

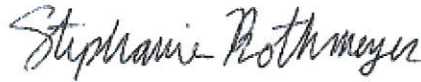
ANALYTICAL REPORT

Job Number: 280-96737-1

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
5/19/2017 10:32 AM

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05/19/2017

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.

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Definitions/Glossary

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

TestAmerica Job ID: 280-96737-1

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.
α	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: 280-96737-1

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 samples were received on 5/4/2017 at 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3° C.

PERFLUORINATED HYDROCARBONS (PFC)

Samples GADSDEN-RAW (280-96737-1) and GADSDEN-FINISHED (280-96737-2) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with SOP DV-LC-0012. The samples were prepared on 05/15/2017 and analyzed on 05/16/2017.

Internal standard responses were outside of acceptance limits for the following sample: GADSDEN-FINISHED (280-96737-2). The sample shows evidence of matrix interference.

The following sample was decanted prior to preparation: GADSDEN-RAW (280-96737-1). Solvent rinse of the original container could not be performed.

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

PERFLUOROCTANE SULFONAMIDE (FOSA)

Samples GADSDEN-RAW (280-96737-1) and GADSDEN-FINISHED (280-96737-2) were analyzed for Perfluorooctane Sulfonamide (FOSA) in accordance with SOP DV-LC-0012. The samples were prepared on 05/16/2017 and analyzed on 05/17/2017 and 05/18/2017.

Internal standard responses were outside of acceptance limits for the following sample: GADSDEN-FINISHED (280-96737-2). The sample shows evidence of matrix interference.

During the solid phase extraction process, the following sample clogged the cartridge; therefore, a second cartridge was used to complete the extraction: GADSDEN-RAW (280-96737-1). Both cartridges were eluted, and the two extracts were combined and concentrated to the appropriate volume. As such, reporting limits (RLs) are not impacted.

The following sample was decanted prior to preparation: GADSDEN-RAW (280-96737-1). Solvent rinse of the original container could not be performed.

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: 280-96737-1

Client Sample ID: GADSDEN-RAW

Lab Sample ID: 280-96737-1

Date Collected: 05/02/17 20:00

Matrix: Water

Date Received: 05/04/17 08:55

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.089		0.019	0.0078	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorobutanoic acid (PFBA)	0.017	J	0.019	0.0092	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorodecane sulfonate (PFDS)	0.0086	U	0.019	0.0086	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorodecanoic acid (PFDA)	0.0074	U	0.019	0.0074	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorododecanoic acid (PFDoA)	0.014	U	0.028	0.014	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluoroheptanoic acid (PFHpA)	0.017	J	0.028	0.012	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorohexane Sulfonate (PFHxS)	0.0066	U	0.028	0.0066	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorohexanoic acid (PFHxA)	0.040		0.019	0.0027	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorononanoic acid (PFNA)	0.016	U	0.038	0.016	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorooctanoic acid (PFOA)	0.039		0.019	0.0092	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorooctane Sulfonate (PFOS)	0.056		0.028	0.013	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluoropentanoic acid (PFPA)	0.056		0.028	0.010	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorotetradecanoic acid (PFTeA)	0.014	U	0.028	0.014	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluorotridecanoic Acid (PFTriA)	0.017	U	0.038	0.017	ug/L		05/15/17 13:36	05/16/17 23:23	1
Perfluoroundecanoic acid (PFUnA)	0.0065	U	0.019	0.0065	ug/L		05/15/17 13:36	05/16/17 23:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	128		60 - 155				05/15/17 13:36	05/16/17 23:23	1
13C8 PFOS	120		45 - 130				05/15/17 13:36	05/16/17 23:23	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		05/16/17 10:37	05/17/17 23:57	1

Client Sample ID: GADSDEN-FINISHED

Lab Sample ID: 280-96737-2

Date Collected: 05/03/17 10:00

Matrix: Water

Date Received: 05/04/17 08:55

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.081		0.021	0.0086	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorobutanoic acid (PFBA)	0.018	J	0.021	0.010	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorodecane sulfonate (PFDS)	0.0095	U	0.021	0.0095	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorodecanoic acid (PFDA)	0.0081	U	0.021	0.0081	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorododecanoic acid (PFDoA)	0.015	U	0.031	0.015	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluoroheptanoic acid (PFHpA)	0.018	J	0.031	0.014	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorohexane Sulfonate (PFHxS)	0.0072	U	0.031	0.0072	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorohexanoic acid (PFHxA)	0.037		0.021	0.0030	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorononanoic acid (PFNA)	0.018	U	0.042	0.018	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorooctanoic acid (PFOA)	0.037		0.021	0.010	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorooctane Sulfonate (PFOS)	0.052		0.031	0.014	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluoropentanoic acid (PFPA)	0.055		0.031	0.011	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorotetradecanoic acid (PFTeA)	0.015	U	0.031	0.015	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluorotridecanoic Acid (PFTriA)	0.018	U	0.042	0.018	ug/L		05/15/17 13:36	05/16/17 23:35	1
Perfluoroundecanoic acid (PFUnA)	0.0072	U	0.021	0.0072	ug/L		05/15/17 13:36	05/16/17 23:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	124		60 - 155				05/15/17 13:36	05/16/17 23:35	1
13C8 PFOS	125		45 - 130				05/15/17 13:36	05/16/17 23:35	1

Client Sample Results

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

TestAmerica Job ID: 280-96737-1

Client Sample ID: GADSDEN-FINISHED

Lab Sample ID: 280-96737-2

Date Collected: 05/03/17 10:00

Matrix: Water

Date Received: 05/04/17 08:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	0.0057	U	0.050	0.0057	ug/L		05/16/17 10:37	05/18/17 00:10	1