

ANALYTICAL REPORT

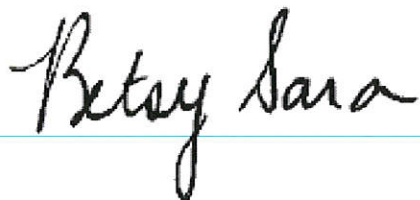
Job Number: 280-129356-1

Job Description: ADEM PFC Sampling

For:

Alabama Dept. Environmental Management
2715 Sandlin Road, SW
Decatur, AL 35603

Attention: Mr. Bruce Freeman



Approved for release.
Betsy A Sara
Project Manager II
10/15/2019 3:03 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/15/2019

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.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Eurofins 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
 Project/Site: ADEM PFC Sampling

Job ID: 280-129356-1

Qualifiers

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
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	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)

Job Narrative
280-129356-1

Comments

No additional comments.

Receipt

The samples were received on 10/9/2019 at 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.5° C.

LCMS

The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Gadsden-Finished (280-129356-2). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. All detection limits are below the lower calibration.

The following samples are flagged for ion ratio failure: Gadsden-Raw (280-129356-1), Gadsden-Finished (280-129356-2), (CCV 280-473926/14), (CCV 280-473926/20), (CCV 280-473926/3), (LCS 280-473673/2-A). It is in the laboratory analyst's judgment that the detections are real and are reported with the appropriate flags.

Detection Summary

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

Job ID: 280-129356-1

Client Sample ID: Gadsden-Raw

Lab Sample ID: 280-129356-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.019		0.018	0.0088	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.012	J I	0.027	0.012	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexanoic acid (PFHxA)	0.043	I	0.018	0.0071	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.029	I	0.018	0.0088	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctane sulfonate (PFOS)	0.034	I	0.027	0.012	ug/L	1		DV-LC-0012	Total/NA
Perfluoropentanoic acid (PFPA)	0.082		0.027	0.0098	ug/L	1		DV-LC-0012	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.089	I	0.018	0.0074	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: Gadsden-Finished

Lab Sample ID: 280-129356-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.020		0.017	0.0084	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexanoic acid (PFHxA)	0.028	I	0.017	0.0067	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.016	J I	0.017	0.0084	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctane sulfonate (PFOS)	0.018	J I	0.026	0.011	ug/L	1		DV-LC-0012	Total/NA
Perfluoropentanoic acid (PFPA)	0.080		0.026	0.0093	ug/L	1		DV-LC-0012	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.057	I	0.017	0.0070	ug/L	1		DV-LC-0012	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

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

Job ID: 280-129356-1

Client Sample ID: Gadsden-Raw

Lab Sample ID: 280-129356-1

Date Collected: 10/06/19 19:21

Matrix: Water

Date Received: 10/09/19 09:20

Method: DV-LC-0012 - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.019		0.018	0.0088	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorodecanoic acid (PFDA)	0.0071	U	0.018	0.0071	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorododecanoic acid (PFDoA)	0.013	U	0.027	0.013	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluoroheptanoic acid (PFHpA)	0.012	J I	0.027	0.012	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorohexanoic acid (PFHxA)	0.043	I	0.018	0.0071	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorononanoic acid (PFNA)	0.0068	U	0.036	0.0068	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorooctanoic acid (PFOA)	0.029	I	0.018	0.0088	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorooctane sulfonate (PFOS)	0.034	I	0.027	0.012	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluoropentanoic acid (PFPA)	0.082		0.027	0.0098	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorotetradecanoic acid (PFTeA)	0.013	U	0.027	0.013	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorotridecanoic acid (PFTriA)	0.016	U	0.036	0.016	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluoroundecanoic acid (PFUnA)	0.0062	U	0.018	0.0062	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorobutanesulfonic acid (PFBS)	0.089	I	0.018	0.0074	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorodecanesulfonic acid (PFDS)	0.0083	U	0.018	0.0083	ug/L		10/11/19 08:26	10/11/19 15:18	1
Perfluorohexanesulfonic acid (PFHxS)	0.0063	U	0.027	0.0063	ug/L		10/11/19 08:26	10/11/19 15:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	108		60 - 155				10/11/19 08:26	10/11/19 15:18	1
13C8 PFOS	120		45 - 130				10/11/19 08:26	10/11/19 15:18	1

Client Sample ID: Gadsden-Finished

Lab Sample ID: 280-129356-2

Date Collected: 10/07/19 11:00

Matrix: Water

Date Received: 10/09/19 09:20

Method: DV-LC-0012 - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.020		0.017	0.0084	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorodecanoic acid (PFDA)	0.0067	U	0.017	0.0067	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorododecanoic acid (PFDoA)	0.013	U	0.026	0.013	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluoroheptanoic acid (PFHpA)	0.011	U	0.026	0.011	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorohexanoic acid (PFHxA)	0.028	I	0.017	0.0067	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorononanoic acid (PFNA)	0.0064	U	0.034	0.0064	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorooctanoic acid (PFOA)	0.016	J I	0.017	0.0084	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorooctane sulfonate (PFOS)	0.018	J I	0.026	0.011	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluoropentanoic acid (PFPA)	0.080		0.026	0.0093	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorotetradecanoic acid (PFTeA)	0.013	U	0.026	0.013	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorotridecanoic acid (PFTriA)	0.015	U	0.034	0.015	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluoroundecanoic acid (PFUnA)	0.0059	U	0.017	0.0059	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorobutanesulfonic acid (PFBS)	0.057	I	0.017	0.0070	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorodecanesulfonic acid (PFDS)	0.0078	U	0.017	0.0078	ug/L		10/11/19 08:26	10/11/19 16:19	1
Perfluorohexanesulfonic acid (PFHxS)	0.0060	U	0.026	0.0060	ug/L		10/11/19 08:26	10/11/19 16:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	106		60 - 155				10/11/19 08:26	10/11/19 16:19	1
13C8 PFOS	119		45 - 130				10/11/19 08:26	10/11/19 16:19	1

Default Detection Limits

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

Job ID: 280-129356-1

Method: DV-LC-0012 - Fluorinated Alkyl Substances

Prep: 3535

Analyte	RL	MDL	Units
Perfluorobutanesulfonic acid (PFBS)	0.020	0.0082	ug/L
Perfluorobutanoic acid (PFBA)	0.020	0.0098	ug/L
Perfluorodecanesulfonic acid (PFDS)	0.020	0.0092	ug/L
Perfluorodecanoic acid (PFDA)	0.020	0.0078	ug/L
Perfluorododecanoic acid (PFDoA)	0.030	0.015	ug/L
Perfluoroheptanoic acid (PFHpA)	0.030	0.013	ug/L
Perfluorohexanesulfonic acid (PFHxS)	0.030	0.0070	ug/L
Perfluorohexanoic acid (PFHxA)	0.020	0.0079	ug/L
Perfluorononanoic acid (PFNA)	0.040	0.0075	ug/L
Perfluorooctane sulfonate (PFOS)	0.030	0.013	ug/L
Perfluorooctanoic acid (PFOA)	0.020	0.0098	ug/L
Perfluoropentanoic acid (PFPA)	0.030	0.011	ug/L
Perfluorotetradecanoic acid (PFTeA)	0.030	0.015	ug/L
Perfluorotridecanoic acid (PFTriA)	0.040	0.018	ug/L
Perfluoroundecanoic acid (PFUnA)	0.020	0.0069	ug/L