

ANALYTICAL REPORT

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Crandon, WI 54520
 Ph: (715)-478-2777 Fax: (715)-478-3060

WDNR Laboratory ID No. 721026460
 WDATCP Laboratory Certification No. 105-330
 EPA Laboratory ID No. W100034
 Printed: 11/23/16 Page 1 of 2

Client: U S Army - EMECO (Fort McCoy)
 Attn: Mike Miller
 2171 South 8th Avenue
 ZIMNW-MCY-SSP-E
 Fort McCoy, WI 54656

NLS Project: 270910
NLS Customer: 35655
 Fax: 608 388 3136 Phone: 608 388 6546

Project: Drinking Water - Method 537

5020 NLS ID: 958672									
COC: 196187:1 Matrix: DW									
Collected: 11/09/16 13:00 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

5021 NLS ID: 958673									
COC: 196187:2 Matrix: DW									
Collected: 11/09/16 13:15 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

5024 NLS ID: 958674									
COC: 196187:3 Matrix: DW									
Collected: 11/09/16 10:30 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

5025 NLS ID: 958675									
COC: 196187:4 Matrix: DW									
Collected: 11/09/16 10:15 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

5026 NLS ID: 958676									
COC: 196187:5 Matrix: DW									
Collected: 11/09/16 13:15 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

5027 NLS ID: 958677									
COC: 196187:6 Matrix: DW									
Collected: 11/09/16 10:15 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

5028 NLS ID: 958678									
COC: 196187:7 Matrix: DW									
Collected: 11/09/16 10:00 Received: 11/11/16									
Parameter									
Perfluorinated Chemicals by EPA Method 537 Rev 1.1									
Solid Phase Extraction by EPA Method 537									
Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab		
see attached					11/22/16	EPA 537 Rev 1.1	721026460		
yes					11/17/16	EPA 537	721026460		

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Client: U S Army - EMECO (Fort McCoy)
 Attn: Mike Miller
 2171 South 8th Avenue
 21MNW-MCY-SSP-E
 Fort McCoy, WI 54656

NLS Project: 270910
NLS Customer: 35655
 Fax: 608 388 3136 Phone: 608 388 6546

Project: Drinking Water - Method 537

5029 NLS ID: 958679

COC: 196187:8 Matrix: DW

Collected: 11/09/16 09:50 Received: 11/11/16

Parameter

Perfluorinated Chemicals by EPA Method 537 Rev 1.1

Solid Phase Extraction by EPA Method 537

Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
see attached					11/22/16	EPA 537 Rev 1.1	721026460
Yes					11/17/16	EPA 537	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution and/or solids content.

ND = Not Detected (< LOD) LOD = Limit of Detection

DWB = Dry Weight Basis %DWB = (mg/kg DWB) / 10000

MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:



Authorized by:
 R. T. Krueger
 President

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis

Customer: U S Army - EMECO (Fort McCoy) NLS Project: 270910

Project Description: Drinking Water - Method 537

Project Title: Template: 537PPT Printed: 11/23/2016 14:08

Sample: 958672_5020 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	1.0	3.3		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	2.3	7.6		
perfluorodecansulfonic acid (PFDS)	ND	ppt		1	2.3	7.7		
perfluorododecansulfonic acid (PFDDA)	ND	ppt		1	3.8	13		
C13-PFHxA (SURR)	92.915%							S
C13-PFDA (SURR)	90.451%							S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 958673_5021 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	1.0	3.3		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	2.3	7.6		
perfluorodecansulfonic acid (PFDS)	ND	ppt		1	2.3	7.7		
perfluorododecansulfonic acid (PFDDA)	ND	ppt		1	3.8	13		
C13-PFHxA (SURR)	96.406%							S
C13-PFDA (SURR)	100.576%							S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 958674_5024 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	1.0	3.3		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	2.3	7.6		
perfluorodecansulfonic acid (PFDS)	ND	ppt		1	2.3	7.7		
perfluorododecansulfonic acid (PFDDA)	ND	ppt		1	3.8	13		
C13-PFHxA (SURR)	93.267%							S
C13-PFDA (SURR)	84.129%							S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis

Customer: U S Army - EMECO (Fort McCoy) NLS Project: 270910

Project Description: Drinking Water - Method 537

Project Title: Template: 537PPT Printed: 11/23/2016 14:08

Sample: 958675_5026 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	1.0	3.3		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13		
perfluorodecane sulfonic acid (PFDA)	ND	ppt		1	2.3	7.6		
perfluorododecane sulfonic acid (PFDDA)	ND	ppt		1	2.3	7.7		
C13-PFHxA (SURR)	82.82%			1	3.8	13		S
C13-PFDA (SURR)	83.653%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 958676_5026 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	1.0	3.3		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13		
perfluorodecane sulfonic acid (PFDA)	ND	ppt		1	2.3	7.6		
perfluorododecane sulfonic acid (PFDDA)	ND	ppt		1	2.3	7.7		
C13-PFHxA (SURR)	98.922%			1	3.8	13		S
C13-PFDA (SURR)	91.007%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 958677_5027 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	1.0	3.3		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13		
perfluorodecane sulfonic acid (PFDA)	ND	ppt		1	2.3	7.6		
perfluorododecane sulfonic acid (PFDDA)	ND	ppt		1	2.3	7.7		
C13-PFHxA (SURR)	93.613%			1	3.8	13		S
C13-PFDA (SURR)	88.409%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis

Customer: U S Army - EMECO (Fort McCoy) NLS Project: 270910

Project Description: Drinking Water - Method 537

Project Title: Template: 537PPT Printed: 11/23/2016 14:08

Sample: 958678-5028 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt		1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt		1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt		1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13		S
C13-PFHxA (SURR)	104.606%							S
C13-PFDA (SURR)	102.886%							S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 958679-5029 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt		1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt		1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt		1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13		S
C13-PFHxA (SURR)	94.77%							S
C13-PFDA (SURR)	91.643%							S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

How to interpret the lab results:

1. **LOD = Limit of detection:** The smallest amount of chemical the laboratory can identify, measure, and report with confidence.
2. **ND = Not Detected:** The amount of chemical in the sample is less than the LOD
3. **ppt = parts per trillion:** 1 ppt means that there is 0.000000001% of the chemical in the sample.
4. **LOQ = Limit of quantification:** Used for quality control. It is a value used to compare the sample results to a known sample value
5. **C13-PFHxA (SURR) and C13-PFDA (SURR):** A sample with a known value used to evaluate for quality control. The higher the percentage, the more accurate the result.

Fort McCoy Airport:

Sample: 958672 5020 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6							
ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	92.915%						S
C13-PFDA (SURR)	90.451%						S

NOTES APPLICABLE TO THIS ANALYSIS:

South Post:

Sample: 958676 5026 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6							
ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	98.923%						S
C13-PFDA (SURR)	91.007%						S

Sample: 958673 5021 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6							
ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	96.408%						S
C13-PFDA (SURR)	109.578%						S

North Post:

Sample: 958674 5024 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6							
ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	93.267%						S
C13-PFDA (SURR)	84.129%						S

Sample: 958675 5025 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6							
ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	82.82%						S
C13-PFDA (SURR)	83.853%						S

Sample: 988677_5027 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL.	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluorheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	93.613%						S
C13-PFOA (SURR)	86.409%						S

Sample: 988678_5028 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL.	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluorheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	104.606%						S
C13-PFOA (SURR)	102.886%						S

Sample: 988679_5029 Collected: 11/09/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL.	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluorheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	94.77%						S
C13-PFOA (SURR)	91.643%						S