



Environmental Chemists, Inc.

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ANALYTICAL & CONSULTING CHEMISTS

info@environmentalchemists.com

July 20, 2017

Brunswick County Public Utilities
Post Office Box 249
Bolivia, NC 28422
Attn: Glenn Walker

Enclosed please find your analytical reports.

Sincerely,

A handwritten signature in cursive script that reads "Tammy Duran".

Tammy Duran

Environmental Chemists, Inc.

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

Client: Environmental Chemists
 Attn: Ray Porter
 6602 Windmill Way
 Wilmington, NC 28405

Project: GENX 2017-09586

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
 WDATCP Laboratory Certification No. 105-330
 EPA Laboratory ID No. W100034
 Printed: 07/19/17 Page 1 of 1
 NLS Project: 282795
 NLS Customer: 96259
 Fax: 910 392 4424 Phone: 910 392 0223

17-22929 NLS ID: 1003225

COC: 192200:1 Matrix: DW

Collected: 07/06/17 10:10 Received: 07/12/17

Parameter
 Solid Phase Extraction by EPA Method 537
 GenX and PFCs by EPA 537

Result
 Yes
 see attached

Units

Dilution

LOD

LOQ/MCL

Analyzed

Method
 EPA 537
 EPA 537

Lab
 721026460
 721026460

17-22929 FB NLS ID: 1003226

COC: 192200:1 Matrix: FB

Collected: 07/06/17 10:10 Received: 07/12/17

Parameter
 Solid Phase Extraction by EPA Method 537
 GenX and PFCs by EPA 537

Result
 not analyzed
 not analyzed

Units

Dilution

LOD

LOQ

Analyzed

Method
 EPA 537
 EPA 537

Lab
 721026460
 721026460

17-22931 NLS ID: 1003227

COC: 192200:2 Matrix: DW

Collected: 07/06/17 10:10 Received: 07/12/17

Parameter
 Solid Phase Extraction by EPA Method 537
 GenX and PFCs by EPA 537

Result
 Yes
 see attached

Units

Dilution

LOD

LOQ/MCL

Analyzed

Method
 EPA 537
 EPA 537

Lab
 721026460
 721026460

17-22931 FB NLS ID: 1003228

COC: 192200:2 Matrix: FB

Collected: 07/06/17 10:10 Received: 07/12/17

Parameter
 Solid Phase Extraction by EPA Method 537
 GenX and PFCs by EPA 537

Result
 not analyzed
 not analyzed

Units

Dilution

LOD

LOQ

Analyzed

Method
 EPA 537
 EPA 537

Lab
 721026460
 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 LOQ = Limit of Quantitation NA = Not Applicable
 DWB = Dry Weight Basis %DWB = (mg/kg DWB) / 10000 1000 ug/L = 1 mg/L
 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: Environmental Chemists NLS Project: 282795
 Project Description: GENX
 Project Title: 2017-09586
 Template: 537PPTGENX Printed: 07/19/2017 10:37

Sample: 1003225 17-22929 Collected: 07/06/17 Analyzed: 07/18/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	13.9	ppt		1	1.3	4.0		
perfluoro-2-propoxypropanoic acid (GenX)	85.6	ppt		1	0.73	2.3		
perfluorohexanoic acid (PFHxA)	12.3	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[4.12]	ppt		1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	9.29	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	[2.5]	ppt		1	1.5	4.9		J
perfluorooctanesulfonic acid (PFOS)	12.3	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	[1.71]	ppt		1	0.90	2.7		J
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDDa)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTriDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	76.364%							S
C13-PFDA (SURR)	82.841%							S

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
 S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 1003227 17-22931 Collected: 07/06/17 Analyzed: 07/18/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	13.5	ppt		1	1.3	4.0		
perfluoro-2-propoxypropanoic acid (GenX)	87.1	ppt		1	0.73	2.3		
perfluorohexanoic acid (PFHxA)	9.06	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	2.8	8.8		
perfluorooctanoic acid (PFOA)	6.14	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[4.34]	ppt		1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDDa)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTriDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	88.356%							S
C13-PFDA (SURR)	87.061%							S

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
 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. GenX only analysis performed by Modified EPA Method 537.

COLLECTION AND CHAIN OF CUSTODY

CLIENT: Brunswick County PUD
ADDRESS: PO Box 249
Bolivia, NC 28422

PROJECT NAME: Gen X Temperands
CONTACT NAME: Glenn Walker
REPORT TO: Glenn Walker

REPORT NO: 17-0958b
PO NO:
PHONE/FAX: 910-371-3490
email: glenn.walker@brunswickcountync.com

Sampled By:

SAMPLE TYPE: I = Influent, E = Effluent, W = Well, ST = Stream, SO = Soil, SL = Sludge, Other:

Sample Identification	Collection			Sample Type	Compos or Grab	Container (P or G)	Chlorine mg/L	LAB ID NUMBER	PRESERVATION							ANALYSIS REQUESTED
	Date	Time	Temp						NONE	HCL	H2SO4	HNO3	NaOH	H2O2	OTHER	
70617-501	7/6/17	1010	28.3	C	P			22929								✓ EDA 537 + Gen X
70617-E01	7/6/17	1010	28.3	G	G			22981								✓ " " " "
				C	P											
				C	P											
				G	G											
				C	P											
				C	P											
				C	P											
				C	P											
				C	P											
				C	P											
				C	P											
				C	P											
				C	P											
				C	P											
Transfer																
Reinquinished By:			Date/Time			Received By:			Date/Time							
Glenn Walker			7-6-17			Dana McD			7-6-17							

Temperature when Received: Accepted: Resample Requested:
Delivered By: Received By: Rejected:
Comments: 7/6/17 Time: 4:37.
TURNAROUND:

Do not use FBS per
Glenn Walker 2/17/17. #