NCSU Lot 86

CITY OF RALEIGH INDUSTRIAL PRETREATMENT MONITORING REPORT

MONTHLY FACILITY STATUS SHEET Effective January 1, 2008

All monitoring data and sampling frequencies meet permit requirements. ☒ Compliant

All monitoring data and sampling frequencies DO NOT meet permit requirements. ☐ Noncompliant

If non-compliant, did you notify control authority within 24 hours of becoming aware of violations? ☐ yes ☐ no

If non-compliant, did you resample within one week of becoming aware of the violation? ☐ yes ☐ no

All required monitoring has been conducted. ☒ yes ☐ no

Are copies of laboratory report, chain of custody form(s), and Industrial Data Summary Form attached. ☒ Yes ☐ No

If facility is noncompliant or did not resample within one week, please comment on corrective actions being taken in respect to equipment, operation, maintenance, etc., and a time table for improvements to be made and/or why re-sampling did not occur within one week of becoming aware of the violation(s).

_____

_____

_____

_____

_____

" I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Furthermore, based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for Locally Regulated Organic Compounds (LROC) or Total Toxic Organics(TTO), I certify that, to the best of my knowledge, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the City of Raleigh Industrial Pretreatment Program.

Kenneth Kretchman

Permittee (Please type or print name of permittee)

(Please note Permittee and Delegated Person may not be the same person.)

Kenneth Kretchman 5/2/16

Signature of Permittee or Delegated Person Date

*If signed by other than permittee, delegation of signatory authority must be on file with the City."

Note: Do not sign this report unless the City has a letter of signatory authority on file noting authority has been delegated.

City of Raleigh - Industrial Data Monitoring Form

Industry Name: NCSU Lot 86

Date: 5/2/2016

IUP# WOLFFIN

Pipe # 01

Data for Month: **April 2016**

Neuse River Wastewater Treatment Plant
NPDES Permit # NC 0029033

Date		Flow MGD	pH (s.u.)	Mercury 1631 LL (ug/L)	As (ug/L)	Cu (ug/L)	Fe (ug/L)	Pb (ug/L)	Zn (ug/L)	Mn (ug/L)	Mo (ug/L)	Se (ug/L)	Ag (ug/L)	Cd (ug/L)	Cr (ug/L)	Ni (ug/L)	Benzene (ug/L)
	Limits	0.0120	6.0-11.0	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
	Frequency	Each sampling event	Each sampling event	1/month	1/2month	1/2month	1/2month	1/2month	1/2month	1/2month	1/6month	1/6month	1/6month	1/6month	1/6month	1/6month	1/month
4/1/16		0.01025	7.5	0.0199	<2.00	9.35	162	<2.00	34.5	4,390							<1.00

City of Raleigh - Industrial Data Monitoring Form

Carbon Tetrachloride (ug/L)	Toluene (ug/L)	1,1,2,2 - Tetrachloroethane (ug/L)	Trichloroethene (ug/L)	Chloroform (ug/L)	1,2 - Dibromoethane (ug/L)	1,2 - Dichloropropane (ug/L)	Tetrachloroethene (ug/L)	1,4 - Dioxane (ug/L)	Tritium (pCi/L)	Gross Beta (pCi/L)
Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
1/month	1/month	1/month	1/month	1/month	1/month	1/month	1/month	1/month		
<1.00	<5.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	890	1,980	1.81

ESC LAB SCIENCES
YOUR LAB OF CHOICE

ANALYTICAL REPORT

April 12, 2016

myESC
REAL TIME DATA ACCESS

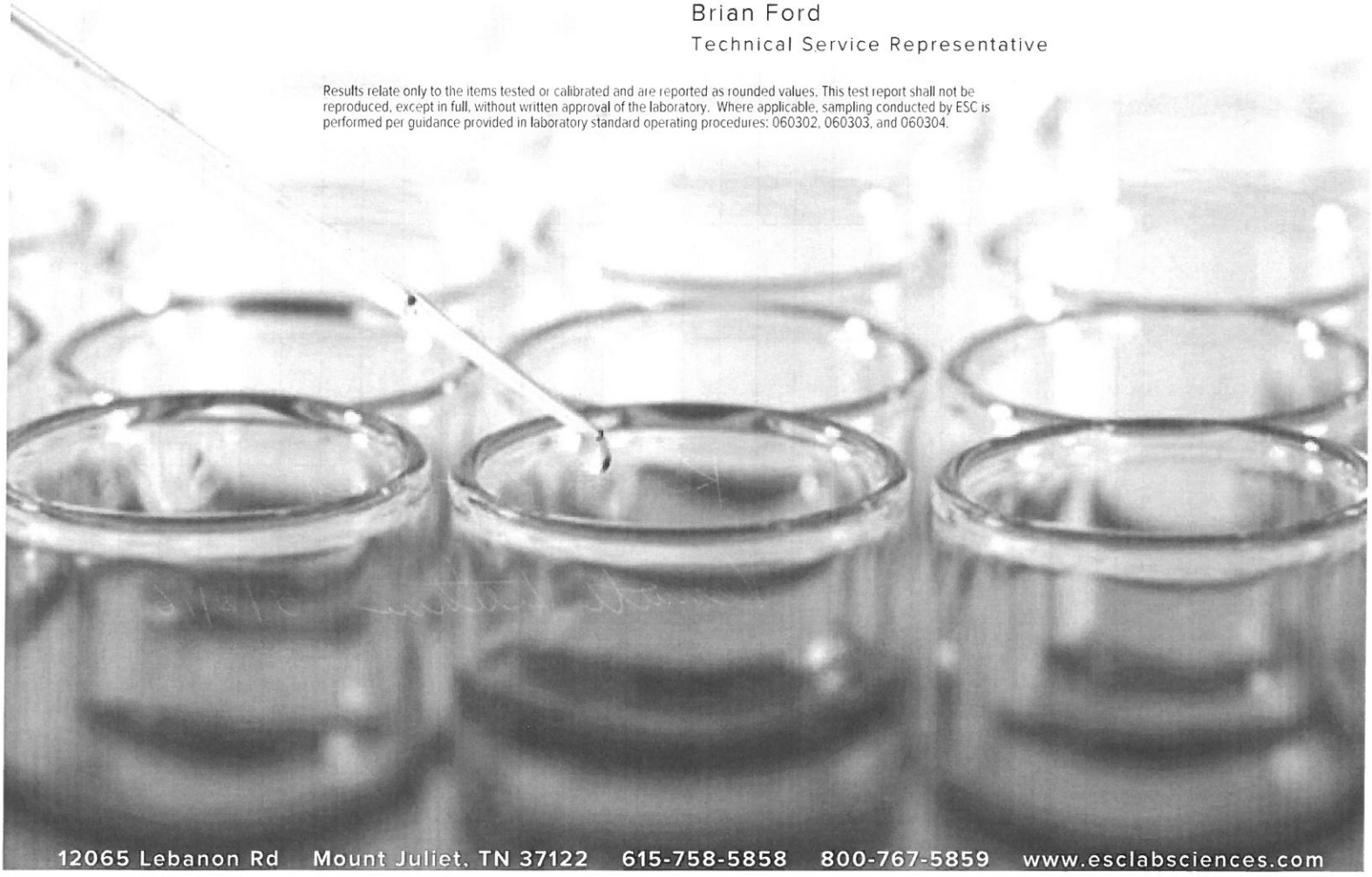
Piedmont Geologic

Sample Delivery Group:	L827473
Samples Received:	04/05/2016
Project Number:	1535
Description:	NCSU Lot 86 - Water Treatment System Monitoring
Site:	RALEIGH, NC
Report To:	Mr. Pete Dressel 6003 Chapel Hill Road Suite 145 Raleigh, NC 27607

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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ONE LAB. NATIONWIDE.

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GWE EFFLUENT L827473-01 GW

Collected by	Collected date/time	Received date/time
Geoffrey Murphrey	04/01/16 13:55	04/05/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG862549	1	04/07/16 11:43	04/08/16 01:37	JDG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG862957	1	04/09/16 05:30	04/09/16 05:30	ACG

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Technical Service Representative

Additional Information

Analyte	Result	Units
pH (On Site)	7.5	su

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	04/08/2016 01:37	WG862549
Copper	9.35		5.00	1	04/08/2016 01:37	WG862549
Iron	162		100	1	04/08/2016 01:37	WG862549
Lead	ND		2.00	1	04/08/2016 01:37	WG862549
Manganese	4390		5.00	1	04/08/2016 01:37	WG862549
Zinc	34.5		25.0	1	04/08/2016 01:37	WG862549

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/09/2016 05:30	WG862957
Carbon tetrachloride	ND		1.00	1	04/09/2016 05:30	WG862957
Chloroform	ND		5.00	1	04/09/2016 05:30	WG862957
1,2-Dibromoethane	ND		1.00	1	04/09/2016 05:30	WG862957
1,2-Dichloropropane	ND		1.00	1	04/09/2016 05:30	WG862957
1,1,2,2-Tetrachloroethane	ND		1.00	1	04/09/2016 05:30	WG862957
Tetrachloroethene	ND		1.00	1	04/09/2016 05:30	WG862957
Toluene	ND		5.00	1	04/09/2016 05:30	WG862957
Trichloroethene	ND		1.00	1	04/09/2016 05:30	WG862957
1,4-Dioxane	890		100	1	04/09/2016 05:30	WG862957
(S) Toluene-d8	*106*		*90.0-115*		*04/09/2016 05:30*	WG862957
(S) Dibromofluoromethane	*110*		*79.0-121*		*04/09/2016 05:30*	WG862957
(S) α,α,α-Trifluorotoluene	*98.6*		*90.4-116*		*04/09/2016 05:30*	WG862957
(S) 4-Bromofluorobenzene	*94.0*		*80.1-120*		*04/09/2016 05:30*	WG862957

QUALITY CONTROL SUMMARY

L827473-01

Method Blank (MB)

(MB) R3127261-1 04/08/16 00:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.00025	0.00200
Copper	0.000974		0.00052	0.00500
Iron	U		0.015	0.100
Lead	U		0.00024	0.00200
Manganese	U		0.00025	0.00500
Zinc	U		0.00256	0.0250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3127261-2 04/08/16 01:03 • (LCSD) R3127261-3 04/08/16 01:08

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	0.0500	0.0468	0.0458	94	92	80-120			2	20
Copper	0.0500	0.0480	0.0467	96	93	80-120			3	20
Iron	5.00	4.62	4.58	92	92	80-120			1	20
Lead	0.0500	0.0472	0.0469	94	94	80-120			1	20
Manganese	0.0500	0.0461	0.0459	92	92	80-120			0	20
Zinc	0.0500	0.0436	0.0436	87	87	80-120			0	20

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L827563-01 04/08/16 01:13 • (MS) R3127261-5 04/08/16 01:22 • (MSD) R3127261-6 04/08/16 01:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	0.0500	0.000736	0.0499	0.0499	98	98	1	75-125			0	20
Copper	0.0500	0.00104	0.0480	0.0480	94	94	1	75-125			0	20
Iron	5.00	0.0730	4.69	4.55	92	90	1	75-125			3	20
Lead	0.0500	0.000223	0.0471	0.0472	94	94	1	75-125			0	20
Manganese	0.0500	0.00773	0.0537	0.0524	92	89	1	75-125			2	20
Zinc	0.0500	0.000705	0.0458	0.0449	92	90	1	75-125			2	20

Method Blank (MB)

(MB) R3128226-3 04/09/16 03:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000331	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chloroform	U		0.000324	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000780	0.00500
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Trichloroethene	U		0.000398	0.00100
1,4-Dioxane	U		0.0360	0.100
(S) Toluene-d8	*106*			*90.0-115*
(S) Dibromofluoromethane	*108*			*79.0-121*
(S) 4-Bromofluorobenzene	*95.9*			*80.1-120*
(S) α,α,α-Trifluorotoluene	*99.2*			*90.4-116*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3128226-1 04/09/16 01:37 • (LCSD) R3128226-2 04/09/16 01:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0256	0.0252	102	101	73.0-122			1.44	20
Carbon tetrachloride	0.0250	0.0229	0.0230	91.5	92.0	70.9-129			0.540	20
Chloroform	0.0250	0.0246	0.0241	98.4	96.5	73.2-125			1.89	20
1,2-Dibromoethane	0.0250	0.0238	0.0240	95.0	96.1	79.8-122			1.15	20
1,2-Dichloropropane	0.0250	0.0277	0.0278	111	111	77.4-125			0.200	20
Tetrachloroethene	0.0250	0.0217	0.0217	86.9	86.7	73.5-130			0.220	20
1,1,2,2-Tetrachloroethane	0.0250	0.0253	0.0251	101	100	79.3-123			0.700	20
Toluene	0.0250	0.0232	0.0228	92.8	91.1	77.9-116			1.87	20
Trichloroethene	0.0250	0.0235	0.0230	93.9	92.2	79.5-121			1.83	20
(S) Toluene-d8				*105*	*105*	*90.0-115*				
(S) Dibromofluoromethane				*108*	*108*	*79.0-121*				
(S) 4-Bromofluorobenzene				*92.8*	*93.2*	*80.1-120*				
(S) α,α,α-Trifluorotoluene				*97.9*	*98.0*	*90.4-116*				

QUALITY CONTROL SUMMARY

L827473-01

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L827473-01 04/09/16 05:30 • (MS) R3128226-4 04/09/16 03:53 • (MSD) R3128226-5 04/09/16 04:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	ND	0.0222	0.0221	88.8	88.5	1	58.6-133			0.360	20
Carbon tetrachloride	0.0250	ND	0.0203	0.0199	81.2	79.8	1	60.6-139			1.82	20
Chloroform	0.0250	ND	0.0220	0.0219	88.1	87.8	1	66.1-133			0.300	20
1,2-Dibromoethane	0.0250	0.000520	0.0220	0.0225	85.9	87.9	1	73.8-131			2.29	20
1,2-Dichloropropane	0.0250	ND	0.0252	0.0256	101	103	1	69.7-130			1.67	20
Tetrachloroethene	0.0250	ND	0.0192	0.0194	76.8	77.4	1	57.4-141			0.840	20
1,1,2,2-Tetrachloroethane	0.0250	0.000140	0.0245	0.0251	97.9	100	1	64.9-145			2.57	20
Toluene	0.0250	ND	0.0205	0.0205	82.1	81.8	1	67.8-124			0.280	20
Trichloroethene	0.0250	ND	0.0199	0.0201	79.4	80.3	1	48.9-148			1.14	20
(S) Toluene-d8					*105*	*106*		*90.0-115*				
(S) Dibromofluoromethane					*109*	*108*		*79.0-121*				
(S) 4-Bromofluorobenzene					*94.6*	*93.5*		*80.1-120*				
(S) α,α,α-Trifluorotoluene					*98.4*	*101*		*90.4-116*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [14]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

Piedmont Geologic

6003 Chapel Hill Road Suite 145
Raleigh, NC 27607

Billing Information:
Accounts Payable
6003 Chapel Hill Rd Ste 145
Raleigh, NC 27607

Report to: Mr. Pete Dressel

Email To: pjdressel@piedmontgeologic.com

Project Description: NCSU Lot 86 - Water Treatment System Mon

City/State Collected: Raleigh, NC

Phone: 919-854-9700
Fax: 919-854-9532

Client Project #: 1535

Lab Project #: PIEGEO-NCSU LOT 86

Collected by (print): Geoffrey Murphey

Site/Facility ID #:

P.O. #: 1347

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X__Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	As,Cu,Fe,Pb,Mn,Zn 500mlHDPE-HNO3 <2	HG1631 250mlClr-HCl	V8260AP9 40mlAmb-HCl								Rem./Contaminant	Sample # (lab only)
GWE EFFLUENT	Grab	GW		4/1/16	1355	3	X		X									d
GWE EFFLUENT	↓	GW		↓	1355	1		X										~~e~~ ms
FIELD BLANK	↓	GW		↓	1340	1		X										~~f~~

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks:V8260AP9 = Benzene,CCl4,Toluene,1122-TCA,TCE,Chloroform,EDB,12DCPA,PCE,14-Dioxane (Report 14D to MDL)

Quote PIEGEO080513S

pH 7.5 Temp _____ Flow _____ Other _____

6645 0393 1048

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Sandra Dressel	4/4/16	13:50	[signature]
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
[signature]	4/4/16	17:40	[signature]

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____

Temp: 1.4 °C Bottles Received: 5

Date: 4/5/16 Time: 0900

Hold #

Condition: NBIO (lab use only) 4

COC Seal Intact: ___Y ___N ___NA

pH Checked: 22 NCF:

Chain of Custody Page 1 of 1

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 827473

H117

Acctnum: PIEGEO
Template: T82963
Prelogin: P547137
TSR: 110 - Brian Ford
PB: 3/30/16 [illegible]
Shipped Via: FedEX Ground

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

ANALYTICAL REPORT

April 14, 2016

myESC
REAL TIME DATA ACCESS

Piedmont Geologic

Sample Delivery Group:	L827575
Samples Received:	04/05/2016
Project Number:	1535
Description:	NCSU Lot 86 - Water Treatment System Monitoring
Report To:	Mr. Pete Dressel 6003 Chapel Hill Road Suite 145 Raleigh, NC 27607

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

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Brian Ford

Brian Ford
Technical Service Representative

Project Narrative

L827575 -01, -02 contains subout data that is included after the chain of custody.

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
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ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

1 Cp
2 Tc
3 Cn
4 Gl
5 Al
6 Sc

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [14]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

Piedmont Geologic

6003 Chapel Hill Road Suite 145
Raleigh, NC 27607

Billing Information:
Accounts Payable
6003 Chapel Hill Rd Ste 145
Raleigh, NC 27607

Report to: Mr. Pete Dressel

Email To: pjdressel@piedmontgeologic.com

Project Description: NCSU Lot 86 - Water Treatment System Mon

City/State Collected: Raleigh, NC

Phone: 919-854-9700
Fax: 919-854-9532

Client Project #: 1535

Lab Project #: PIEGEO-NCSU LOT 86

Collected by (print): Geoffrey Murphrey

Site/Facility ID #:

P.O. #: 1347

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X__Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LABS SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Lab # 822475

H117

Acctnum: PIEGEO
Template: T82963
Prelogin: P547137
TSR: 110 - Brian Ford
PB: 3/30/16 [illegible]
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	As,Cu,Fe,Pb,Mn,Zn 500mlHDPE-HNO3 <2	HG1631 250mlClr-HCl	V8260AP9 40mlAmb-HCl	Rem./Contaminant	Sample # (lab only)
GWE EFFLUENT	Grab	GW		4/1/16	1355	3	X		X		[illegible]
GWE EFFLUENT	↓	GW		↓	1355	1		X			[illegible]
FIELD BLANK	↓	GW		↓	1340	1		X			[illegible]

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other ___

Remarks: V8260AP9 = Benzene,CCl4,Toluene,1122-TCA,TCE,Chloroform,EDB,12DCPA,PCE,14-Dioxane (Report 14D to MDL)

Quote PIEGEO080513S

pH 7.5 Temp ___ Flow ___ Other ___

6645 0393 1048

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ___	Condition: (lab use only)
Sandra Dressel	4/4/16	13:30	[signature]		nBIO
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.4 °C Bottles Received: 5	COC Seal Intact: ___Y ___N ___NA
[signature]	4/4/16	17:40	[signature]	Date: 4/5/16 Time: 0900	pH Checked: 22 / NCF:

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

April 14, 2016

Ms. Janice Cozby
Environmental Science Corporation
12065 Lebanon Road
Mount Juliet, Tennessee 37122

Re: Routine Analysis
Work Order: 394694

Dear Ms. Cozby:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on April 06, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4289.

Sincerely,

Linda Pullano for
Julie Robinson
Project Manager

Purchase Order: S23506
Chain of Custody: WG862053
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis Report
for

ENVL001 Environmental Science Corporation

Client SDG: 394694 GEL Work Order: 394694

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Julie Robinson.

Reviewed by Linda O. Pullen

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 14, 2016

Company :	Environmental Science Corporation
Address :	12065 Lebanon Road
	Mount Juliet, Tennessee 37122
Contact:	Ms. Janice Cozby
Project:	Routine Analysis

Client Sample ID:	L827575-01 NCSU LOT86 Eff	Project:	ENVL00507
Sample ID:	394694001	Client ID:	ENVL001
Matrix:	Waste Water		
Collect Date:	01-APR-16 13:55		
Receive Date:	06-APR-16		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA											
EPA 1631 Low Level Mercury Analysis "As Received"											
Mercury		19.9	0.200	0.500	ng/L	1	LYG1	04/12/16	1412	1558674	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 1631E	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: April 14, 2016

Company :	Environmental Science Corporation
Address :	12065 Lebanon Road
	Mount Juliet, Tennessee 37122
Contact:	Ms. Janice Cozby
Project:	Routine Analysis

Client Sample ID:	L827575-02 FB	Project:	ENVL00507
Sample ID:	394694002	Client ID:	ENVL001
Matrix:	BLANK		
Collect Date:	01-APR-16 13:40		
Receive Date:	06-APR-16		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA											
EPA 1631 Low Level Mercury Analysis "As Received"											
Mercury	U	<0.2	0.200	0.500	ng/L	1	LYG1	04/12/16	1137	1558674	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 1631E	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: April 14, 2016

Environmental Science Corporation
12065 Lebanon Road
Mount Juliet, Tennessee

Contact: **Ms. Janice Cozby**

Workorder: **394694**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Metals Analysis-Mercury											
Batch 1558674											
QC1203525185 LCS											
Mercury	5.00				4.00	ng/L		79.9	(77%-123%)	LYG1	04/12/16 11:18
QC1203525184 MB											
Mercury				U	<0.2	ng/L					04/12/16 11:11
QC1203525219 394918016 MS											
Mercury	2.50	U	<0.500		2.98	ng/L		99.5	(71%-125%)		04/12/16 15:47
QC1203525220 394918016 MSD											
Mercury	2.50	U	<0.500		2.72	ng/L	9.05	89.2	(0%-24%)		04/12/16 15:53

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- h Preparation or preservation holding time was exceeded

QC Summary

Workorder: **394694**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

There are no "Data Exception Reports" associated with this analytical report.

Sub-Contract Chain of Custody

394694

Environmental Science Corp
12065 Lebanon Road
Mt. Juliet, TN 37122
(615) 773-9756 (615) 758-5859 fax

Sub-Contract Lab : GEL
City / State : Charleston, SC
Results Needed by : 4/18/16
ESC Purchase Order # : S23506

WORKGROUP	**WG862053**
Date Created :	4/5/16

Send Reports To : ____Janice Cozby jcozby@esclabsciences.com____

SAMPLENO Container #	MATRIX	Date / Time Collected	PARAMETER	Code	METHOD	Comments
L827575-01	GW	4/1/16 1355	Mercury	HG1631	1631E	NCSU LOT816 Eff
20230755 20230755						
L827575-02	GW	4/1/16 1340	Mercury	HG1631	1631E	FB
20230756 20230756						

Relinquished by AH Date: 4/5/16
Received by : [illegible] Date: 040616 0900
Relinquished by _____ Date: _____
Received by : _____ Date: _____

Page : 1

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ENVL	SDG/AR/COC/Work Order: 394694
Received By: Lisa Tola	Date Received: 040616

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice (None) Other (describe) 14°C *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 41502132 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: If Preservation added, Lot#: PH=1 see comments
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: L826975-01 Collect time on bottle is 9:00
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 671103350769

Comments (Use Continuation Form if needed):
L826975-01, L827575-01, L827575-02, L827481-02, L827481-03

PM (or PMA) review: Initials SR Date 4-6-16 Page 1 of 1

GL-CHL-SR-001 Rev 3

List of current GEL Certifications as of 14 April 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-16791-1
Client Project/Site: NCSU Lot 86

For:
Piedmont Geologic P.C.
6003 Chapel Hill Road
Suite 145
Raleigh, North Carolina 27607

Attn: Pete Dressel

Rhonda Ridenhower

Authorized for release by:
4/18/2016 10:15:16 AM

Rhonda Ridenhower, Manager of Project Management
(314)298-8566
rhonda.ridenhower@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

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.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

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QC Association Summary 12

Job ID: 160-16791-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Piedmont Geologic P.C.

Project: NCSU Lot 86

Report Number: 160-16791-1

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.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 04/05/2016; the samples arrived in good condition, properly preserved. The temperature of the coolers at receipt was 20.0 C.

GROSS ALPHA AND GROSS BETA RADIOACTIVITY

Sample GWE EFFLUENT (160-16791-1) was analyzed for Gross Alpha and Gross Beta Radioactivity in accordance with USEPA Method 900.0. The samples were prepared on 04/07/2016 and analyzed on 04/13/2016.

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

TRITIUM, TOTAL (LSC)

Sample GWE EFFLUENT (160-16791-1) was analyzed for Tritium, Total (LSC) in accordance with USEPA 906.0. The samples were prepared on 04/14/2016 and analyzed on 04/15/2016.

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

Job ID: 160-16791-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Pete Dressel
Company: Piedmont Geologic P.C.
Address: 6003 Chapel Hill Road Suite 145
City: Raleigh
State, Zip: NC, 27607
Phone: 919-854-9700(Tel)
Email: pjdressel@piedmontgeologic.com
Project Name: NCSU Lot 86
Site:

Sampler: Geoffrey Murphrey
Phone: 919-854-9700
Due Date Requested:
TAT Requested (days):
PO #: Purchase Order not required
WO #:
Project #: 16002172
SSOW#:

Lab PM: Ridenhower, Rhonda E
E-Mail: rhonda.ridenhower@testamericainc.com
Carrier Tracking No(s):
COC No: 160-2264-1097.1
Page: Page 1 of 1
Job #:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	906.0 - Tritium	900.0 - Gross Beta	Total Number of containers
			Preservation Code:				N	D	
GWE Effluent	4/1/16	1355	G	Water			X	X	
				~~Water~~					
				~~Water~~					
				~~Water~~					

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2SO3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - ph 4-5
Z - other (specify)

Other:

Special Instructions/Note:

160-16791 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4/4/16 0900	PG	[signature]	4/5/16 0900	TA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: Piedmont Geologic P.C.

Job Number: 160-16791-1

Login Number: 16791
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Piedmont Geologic P.C.
Project/Site: NCSU Lot 86

TestAmerica Job ID: 160-16791-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

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)

Method Summary

Client: Piedmont Geologic P.C.
Project/Site: NCSU Lot 86

TestAmerica Job ID: 160-16791-1

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Piedmont Geologic P.C.
Project/Site: NCSU Lot 86

TestAmerica Job ID: 160-16791-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-16791-1	GWE EFFLUENT	Water	04/01/16 13:55	04/05/16 09:00

Client Sample Results

Client: Piedmont Geologic P.C.
Project/Site: NCSU Lot 86

TestAmerica Job ID: 160-16791-1

Client Sample ID: GWE EFFLUENT

Lab Sample ID: 160-16791-1

Date Collected: 04/01/16 13:55
Date Received: 04/05/16 09:00

Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Beta	1.81		0.404	0.443	4.00	0.472	pCi/L	04/07/16 16:24	04/13/16 21:16	1

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	1980		303	349	500	298	pCi/L	04/14/16 10:34	04/15/16 04:38	1

QC Sample Results

Client: Piedmont Geologic P.C.
Project/Site: NCSU Lot 86

TestAmerica Job ID: 160-16791-1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-244921/1-A
Matrix: Water
Analysis Batch: 245625

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 244921

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Beta	0.1500	U	0.472	0.472	4.00	0.821	pCi/L	04/07/16 16:24	04/13/16 21:15	1

Lab Sample ID: LCSB 160-244921/3-A
Matrix: Water
Analysis Batch: 245625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 244921

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	93.0	89.97		9.52	4.00	0.848	pCi/L	97	75 - 125

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-245938/1-A
Matrix: Water
Analysis Batch: 246205

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 245938

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	199.1	U	179	179	500	285	pCi/L	04/14/16 10:34	04/15/16 03:07	1

Lab Sample ID: LCS 160-245938/2-A
Matrix: Water
Analysis Batch: 246216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 245938

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	4640	5297		645	500	327	pCi/L	114	74 - 114

Lab Sample ID: 160-16791-1 MS
Matrix: Water
Analysis Batch: 246205

Client Sample ID: GWE EFFLUENT
Prep Type: Total/NA
Prep Batch: 245938

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Tritium	1980		4640	7141		806	500	295	pCi/L	111	67 - 130

QC Association Summary

Client: Piedmont Geologic P.C.
Project/Site: NCSU Lot 86

TestAmerica Job ID: 160-16791-1

Rad

Prep Batch: 244921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16791-1	GWE EFFLUENT	Total/NA	Water	Evaporation	
LCSB 160-244921/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
MB 160-244921/1-A	Method Blank	Total/NA	Water	Evaporation	

Prep Batch: 245938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16791-1	GWE EFFLUENT	Total/NA	Water	LSC_Dist_Susp	
160-16791-1 MS	GWE EFFLUENT	Total/NA	Water	LSC_Dist_Susp	
LCS 160-245938/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
MB 160-245938/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	