TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-91141-2

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
12/2/2016 12:02 PM

Stephanie K Rothmeyer, Project Manager I
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0182
stephanie.rothmeyer@testamericainc.com
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The Lab Certification ID# is 4025.

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

Qualifiers

LCMS

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

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: 280-91141-2

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 11/17/2016 at 10:00 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 (280-91141-2) and GADSDEN-FINISHED (280-91141-3) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with SOP DV-LC-0012. The samples were prepared on 11/29/2016 and analyzed on 11/30/2016.

During the solid phase extraction process, the following sample clogged the cartridge; therefore, the fraction of the sample that was extracted was calculated: GADSDEN-RAW (280-91141-2). The surrogate/spike amounts were adjusted to the amount extracted.

Internal standard responses were outside of acceptance limits for the following sample: GADSDEN-RAW (280-91141-2). The sample shows evidence of matrix interference. The Method Blank and LCS were in control indicating matrix is the cause for failures in the samples.

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 (280-91141-2) and GADSDEN-FINISHED (280-91141-3) were analyzed for Perfluorooctane Sulfonamide (FOSA) in accordance with SOP DV-LC-0012. The samples were prepared on 11/22/2016 and analyzed on 11/26/2016.

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

Client Sample ID: GADSDEN-RAW

Date Collected: 11/15/16 22:54
Date Received: 11/17/16 10:00

Lab Sample ID: 280-91141-2
Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.061**		0.022	0.0091	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorobutanoic acid (PFBA)	**0.021**	**J**	0.022	0.011	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorodecane sulfonate (PFDS)	0.010	U	0.022	0.010	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorodecanoic acid (PFDA)	0.0086	U	0.022	0.0086	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorododecanoic acid (PFDoA)	0.016	U	0.033	0.016	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluoroheptanoic acid (PFHpA)	**0.020**	**J**	0.033	0.015	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorohexane Sulfonate (PFHxS)	0.0077	U	0.033	0.0077	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorohexanoic acid (PFHxA)	**0.077**		0.022	0.0032	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorononanoic acid (PFNA)	0.019	U	0.044	0.019	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorooctanoic acid (PFOA)	**0.031**		0.022	0.011	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorooctane Sulfonate (PFOS)	**0.021**	**J**	0.033	0.015	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluoropentanoic acid (PFPA)	**0.083**		0.033	0.012	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorotetradecanoic acid (PFTeA)	0.016	U	0.033	0.016	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluorotridecanoic Acid (PFTriA)	0.020	U	0.044	0.020	ug/L		11/29/16 10:28	11/30/16 11:12	1
Perfluoroundecanoic acid (PFUnA)	0.0076	U	0.022	0.0076	ug/L		11/29/16 10:28	11/30/16 11:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*106*		*60 - 155*	*11/29/16 10:28*	*11/30/16 11:12*	*1*
13C8 PFOS	*103*		*45 - 130*	*11/29/16 10:28*	*11/30/16 11:12*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	0.0050	U	0.044	0.0050	ug/L		11/22/16 11:23	11/26/16 14:52	1

Client Sample ID: GADSDEN-FINISHED

Date Collected: 11/16/16 10:00
Date Received: 11/17/16 10:00

Lab Sample ID: 280-91141-3
Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.058**		0.018	0.0075	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorobutanoic acid (PFBA)	**0.020**		0.018	0.0089	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorodecane sulfonate (PFDS)	0.0083	U	0.018	0.0083	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorodecanoic acid (PFDA)	0.0071	U	0.018	0.0071	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorododecanoic acid (PFDoA)	0.014	U	0.027	0.014	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluoroheptanoic acid (PFHpA)	**0.019**	**J**	0.027	0.012	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorohexane Sulfonate (PFHxS)	0.0063	U	0.027	0.0063	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorohexanoic acid (PFHxA)	**0.074**		0.018	0.0026	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorononanoic acid (PFNA)	0.016	U	0.036	0.016	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorooctanoic acid (PFOA)	**0.034**		0.018	0.0089	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorooctane Sulfonate (PFOS)	**0.026**	**J**	0.027	0.012	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluoropentanoic acid (PFPA)	**0.087**		0.027	0.0099	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorotetradecanoic acid (PFTeA)	0.013	U	0.027	0.013	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluorotridecanoic Acid (PFTriA)	0.016	U	0.036	0.016	ug/L		11/29/16 10:28	11/30/16 11:24	1
Perfluoroundecanoic acid (PFUnA)	0.0063	U	0.018	0.0063	ug/L		11/29/16 10:28	11/30/16 11:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*109*		*60 - 155*	*11/29/16 10:28*	*11/30/16 11:24*	*1*
13C8 PFOS	*100*		*45 - 130*	*11/29/16 10:28*	*11/30/16 11:24*	*1*

Client Sample ID: GADSDEN-FINISHED
Date Collected: 11/16/16 10:00
Date Received: 11/17/16 10:00

Lab Sample ID: 280-91141-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	0.0050	U	0.044	0.0050	ug/L		11/22/16 11:23	11/26/16 14:40	1