

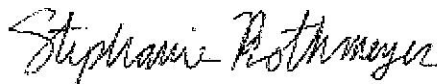
ANALYTICAL REPORT

Job Number: 280-89719-2

Job Description: ADEM PFC Sampling - Gadsden

For:

Alabama Dept. Environmental Management
2715 Sandlin Road, SW
Decatur, AL 35603
Attention: Mr. Ed Poolos



Approved for release:
Stephanie K Rothmeyer
Project Manager I
10/31/2016 12:57 PM

Stephanie K Rothmeyer, Project Manager I
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0182
stephanie.rothmeyer@testamericainc.com
10/31/2016

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 4025.

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

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com

Definitions/Glossary

Client: Alabama Dept. Environmental Management

TestAmerica Job ID: 280-89719-2

Project/Site: ADEM PFC Sampling - Gadsden

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE

Client: Alabama Dept. Environmental Management

Project: ADEM PFC Sampling - Gadsden

Report Number: 280-89719-2

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 samples were received on 10/20/2016 at 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2°C.

PERFLUORINATED HYDROCARBONS (PFC)

Samples GADSDEN-RAW (280-89719-2) and GADSDEN-FINISHED (280-89719-3) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with SOP DV-LC-0012. The samples were prepared on 10/21/2016 and analyzed on 10/26/2016.

During the solid phase extraction process, the following sample clogged the cartridge; therefore, the IS volume was adjusted to match the volume of sample extracted: GADSDEN-RAW (280-89719-2). As such, reporting limits (RLs) are not impacted.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERFLUOROOCTANE SULFONAMIDE (FOSA)

Samples GADSDEN-RAW (280-89719-2) and GADSDEN-FINISHED (280-89719-3) were analyzed for Perfluorooctane Sulfonamide (FOSA) in accordance with SOP DV-LC-0012. The samples were prepared on 10/25/2016 and analyzed on 10/26/2016.

Internal standard responses were outside of acceptance limits for the following sample: GADSDEN-RAW (280-89719-2). The sample shows evidence of matrix interference. Internal Standards failed in the samples, the Method Blank, LCS, LCSD were all in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: Alabama Dept. Environmental Management
 Project/Site: ADEM PFC Sampling - Gadsden

TestAmerica Job ID: 280-89719-2

Client Sample ID: GADSDEN-RAW

Lab Sample ID: 280-89719-2

Date Collected: 10/18/16 19:02

Matrix: Water

Date Received: 10/20/16 10:20

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.083		0.027	0.011	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorobutanoic acid (PFBA)	0.023	J	0.027	0.013	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorodecane sulfonate (PFDS)	0.012	U	0.027	0.012	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorodecanoic acid (PFDA)	0.010	U	0.027	0.010	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorododecanoic acid (PFDoA)	0.020	U	0.040	0.020	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluoroheptanoic acid (PFHpA)	0.018	U	0.040	0.018	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorohexane Sulfonate (PFHxS)	0.0093	U	0.040	0.0093	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorohexanoic acid (PFHxA)	0.085		0.027	0.0039	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorononanoic acid (PFNA)	0.023	U	0.053	0.023	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorooctanoic acid (PFOA)	0.032		0.027	0.013	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorooctane Sulfonate (PFOS)	0.033	J	0.040	0.018	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluoropentanoic acid (PFPA)	0.080		0.040	0.015	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorotetradecanoic acid (PFTeA)	0.020	U	0.040	0.020	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluorotridecanoic Acid (PFTriA)	0.024	U	0.053	0.024	ug/L		10/21/16 18:17	10/26/16 16:59	1
Perfluoroundecanoic acid (PFUnA)	0.0092	U	0.027	0.0092	ug/L		10/21/16 18:17	10/26/16 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	109		60 - 155	10/21/16 18:17	10/26/16 16:59	1
13C8 PFOS	96		45 - 130	10/21/16 18:17	10/26/16 16:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	0.0052	U	0.046	0.0052	ug/L		10/25/16 19:30	10/26/16 18:26	1

Client Sample ID: GADSDEN-FINISHED

Lab Sample ID: 280-89719-3

Date Collected: 10/19/16 10:00

Matrix: Water

Date Received: 10/20/16 10:20

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.071		0.018	0.0074	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorobutanoic acid (PFBA)	0.025		0.018	0.0088	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorodecane sulfonate (PFDS)	0.0082	U	0.018	0.0082	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorodecanoic acid (PFDA)	0.0070	U	0.018	0.0070	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorododecanoic acid (PFDoA)	0.013	U	0.027	0.013	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluoroheptanoic acid (PFHpA)	0.018	J	0.027	0.012	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorohexane Sulfonate (PFHxS)	0.0063	U	0.027	0.0063	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorohexanoic acid (PFHxA)	0.073		0.018	0.0026	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorononanoic acid (PFNA)	0.016	U	0.036	0.016	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorooctanoic acid (PFOA)	0.032		0.018	0.0088	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorooctane Sulfonate (PFOS)	0.038		0.027	0.012	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluoropentanoic acid (PFPA)	0.081		0.027	0.0098	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorotetradecanoic acid (PFTeA)	0.013	U	0.027	0.013	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluorotridecanoic Acid (PFTriA)	0.016	U	0.036	0.016	ug/L		10/21/16 18:17	10/26/16 17:12	1
Perfluoroundecanoic acid (PFUnA)	0.0062	U	0.018	0.0062	ug/L		10/21/16 18:17	10/26/16 17:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	109		60 - 155	10/21/16 18:17	10/26/16 17:12	1
13C8 PFOS	93		45 - 130	10/21/16 18:17	10/26/16 17:12	1

Client Sample Results

Client: Alabama Dept. Environmental Management
Project/Site: ADEM PFC Sampling - Gadsden

TestAmerica Job ID: 280-89719-2

Client Sample ID: GADSDEN-FINISHED

Lab Sample ID: 280-89719-3

Date Collected: 10/19/16 10:00

Matrix: Water

Date Received: 10/20/16 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	0.0052	U	0.045	0.0052	ug/L		10/25/16 19:30	10/26/16 18:38	1