could not be performed on prep batch 280-22263 (analytical batch 280-22662), due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD data.

No other difficulties were encountered during the FOSA analyses.

All quality control parameters were within the acceptance limits.

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-5099-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 22854

Lab Sample ID: LCS 280-22262/2-A Client Sample ID:

S. Castagni 7-16-10

Date Analyzed: 07/14/10 10:13 Lab File ID: pc50G14014.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanioc acid (PFBA)	4.47	Baseline	williamst	07/15/10 08:24
13C4 PFBA (IS)	4.48	Baseline	williamst	07/15/10 08:24

Lab Sample ID: 280-5099-2 Client Sample ID: DUP

Date Analyzed: 07/14/10 11:04 Lab File ID: pc50G14018.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanioc acid (PFBA)	4.48	Baseline	williamst	07/15/10 08:29
Perfluorotetradecanoic acid (PFTeA)	7.93	Baseline	williamst	07/15/10 08:29

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-5099-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 22662

Lab Sample ID: MB 280-22263/1-A Client Sample ID:

Date Analyzed: 07/12/10 20:48 Lab File ID: pc50G12025.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctane Sulfonamide (FOSA)	3.21	Baseline	williamst	07/13/10 10:05

Lab Sample ID: 280-5099-2 Client Sample ID: DUP

Date Analyzed: 07/12/10 21:14 Lab File ID: pc50G12029.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctane Sulfonamide (FOSA)	3.21	Baseline	williamst	07/13/10 10:05

PFC -FOSA

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-5099-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 22854

Lab Sample ID: LCS 280-22262/2-A Client Sample ID:

Date Analyzed: 07/14/10 10:13 Lab File ID: pc50G14014.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanioc acid (PFBA)	4.47	Baseline	williamst	07/15/10 08:24
13C4 PFBA (IS)	4.48	Baseline	williamst	07/15/10 08:24

Lab Sample ID: 280-5099-2 Client Sample ID: DUP

Date Analyzed: 07/14/10 11:04 Lab File ID: pc50G14018.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanioc acid (PFBA)	4.48	Baseline	williamst	07/15/10 08:29
Perfluorotetradecanoic acid (PFTeA)	7.93	Baseline	williamst	07/15/10 08:29

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-5099-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 22662

Lab Sample ID: MB 280-22263/1-A Client Sample ID:

Date Analyzed: 07/12/10 20:48 Lab File ID: pc50G12025.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctane Sulfonamide (FOSA)	3.21	Baseline	williamst	07/13/10 10:05

Lab Sample ID: 280-5099-2 Client Sample ID: DUP

Date Analyzed: 07/12/10 21:14 Lab File ID: pc50G12029.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctane Sulfonamide (FOSA)	3.21	Baseline	williamst	07/13/10 10:05

PFC -FOSA

SAMPLE SUMMARY

Client: Dalton Utilities

Job Number: 280-5099-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-5099-1	705 PEEK RD	Water	07/02/2010 1041	07/07/2010 0915
280-5099-2FD	DUP	Water	07/02/2010 1042	07/07/2010 0915

EXECUTIVE SUMMARY - Detections

Client: Dalton Utilities

Job Number: 280-5099-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-5099-1	**705 PEEK RD**					
Perfluorobutane Sulfonate (PFBS)		0.045		0.020	ug/L	DV-LC-0012
Perfluorobutanioc acid (PFBA)		0.015	J	0.020	ug/L	DV-LC-0012
Perfluoroheptanoic acid (PFHpA)		0.048		0.030	ug/L	DV-LC-0012
Perfluorohexane Sulfonate (PFHxS)		0.060		0.030	ug/L	DV-LC-0012
Perfluorohexanoic acid (PFHxA)		0.053		0.020	ug/L	DV-LC-0012
Perfluorooctanoic acid (PFOA)		0.097		0.020	ug/L	DV-LC-0012
Perfluorooctane Sulfonate (PFOS)		0.11		0.030	ug/L	DV-LC-0012
Perfluoropentanoic acid (PFPA)		0.035		0.030	ug/L	DV-LC-0012
280-5099-2FD	**DUP**					
Perfluorobutane Sulfonate (PFBS)		0.042		0.019	ug/L	DV-LC-0012
Perfluorobutanioc acid (PFBA)		0.013	J	0.019	ug/L	DV-LC-0012
Perfluoroheptanoic acid (PFHpA)		0.045		0.029	ug/L	DV-LC-0012
Perfluorohexane Sulfonate (PFHxS)		0.059		0.029	ug/L	DV-LC-0012
Perfluorohexanoic acid (PFHxA)		0.051		0.019	ug/L	DV-LC-0012
Perfluorooctanoic acid (PFOA)		0.10		0.019	ug/L	DV-LC-0012
Perfluorooctane Sulfonate (PFOS)		0.083		0.029	ug/L	DV-LC-0012
Perfluoropentanoic acid (PFPA)		0.034		0.029	ug/L	DV-LC-0012

METHOD SUMMARY

Client: Dalton Utilities

Job Number: 280-5099-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Perfluoronated Hydrocarbons	TAL DEN	TAL-DEN DV-LC-0012	
Solid-Phase Extraction (SPE)	TAL DEN		SW846 3535
FOSA in Water (LC/MS/MS)	TAL DEN	TAL-DEN PFC -FOSA	
Solid-Phase Extraction (SPE)	TAL DEN		SW846 3535

Lab References:

TAL DEN = TestAmerica Denver

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-DEN = TestAmerica Laboratories, Denver, Facility Standard Operating Procedure.

METHOD / ANALYST SUMMARY

Client: Dalton Utilities

Job Number: 280-5099-1

Method	Analyst	Analyst ID
TAL-DEN DV-LC-0012	Williams, Teresa L	TLW
TAL-DEN PFC-FOSA	Williams, Teresa L	TLW

Client: Dalton Utilities

Job Number: 280-5099-1

Client Sample ID: **705 PEEK RD**

Lab Sample ID: 280-5099-1
Client Matrix: Water

Date Sampled: 07/02/2010 1041
Date Received: 07/07/2010 0915

DV-LC-0012 Perfluoronated Hydrocarbons

Method:	DV-LC-0012	Analysis Batch: 280-22854		Instrument ID:	LC_LCMS5
Preparation:	3535	Prep Batch: 280-22262		Lab File ID:	pc50G14017.d
Dilution:	1.0			Initial Weight/Volume:	250 mL
Date Analyzed:	07/14/2010 1051			Final Weight/Volume:	5 mL
Date Prepared:	07/09/2010 0930			Injection Volume:	30 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Perfluorobutane Sulfonate (PFBS)	0.045		0.0082	0.020
Perfluorobutanioc acid (PFBA)	0.015	J	0.0098	0.020
Perfluorodecanoic acid (PFDA)	ND		0.0078	0.020
Perfluorododecanoic acid (PFDoA)	ND		0.015	0.030
Perfluoroheptanoic acid (PFHpA)	0.048		0.013	0.030
Perfluorohexane Sulfonate (PFHxS)	0.060		0.0070	0.030
Perfluorohexanoic acid (PFHxA)	0.053		0.0029	0.020
Perfluorononanoic acid (PFNA)	ND		0.017	0.040
Perfluorooctanoic acid (PFOA)	0.097		0.0098	0.020
Perfluorooctane Sulfonate (PFOS)	0.11		0.013	0.030
Perfluoropentanoic acid (PFPA)	0.035		0.011	0.030
Perfluorotetradecanoic acid (PFTeA)	ND		0.015	0.030
Perfluorotridecanoic Acid (PFTriA)	ND	*	0.018	0.040
Perfluoroundecanoic acid (PFUnA)	ND		0.0069	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
13C8 PFOA	109		60 - 155
13C8 PFOS	118		45 - 130

Client: Dalton Utilities

Job Number: 280-5099-1

Client Sample ID: **DUP**

Lab Sample ID: 280-5099-2FD
Client Matrix: Water

Date Sampled: 07/02/2010 1042
Date Received: 07/07/2010 0915

DV-LC-0012 Perfluoronated Hydrocarbons

Method:	DV-LC-0012	Analysis Batch: 280-22854		Instrument ID:	LC_LCMS5
Preparation:	3535	Prep Batch: 280-22262		Lab File ID:	pc50G14018.d
Dilution:	1.0			Initial Weight/Volume:	258 mL
Date Analyzed:	07/14/2010 1104			Final Weight/Volume:	5 mL
Date Prepared:	07/09/2010 0930			Injection Volume:	30 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Perfluorobutane Sulfonate (PFBS)	0.042		0.0080	0.019
Perfluorobutanioc acid (PFBA)	0.013	J	0.0095	0.019
Perfluorodecanoic acid (PFDA)	ND		0.0076	0.019
Perfluorododecanoic acid (PFDoA)	ND		0.014	0.029
Perfluoroheptanoic acid (PFHpA)	0.045		0.013	0.029
Perfluorohexane Sulfonate (PFHxS)	0.059		0.0068	0.029
Perfluorohexanoic acid (PFHxA)	0.051		0.0028	0.019
Perfluorononanoic acid (PFNA)	ND		0.017	0.039
Perfluorooctanoic acid (PFOA)	0.10		0.0095	0.019
Perfluorooctane Sulfonate (PFOS)	0.083		0.013	0.029
Perfluoropentanoic acid (PFPA)	0.034		0.011	0.029
Perfluorotetradecanoic acid (PFTeA)	ND		0.014	0.029
Perfluorotridecanoic Acid (PFTriA)	ND	*	0.017	0.039
Perfluoroundecanoic acid (PFUnA)	ND		0.0067	0.019

Surrogate	%Rec	Qualifier	Acceptance Limits
13C8 PFOA	109		60 - 155
13C8 PFOS	107		45 - 130

Client: Dalton Utilities

Job Number: 280-5099-1

Client Sample ID: **705 PEEK RD**

Lab Sample ID: 280-5099-1
Client Matrix: Water

Date Sampled: 07/02/2010 1041
Date Received: 07/07/2010 0915

PFC -FOSA FOSA in Water (LC/MS/MS)

Method:	PFC -FOSA	Analysis Batch: 280-22662	Instrument ID:	LC_LCMS5
Preparation:	3535	Prep Batch: 280-22263	Lab File ID:	pc50G12028.d
Dilution:	1.0		Initial Weight/Volume:	264 mL
Date Analyzed:	07/12/2010 2107		Final Weight/Volume:	5 mL
Date Prepared:	07/09/2010 0935		Injection Volume:	20 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Perfluorooctane Sulfonamide (FOSA)	ND		0.0054	0.047

Surrogate	%Rec	Qualifier	Acceptance Limits
13C8 FOSA	71		37 - 130

Client: Dalton Utilities

Job Number: 280-5099-1

Client Sample ID: **DUP**

Lab Sample ID: 280-5099-2FD
Client Matrix: Water

Date Sampled: 07/02/2010 1042
Date Received: 07/07/2010 0915

PFC -FOSA FOSA in Water (LC/MS/MS)

Method:	PFC -FOSA	Analysis Batch: 280-22662	Instrument ID:	LC_LCMS5
Preparation:	3535	Prep Batch: 280-22263	Lab File ID:	pc50G12029.d
Dilution:	1.0		Initial Weight/Volume:	251 mL
Date Analyzed:	07/12/2010 2114		Final Weight/Volume:	5 mL
Date Prepared:	07/09/2010 0935		Injection Volume:	20 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Perfluorooctane Sulfonamide (FOSA)	ND		0.0057	0.050

Surrogate	%Rec	Qualifier	Acceptance Limits
13C8 FOSA	46		37 - 130