State of West Virginia Department of Environmental Protection Office of Oil and Gas

CBM Land Application – Application Review Form

\ Facility Nu	mber <u>GP-WV-1-07-0101385</u>	(MM/DD/YYYY) Received <u>6 /3 / 21</u>
Operator	DIVERSIFIED GAS, INC.	Evaluated <u>9 /21 / 21</u>
Facility Na	me TYGRETT 1B 41C	Approved / /
1. Form W	W-8. Submitted and properly filled out?	$\frac{\underline{Y}}{(\prime)} \frac{\underline{N}}{()} \frac{\underline{NA}}{()}$
	and Design Map. Submitted in both hardcopy and digital formatorenced in NAD 83)	$\begin{array}{cccc} ? & \underline{Y} & \underline{N} & \underline{NA} \\ \hline () & () & () \\ \end{array}$
	ion and Method of Land Application. Does it meet requirements ed in Form WW-8?	$\begin{array}{c} \underline{Y} & \underline{N} & \underline{NA} \\ \hline (\checkmark) & () & () \end{array}$
	ng Plan. Does it meet requirements established in form WW-8 WV-1-07?	$\begin{array}{ccc} \underline{\mathbf{Y}} & \underline{\mathbf{N}} & \underline{\mathbf{NA}} \\ (\mathbf{\mathbf{V}}) & (\mathbf{\mathbf{V}}) & (\mathbf{\mathbf{V}}) \end{array}$
	groundwater monitoring plan been submitted g to GP-WV-1-07, H.12? (if applicable)	$\underbrace{\mathbf{Y}}_{(\mathbf{Y})} \underbrace{\mathbf{N}}_{(\mathbf{Y})} \underbrace{\mathbf{NA}}_{(\mathbf{Y})} \underbrace{\mathbf{NA}}_{(\mathbf{Y})}$
6. CBM wa	ter analytical data. Is it present in the application?	$\begin{array}{c} \underline{\mathbf{Y}} \\ \underline{\mathbf{W}} \\ \underline{\mathbf{V}} \end{array} \qquad \begin{array}{c} \underline{\mathbf{N}} \\ \underline{\mathbf{N}} \\ \underline{\mathbf{N}} \end{array} \qquad \begin{array}{c} \underline{\mathbf{NA}} \\ \underline{\mathbf{NA}} \\ \underline{\mathbf{NA}} \\ \underline{\mathbf{NA}} \end{array} \qquad \begin{array}{c} \underline{\mathbf{NA}} \\ \underline$
	and sampling. Does it meet the requirement stated in 1-07, H.11?	$\frac{\mathbf{Y}}{(\mathbf{Y})} \frac{\mathbf{N}}{(\mathbf{Y})} \frac{\mathbf{N}\mathbf{A}}{(\mathbf{Y})}$
8. Applicati	on rate calculations provided?	$\begin{array}{c} \underline{\mathbf{Y}} & \underline{\mathbf{N}} & \underline{\mathbf{NA}} \\ (\mathbf{Y}) & (\mathbf{y}) & (\mathbf{y}) \end{array}$
9. Surface o	owner waiver provided?	$\begin{array}{c c} Y & N & NA \\ \hline () & () & () \end{array}$
10. Maintena	nce plan provided?	$\begin{array}{c c} \underline{Y} & \underline{N} & \underline{NA} \\ \hline () & () & () \end{array}$
Form comple	ted by:	
(pri	nt) APOREN L. Lackwood	

APPLICATION AND SITE REGISTRATION FOR LAND APPLICATION OF WATER PRODUCED FROM COALBED METHANE WELLS TYGRETT 1B AND 1C CURRENT PERMIT #GP-WV-1-07-08101385 BOLT, RALEIGH COUNTY, WEST VIRGINIA

> Prepared For: Diversified Gas, Inc. 414 Summers Street Charleston, West Virginia 24301

Prepared By: Envirocheck of Virginia, Inc. 375 Mountain Lane Tazewell, Virginia 24651

EnviroCheck of Virginia, Inc. 375 Mountain Lane Tazewell, Virginia 24651 276.472.2174 FAX 276.472.2425

May 10, 2021

Mr. James Martin, *Chief* West Virginia Department of Environmental Protection Office of Oil and Gas 601 57th Street, SE Charleston, West Virginia 25304

Re: Application and Site Registration for Land Application of Water Produced from Coalbed Methane Well Diversified Gas – Tygrett 1B/1C Bolt, Raleigh County, West Virginia

Dear Mr. Martin:

On behalf of Diversified Gas, Inc. EnviroCheck of Virginia, Inc. (EC) is pleased to submit this "Application and Site Registration for Land Application of Water Produced from Coalbed Methane Wells." The facility is currently permitted under General Permit #GP-WV-1-07-08101385 and DG wishes to renew this permit. Based on current and historical produced water laboratory data, this facility will not operate in the upper discharge limits of the permit (Section B). Therefore, ground water monitoring will not be required for this facility.

If you have any questions, please feel free to contact us.

Sincerely,

EnviroCheck of Virginia, Inc.

Jack Alberty II

Jacob L. Rhudy, III, L.R.S. #172 Operations Manager

Page 1 of _____ Form WW-8 (11-09) Site Registration Form 1) Date: 3/21/21

Agency Use Only

Facility ID Number:
 Date Received:

-01385

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS APPLICATION AND SITE REGISTRATION FOR LAND APPLICATION OF WATER PRODUCED FROM COALBED METHANE WELL

4) Facility Operator: Diversifed Production, LLC	5) Facility Name KS Harvey/Tygrett
6) Operator's Facility Number GP-WV-1-07-081-01385	7) Facility Elevation 2280'
 8) Location: (a) Watershed Breckenridge of Marsh Fork (b) District Trap Hill (d) Quadrangle Amette, WV 	(c) County Raleigh (coord 279263.28/1842177.83) (e) Coordinates NAD83 ¹ :
9) Surface Owner*: Gilles and Raylene Caron	10) Acreage 3 tracts, approx 195.74acres
Address PO Box 396 Bolt, WV 25817	
11) Designated Agent: Jeff Mast	
Address 414 Summers Street Charleston, WV 25301	
DESCRIPTION OF APPLICATION AREA	
12) Soil Type: Muskingum	Soil Permeability: Moderate
Depth to Bedrock:	Depth to Water Table: 220 y Soil Survey Report)
13) Nearest Water Supply Distance**: <u>City Water</u> Type:	Stream Well Spring
14) Nearest Surface Water*: 300' trib to Trough Fork	
15) Nearest Occupied Dwelling: > 3/4 mile	
16) Average Slope of Proposed Area of Land Application: 89	6
17) Total Acreage of Proposed Application Area: approx 4-6	acres
 * Attach additional pages as necessary. ** If located within 2500 foot radius of the land application are. 	a.

¹ The attached topo map (See # 18 for additional requirements) shall include coordinates of boundaries for the land application area, as well as monitoring wells (if groundwater monitoring plan is proposed), monitoring markers for water, soil and vegetation sampling.

Page 2 of ____ Form WW-8 (11-09) Site Registration Form 1) Date: 3/21/2021

Agency Use Only

2) Facility ID Number:
 3) Date Received:

LOCATION AND DESIGN MAP

18) Attach a map on the scale of 1" = 1,000' or greater showing the acreage within the permitted site to be used for land application identifying all monitoring points, surface waters, wells, springs, natural rock outcrops and property lines in relation to the proposed area of land application within a radius of 2500 ft. The drawing shall also be sent in digital format, set up in coordinates UTM Zone 17 or 18 (as appropriate) and based on North American Datum 1983 - NAD 83. Map shall also delineate any buffer zones and show all wells involved in the discharge.

DESCRIPTION AND METHOD OF LAND APPLICATION

19) Provide a narrative describing the:

- (a) Number and API No. of all wells contributing to the discharge.
- (b) Coal seam or seams being produced.
- (c) Produced water treatment system and chemicals to be used (if any).
- (d) Method and rate planned for land application of produced water.
- (e) Vegetation study, to include both background and baseline conditions for the planned application area prior to any land application.
- (f) Groundwater monitoring plan, if necessary to exceed certain discharge limits as outlined in the permit and fact sheet.
- (g) Planned beginning date of land application.

MONITORING PLAN

- 20) Produced Water Discharge:
 - (a) The point or area at which the produced water is to be discharged to the land application area is to be both identified in the narrative and shown on the design map. This discharge point or area is to be identified by a permanent marker with a sign attached identifying the discharge point.
 - (b) The groundwater, soil, and vegetation monitoring points within the land application area are to be located by permanent marker. Each monitoring point is to be identified by a unique identifier, with this identifier shown upon the design map. Further, the individual monitoring points are to be identified in the land application area by a sign attached to each permanent marker.
 - (c) A narrative is to be provided outlining the monitoring program of the land application area for contaminant concentrations in the soils within the application area, to assure that contaminants discharged are not adversely affecting soil quality. In addition, if groundwater monitoring is to be conducted, the permitee has to include a study in compliance with the requirements found in the General Permit (See GP-WV-1-07, H.12 Other Requirements); describing the monitoring methods used to ensure that groundwater quality is not being adversely affected by the land application.

21) Coalbed Produced Water:

(a) Analytical Data

Attach sampling and laboratory analysis report to include sample date, time, method of collection, sampler, date received at lab, date of analysis, and method. Provide analysis for and include anticipated range of concentrations for the parameters required in Section B of the general permit GP-WV-1-07.

- (b) Daily Volumes
 - □ Anticipated

Based On pump size

Facility ID Number:
 Date Received:

Agency Use Only

CERTIFICATION

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 persons 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 fine and imprisonment for knowing violations.

OWNER/OPERATOR	Name: Diversified Production LLC
	By: buy Strent
	Its: VP Operation
	Date: 2.10.21
STATE OF KENTUCKY	
COUNTY OF PIKE, to-wit:	
that Joey Stumb	, a Notary Public of said County, do hereby certify , who signed the writing above for bearing date the 10 of bearing, before me, acknowledged the said writing to be the act and deed of
Given under my hand and c	official seal this the 10 day of February, 2021.
My commission expires	6-1-22
	Mina Baldwin

Notary Public

{SEAL}

Page 4 of Form WW-8 (11-09) Site Registration Form 1) Date: 3/21/2021

Agency Use Only

2) Facility ID Number: 3) Date Received:

-01385

VOLUNTARY SURFACE OWNER STATEMENT OF APPROVAL

I hereby state that I have reviewed this application for coverage under general permit GP-WV-1-07 for the discharge of water produced from Coalbed Methane Well(s) onto my surface land. I understand that before the permit coverage can be granted, the operator must have my consent to the application of the produced water on the surface land.

I further state that I have no objection to the planned discharge of produced water to the land surface described in these materials, and I have no objection to coverage under general permit #GP-WV-1-07 being granted.

Name

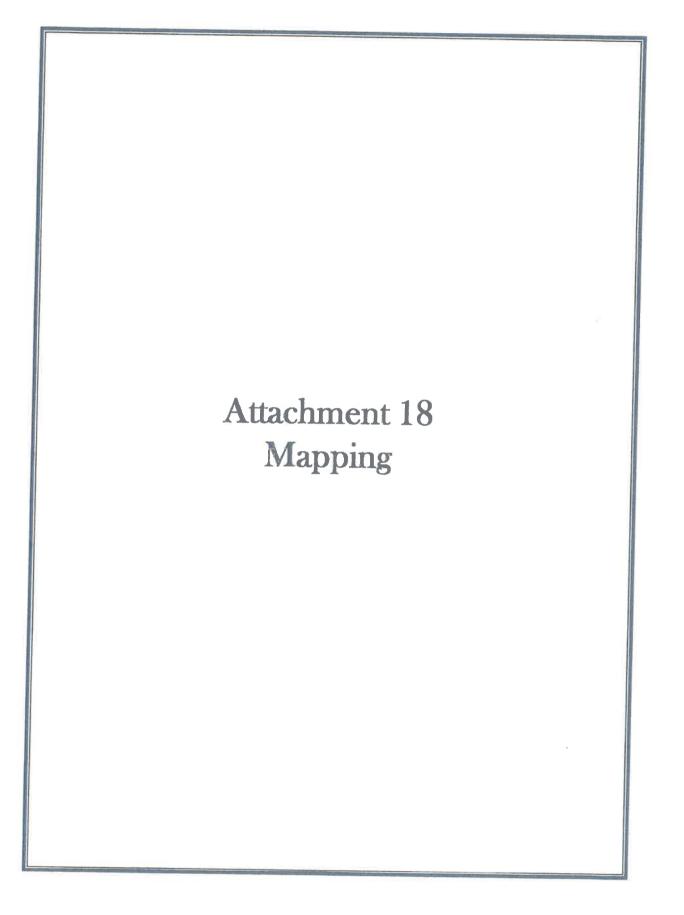
(For execution by natural person(s)

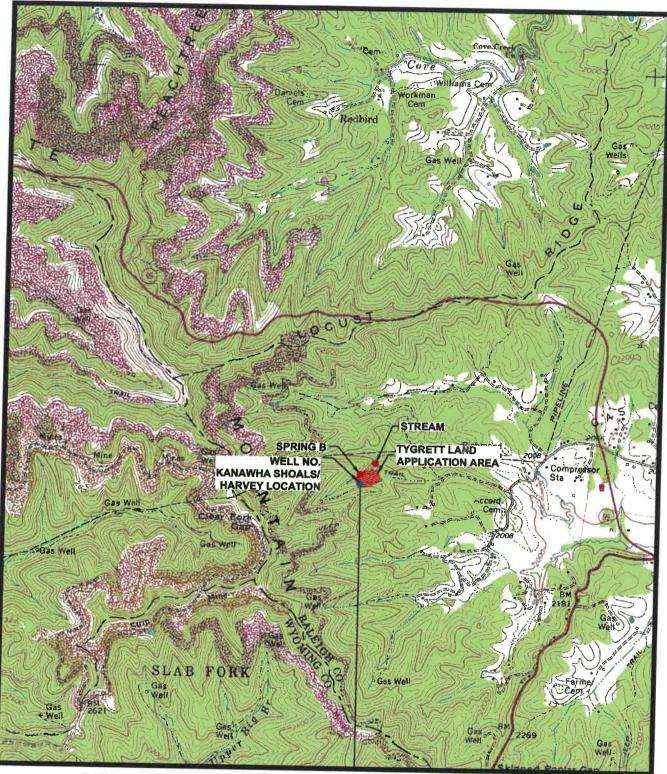
(For execution by corporation, etc.)

Signature) Date: 6/1/2/ Signature) Date: 6/1/2/

(Signature)

By: lis: Date





LAND APPLICATION SITE - RALEIGH COUNTY, WEST VIRGINIA PORTION OF USGS 7.5' ARNETT, WV QUADRANGLE



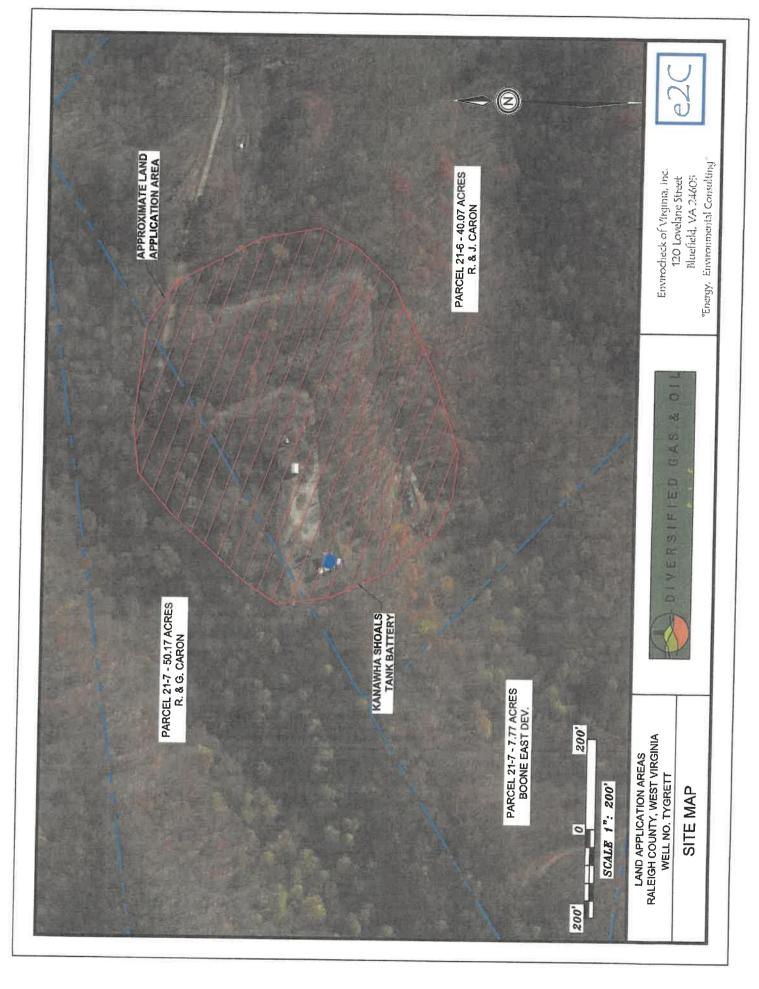
Envirocheck of Virginia, Inc.



2,000' <u>2,000'</u> SCALE 1:2,000

LOCATION MAP Well no. tygrett

WEST VIRGINIA QUADRANGLE LOCATION



Attachment 19 Description and Method

Attachment 19 – Description and Method of Land Application

(a) Number and API No. of all wells to the discharge.

Response: This land application area covers three wells: Tygrett 1A, 1B, and 1C with B&C being the production wells. API numbers are as follows:

Table 1

API Well Numbers					
Operator's Well No.	API No.				
Tygrett 1A	081-01390				
Tygrett 1B	081-01391				
Tygrett 1C	081-01392				

(b) Coal Seam or seams being produced.

Response: These wells produces water from the Lower Beckley Seam of coal and Pocahontas No 2 and No. 3 seams.

(c) Produced water treatment system and chemicals to be used (if any).

Response: The WATER TREATMENT SYSTEM drawing depicts the treatment system being used to remove suspended solids from the CBM well water prior to discharge onto the land application area. Flocculant may be introduced into the CBM well water stream between the wellhead and the first holding tank if suspended solids need treatment. The flocculant is an aluminum sulfate based (AlSO₄) material¹ that attaches to the suspended solids to assist with the precipitation of these solids in the holding tank. Produced water from a 2-210 tank battery system at the B and C well to the four 400 BBL fiberglass tank battery located at the Kanawha Shoals well location with the appropriate secondary containment. The first tank is designed to remove the total suspended solids and the subsequent tanks are to clarify the well water before discharge onto the land application area. Valves are installed in the discharge line of each tank to allow water sampling prior to discharge onto the land application area. A drawing showing the tank system is attached (see drawing WATER TREATMENT SYSTEM).

(d) Method and rate planned for land application of produced water.

Response: This system has been designed to accommodate the maximum discharge rate (based on pump sizes) of CBM well water at a combined maximum rate of gallons per day from the B&C wells. However, these wells are currently producing gallons of water per day. The land application system for the this system has been designed to accommodate the maximum discharge rate of CBM well water at a combined maximum

¹ A Material Safety Data Sheet for the aluminum sulfate based flocculent can be provided if needed.

rate of 65,500 gallons per day. Since 2007, this CBM well has never produced that type of volume nor is it expected.

Well water will be treated in the above described tank system to remove TSS prior to placement on the land application area. The method of land application is a series of discharge points to distribute water over a wide area. From the tank system described in 19 (c) above, the water is distributed using distribution boxes (like those used in septic field applications) into three separate flow lines (see drawing *CBM WELL LAND APPLICATION*). Two of the flow lines discharge the water onto the surface, the third flow line discharges water to a subsequent distribution box. The total number of flow lines and distribution boxes are determined by the amount of well water from each well location. The series of distribution boxes is repeated as many times as necessary to distribute the water over an adequate area to prevent soil saturation and erosion.

(e) Vegetation study, to include both background and baseline conditions for the planned application area prior to and land application.

Response: Vegetation studies can be found in the Appendix to this application. The study areas are shown on the *Design Map*. The most recent spring survey of 2020 is provided Each spring and each fall new studies will be conducted of the land application area. Each study will be compared to the previous study and a report submitted to the WV DEP Office of Oil and Gas. Land application areas have been selected based on topographical features, soil types, and vegetation studies.

(f) Ground water monitoring plan, if necessary to exceed certain discharge limits as outlined in the permit and fact sheet.

Response: Based on historical water quality, exceedance of discharge limits are not expected.

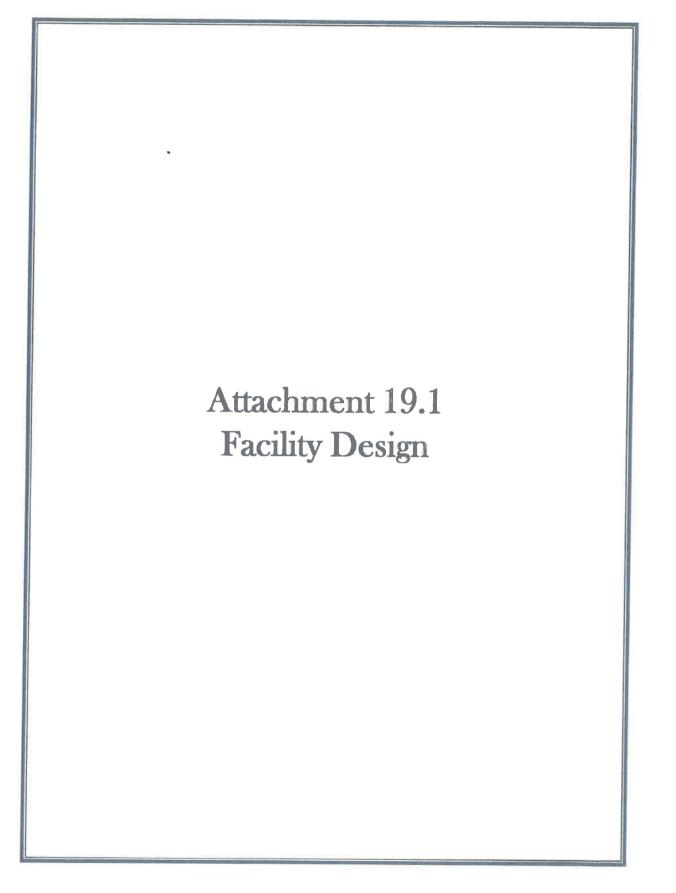
(g) Planned beginning date of land application.

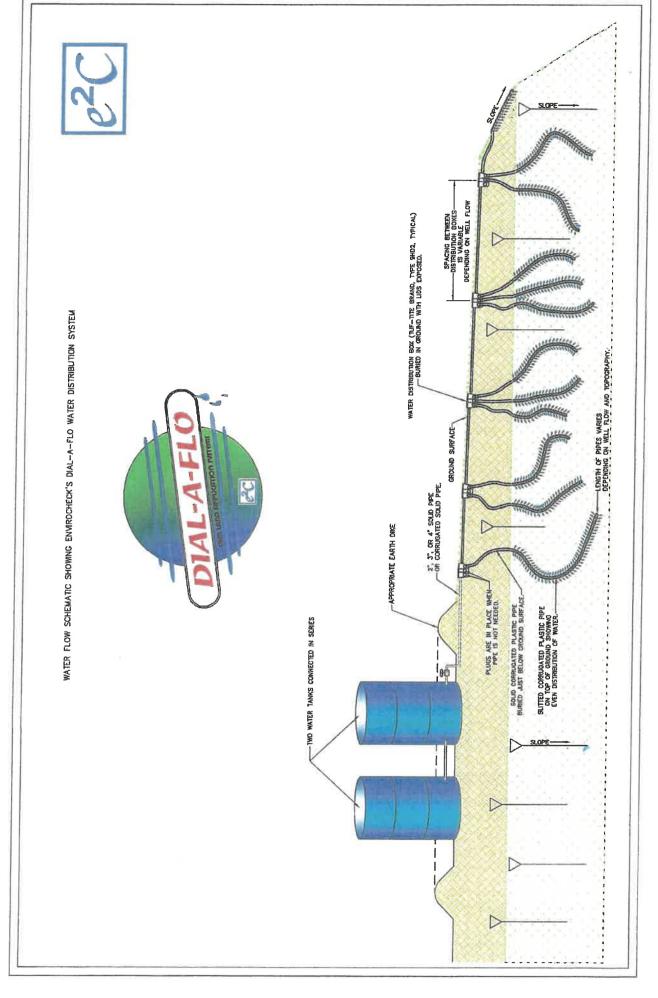
Response: Been on-going since 2007.

Effluent/GW Characteristics	Measurement Frequency	Sample Type
Volume, gallons	Monthly	Calculated or Measured
Iron (Dissolved),(mg/l)	Semi-annually	Grab
Chloride,(mg/l)	Semi-annually	Grab
pH, S U	Semi-annually	Grab
Total Dissolved Solids, (mg/l)	Semi-annually	Grab
Aluminum (Dissolved), (mg/l)	Semi-annually	Grab
Sulfates (mg/l)	Semi-annually	Grab
Manganese (Dissolved), (mg/l)	Semi-annually	Grab
Mercury Total, (ug/l)	Semi-annually	Grab
Selenium (Dissolved), (mg/l)	Semi-annually	Grab
Calcium (Total)	Semi-annually	Grab
Potassium (Total)	Semi-annually	Grab
Magnesium (Total)	Semi-annually	Grab
Sodium (Total)	Semi-annually	Grab
Barium (Total)	Semi-annually	Grab

Table 2Groundwater Protection Sampling PlanSprings, and Seeps

Analytical reports will be submitted semi-annually to the WV DEP Office of Oil and Gas.





Attachment 19.2 Vegetation Survey

BASELINE VEGETATION SURVEY Tygrett (Surveyed 8/6/2020)

A forested area composed mainly of American Beech (*Fagus grandifolia*) and Red Maple (*Acer rubrum*) surrounding the wells site bench is used as the spray area for well water applied from Tygrett. This forest is a Beech-Maple association. Other tree species include Western Hemock (*Tsuga heterophylla*), Sassafras (*Sassafras albidum*), and Shagbark Hickory (*Carya ovate*). The understory is open with and under developed herbaceous layer.



Photo 1: Beech-Maple Association

The herbaceous layer is under developed in this location and the percent cover is approximately 20%. Poison Ivy (*Toxidodendron radicans*) are the most common species in this association. This foliage is shown in the photo to the right. Other herbaceous species include Virginia Creeper (*Parthenocissus quinquefolia*), Common Raspberry (*Rubus idaeus*) and Christmas Fern (*Polystichum acrostichoides*).

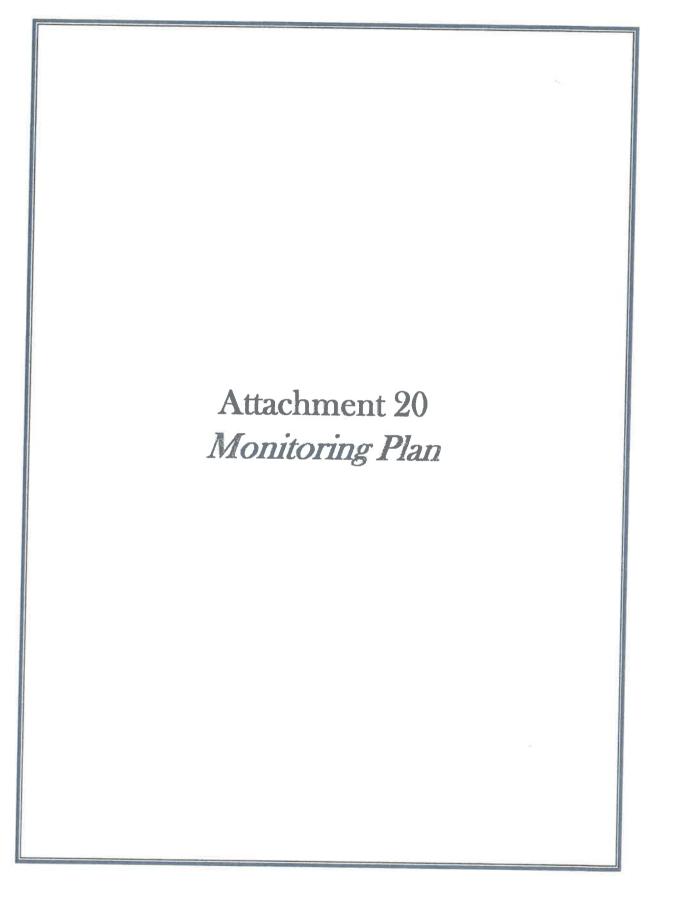


Photo 2: Open understory



Photo 3: Poison Ivy

The existing vegetation was observed for visible foliar symptoms of aluminum, chloride, and metal toxicity, and overwatering due to water released from Tygrett. No vegetative stress symptoms directly related to land application were found on any herbaceous or woody plant species.



Attachment 20 - Monitoring Plan

(a) Produced water discharge area

Produced water from the tank battery will be discharged at a location depicted on the *Design Map*. This land application location will be marked as "Tygrett 1B/1C LAND APPLICATION AREA" with a sign erected on site.

(b) Groundwater, soil, and vegetation monitoring areas

See attached *Design Map* for groundwater, soil, and vegetation monitoring points and identifiers to be used.

(c) Soil and groundwater monitoring program

Monitoring Plan

In accordance with the General Permit, Diversified Oil and Gas intends to monitor the ground water (via identified surface waters), surficial soils, and conduct vegetation surveys to insure compliance. All monitoring points within the land application area will be identified by permanent marker(s). To insure the disposal of CBM water is protective of water quality standards, Diversified Oil and Gas proposes to conduct the monitoring of soils, ground water, and vegetation as follows:

Soils

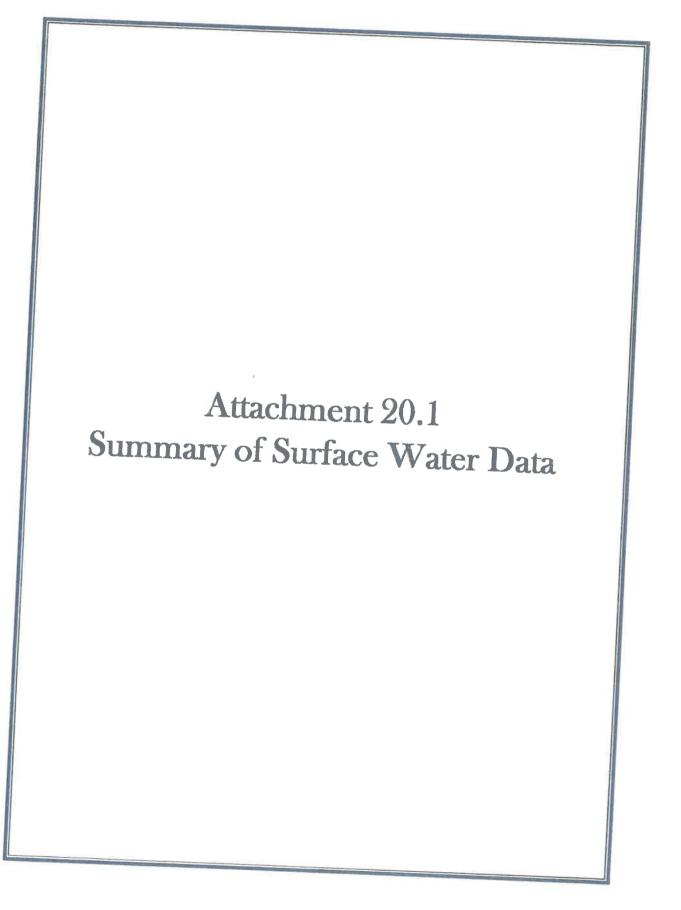
EVOC will randomly sample surficial soils (ASTM definition of 0-1 feet) for the same parameters as the discharged effluent. The number of samples collected will be dependent upon the size of the land application area and may also include some background samples outside of the land application area. It is not expected that deeper (> three feet) soil samples will be collected based upon the current soil horizons. The soils will be sampled on a quarterly basis and the soils data will be incorporated with the vegetation surveys and ground water monitoring data and submitted to OOG semiannually. Furthermore, soil data will be used to substantiate that the discharge rates do not cause adverse environmental conditions based upon the soil loading calculations provided in Attachment 22. This data will be submitted to the OOG every six months.

Ground Water

To insure the discharge of HCBM produced water is protective of the environment, Diversified Oil and Gas proposes to monitor ground water via sampling of soil and springs and seeps down gradient of the land application area. As per the DEP Fact Sheet, Rationale and Information for General Permit for the Land Application of Water Produced from Coalbed Methane Wells (Draft 12-01-06, page 3, second paragraph), use of springs and seeps are suitable for ground water monitoring. Thus, Diversified Oil and Gas surveyed the periphery of the land application area to identify the nearest surface water sources (springs, seeps, streams) immediately topographically down-gradient of the land application area (see *Design Map*). Diversified Oil and Gas proposes to monitor these springs, seeps, etc. on a semi-annual basis for the same analytical parameters as the discharged effluent (see 19(f)). This data will be submitted to the OOG semi-annually.

Vegetation Survey

Baseline vegetation surveys have been completed since 2007 for this site and have not had adverse effects been noted for the discharge. The most recent survey is provided in Appendix. Diversified Oil and Gas used these surveys to identify vegetative environments that are conducive to the discharged effluent. Subsequently, information from the vegetation surveys assisted with selection of an appropriate land application area. As per 19(e), Diversified Oil and Gas will conduct these vegetation surveys in the spring and fall to insure that the discharged effluent is not detrimental to the local vegetation. This data will be submitted to the OOG semi-annually.





ANALYTICAL REPORT June 23, 2020

EnviroCheck of Va., Inc

Sample Delivery Group:
Samples Received:
Project Number:
Description:
Site:
Report To:
0

L1229096 06/13/2020 NYTIS HARVEY/TYGRETT Nytis Creeks Fall HARVEY/TYGRETT 081-01385 Mr. J. L. Rhudy 375 Mountain Lane Tazewell, VA 24651

Entire Report Reviewed By: Panula A. Lyou

Pam Langford Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTIL-0067 and ENV-SOP-MTIL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

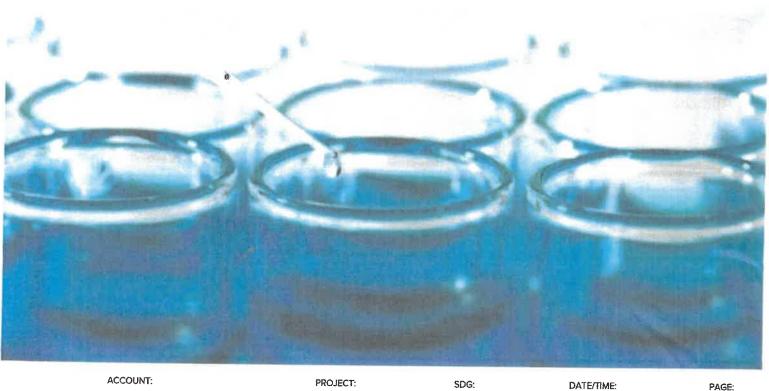




TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
KS-CREEK L1229096-01	5
TYGRETT SPRING L1229096-02	6
Qc: Quality Control Summary	7
Gravimetric Analysis by Method 2540 C-2011	7
Wet Chemistry by Method 9040C	8
Wet Chemistry by Method 9056A	9
Mercury by Method 7470A	10
Metals (ICP) by Method 6010D	11
GI: Glossary of Terms	13
Al: Accreditations & Locations	14
Sc: Sample Chain of Custody	15

³Ss ⁴Cn ⁵Sr ⁶Qc ⁷Gl ⁹Sc

3

ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:

SAMPLE SUMMARY

Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
TYGRETT SPRING L1229096-02 GW			Collected by John Moratto	Collected date/time 06/10/20 11:00	Received da 06/13/20 09:	
			Collected by	Collected data time	Department	
Metals (ICP) by Method 6010D	WG1495353	1	06/20/20 14:51	06/22/20 10:59	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1495340	1	06/21/20 08:32	06/22/20 08:29	CCE	Mt. Juliet, TN
	WG1492422	1	06/15/20 22:00	06/16/20 12:34	ABL	Mt. Juliet, TN
fercury by Method 7470A	WG1495535	1	06/22/20 00:52	06/22/20 00:52	MCG	Mt. Juliet, TN
Vet Chemistry by Method 9056A	WG1496370	1	06/21/20 13:10	06/21/20 13:10	KPS	Mt. Juliet, TN
Vet Chemistry by Method 9040C		1	06/17/20 01:16	06/17/20 03:21	MMF	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1493237	1	date/time	date/time		
	batch	DUDION		Analysis	Analyst	Location
Method	Batch	Dilution	Preparation	Arrahusia	Annhus	1
KS-CREEK L1229096-01 GW			John Moratto	06/10/20 10:30	06/13/20 09	0:00
			Collected by	Collected date/time	Received da	ate/time

Dilution

1

1

1

1

1

1

Preparation

06/17/20 01:16

06/21/20 13:10

06/22/20 01:14

06/15/20 22:00

06/21/20 08:32

06/20/20 14:51

date/time

Analysis

date/time

06/17/20 03:21

06/21/20 13:10

06/22/20 01:14

06/16/20 12:36

06/22/20 08:32

06/22/20 11:02

Analyst

MMF

KPS

MCG

ABL

CCE

CCE

Location

Mt. Juliet, TN

Mt. Juliet, TN

Mt Juliet, TN

Mt. Juliet, TN

Mt. Juliet, TN

Mt. Juliet, TN

Batch

WG1493237

WG1496370

WG1495535

WG1492422

WG1495340

WG1495353

ACCOUNT:

Gravimetric Analysis by Method 2540 C-2011

Wet Chemistry by Method 9040C

Wet Chemistry by Method 9056A

Mercury by Method 7470A

Metals (ICP) by Method 6010D

Metals (ICP) by Method 6010D

PROJECT:

SDG:

DATE/TIME:

PAGE:

Tc

Cn

Sr

Qc

Gl

AL

Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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.

Panela A. Inford

Pam Langford Project Manager

Project Narrative

Dissolved metals lab filtered.

ACCOUNT:

PROJECT:

DATE/TIME:

PAGE:



²Tc ³Ss Cn ⁵Sr ⁶Qc ⁷Gl ⁹Sc

Gravimetric Anal	ysis by Metho	od 2540	C-2011					e 1
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l		date / time		2
Dissolved Solids	260		2.82	10.0	1	06/17/2020 03:21	WG1493237	L
Wet Chemistry b	y Method 90	40C						 3
	Result	Qua	alifier Dile	ution Analysis		Batch		4
Analyte	su			date / time				ſ
рН	7.89	<u>T8</u>	1	06/21/2020) 13:10	WG1496370		
Sample Narrative:								
L1229096-01 WG149637	0: 7.89 at 21.6C							
								0
Wet Chemistry b					Dilution	Anchusia	Batch	 - آ 7
	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Datch	ľ
Analyte	mg/l		mg/l	mg/l		06/22/2020 00:52	WG1495535	
Chloride	63.9		0.379	1.00 5.00	1	06/22/2020 00:52	WG1495535	8
Sulfate	12.6		0.594	5.00	1	00/22/2020 00.02	1101100000	
Junats								
Mercury by Meth								9
		Qualifier	MDL	RDL	Dilution	Analysis	Batch	 9
	nod 7470A Result mg/l	Qualifier	mg/l	mg/l		date / time		9
Mercury by Meth	nod 7470A Result	Qualifier			Dilution 1		Batch WG1492422	g
Mercury by Meth	Result mg/I U		mg/l	mg/l		date / time		9
Mercury by Meth Analyte Mercury	Result mg/I U		mg/l	mg/l		date / time		g
Mercury by Meth Analyte Mercury	nod 7470A Result mg/l U Nethod 6010E)	mg/l 0.000100	mg/l 0.000200	1	date / time 06/16/2020 12:34	WG1492422	g
Mercury by Meth Analyte Mercury Metals (ICP) by N	nod 7470A Result mg/l U Nethod 6010E Result)	mg/l 0.000100 MDL	mg/l 0.000200 RDL	1	date / time 06/16/2020 12:34 Analysis	WG1492422 Batch WG1495340	9
Mercury by Meth Analyte Mercury Metals (ICP) by N Analyte	nod 7470A Result mg/l U Nethod 6010E Result mg/l)	mg/l 0.000100 MDL mg/l	mg/l 0.000200 RDL mg/l	1 Dilution	date / time 06/16/2020 12:34 Anatysis date / time 06/22/2020 08:29 06/22/2020 10:59	WG1492422 Batch WG1495340 WG1495353	9
Mercury by Meth Analyte Mercury Metals (ICP) by M Analyte Aluminum,Dissolved	nod 7470A Result mg/I U Nethod 6010E Result mg/I U)	mg/l 0.000100 MDL mg/l 0.0704	mg/l 0.000200 RDL mg/l 0.200 0.00500 1.00	1 Dilution 1	date / time 06/16/2020 12:34 Analysis date / time 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 10:59	WG1492422 Batch WG1495340 WG1495353 WG1495353	9
Mercury by Meth Analyte Mercury Metals (ICP) by M Analyte Aluminum,Dissolved Barium	nod 7470A Result mg/l U Nethod 6010E Result mg/l U 0.0263)	mg/l 0.000100 MDL mg/l 0.0704 0.000895	mg/l 0.000200 RDL mg/l 0.200 0.00500	1 Dilution 1 1	date / time 06/16/2020 12:34 Analysis date / time 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 10:59 06/22/2020 08:29	WG1492422 Batch WG1495340 WG1495353 WG1495353 WG1495340	g
Mercury by Meth Analyte Mercury Metals (ICP) by M Analyte Aluminum,Dissolved Barium Calcium	nod 7470A Result mg/l U Nethod 6010E Result mg/l U 0.0263 3.60)	mg/l 0.000100 MDL mg/l 0.0704 0.000895 0.389 0.0458 0.111	mg/l 0.000200 RDL mg/l 0.200 0.00500 1.00 0.100 1.00	1 Dilution 1 1 1 1 1	date / time 06/16/2020 12:34 Analysis date / time 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29 06/22/2020 08:29 06/22/2020 10:59	WG1492422 Batch WG1495353 WG1495353 WG1495353 WG1495353 WG1495353	g
Mercury by Meth Analyte Mercury Metals (ICP) by M Analyte Aluminum,Dissolved Barium Calcium Iron,Dissolved	nod 7470A Result mg/l U Aethod 6010E Result mg/l U 0.0263 3.60 0.422 1.92 U) Qualifier	mg/l 0.000100 MDL mg/l 0.0704 0.000895 0.389 0.0458 0.111 0.00327	mg/l 0.000200 RDL mg/l 0.200 0.00500 1.00 0.100 1.00 0.0100	1 Dilution 1 1 1 1 1 1	date / time 06/16/2020 12:34 Analysis date / time 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29	WG1492422 Batch WG1495353 WG1495353 WG1495353 WG1495353 WG1495353 WG1495353	g
Mercury by Meth Analyte Mercury Metals (ICP) by M Analyte Aluminum,Dissolved Barium Calcium Iron,Dissolved Magnesium	nod 7470A Result mg/I U Method 6010E Result mg/I U 0.0263 3.60 0.422 1.92 U 1.26)	mg/l 0.000100 MDL mg/l 0.0704 0.000895 0.389 0.0458 0.111 0.00327 0.510	mg/l 0.000200 RDL mg/l 0.200 0.00500 1.00 0.100 1.00 0.0100 2.00	1 Dilution 1 1 1 1 1 1 1 1	date / time 06/16/2020 12:34 Analysis date / time 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29 06/22/2020 08:29 06/22/2020 10:59	WG1492422 Batch WG1495340 WG1495353 WG1495353 WG1495340 WG1495340 WG1495353 WG1495353	g
Mercury by Meth Analyte Mercury Metals (ICP) by M Analyte Aluminum,Dissolved Barium Calcium Iron,Dissolved Magnesium Manganese,Dissolved	nod 7470A Result mg/l U Aethod 6010E Result mg/l U 0.0263 3.60 0.422 1.92 U) Qualifier	mg/l 0.000100 MDL mg/l 0.0704 0.000895 0.389 0.0458 0.111 0.00327	mg/l 0.000200 RDL mg/l 0.200 0.00500 1.00 0.100 1.00 0.0100	1 Dilution 1 1 1 1 1 1	date / time 06/16/2020 12:34 Analysis date / time 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29 06/22/2020 10:59 06/22/2020 08:29	WG1492422 Batch WG1495353 WG1495353 WG1495353 WG1495353 WG1495353 WG1495353	9

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SAMPLE RESULTS - 02

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Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
	mg/l		mg/l	mg/l		date / time		
Dissolved Solids	262		2.82	10.0	1	06/17/2020 03:21	WG1493237	
Wet Chemistry b	y Method 9	040C						
Analyte	Res	ult <u>Q</u> ı	ıəlifier Dil	tion Analysis date / time		Batch		
pH	7.83	3 <u>T</u> 8	<u>3</u> 1	06/21/2020	13:10	WG1496370		
Sample Narrative: L1229096-02 WG149637	70: 7.83 at 21.6C							
Wet Chemistry b		056A						
Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/i	Dilution	Analysis date / time	Batch	
Chloride	62.7		0.379	1.00	1	06/22/2020 01:14	WG1495535	
Sulfate	11.9		0.594	5.00	1	06/22/2020 01:14	WG1495535	
Mercury by Meth	od 7470A							
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l		date / time		
Merçury	U		0.000100	0.000200	1	06/16/2020 12:36	WG1492422	
Metals (ICP) by M	lethod 6010	D						
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l		date / time		
Aluminum, Dissolved	U		0.0704	0.200	1	06/22/2020 08:32	WG1495340	
Barlum	0.0244		0.000895	0.00500	1	06/22/2020 11:02	WG1495353	
Calcium	4.15		0.389	1.00	1	06/22/2020 11:02	WG1495353	
ron,Dissolved	0.296		0.0458	0.100	1	06/22/2020 08:32	WG1495340	
Magnesium	2.00		0.111	1.00	1	06/22/2020 11:02	WG1495353	
langanese, Dissolved	U		0.00327	0.0100	1	06/22/2020 08:32	WG1495340	
Potassium	1.50	7	0.510	2.00	1	06/22/2020 11:02	WG1495353	
Selenium, Dissolved	0.00898	7	0.00735	0.0100	1	06/22/2020 08:32	WG1495340	
odium	95.8		1.40	3.00	1	06/22/2020 11:02	WG1495353	

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14932	metric Anal
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Method Blank (MB)

(MB) R3540215-1 06/17/20 03:21

B RDL	l/gm	0.
M	Ĕ	0
MB MDL	l/gm	2.82
MB Qualifier		
MB Result	l/gm	D
MB Result	Analyte	Dissolved Solids

L1229096-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1229096-02 06/17/20 03:21 • (DUP) R3540215-3 06/17/20 03:21

DUP RPD Limits		
DUP Qualifier Limi	8	ى ا
DUP RPD	%	3.75
Dilution		-
Original Result DUP Result	l/gm	272
Original Re	mg/l	262
	Analyte	Dissolved Solids

Sc C Sr C Ss T C

Laboratory Control Sample (LCS)

	LCS Result
(LCS) R3540215-2 06/17/20 03:21	Spike Amount

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	l/ɓɯ	l/ĝm	*	%	
Dissolved Solids	8800	8240	93.6	85.0-115	

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Original Result Dur Result Du	0 10-3606	6/21/20 13:10 - (L	(OS) L1229095-01 06/21/20 13:10 • (DUP) R3541094-2 06/21/20 13:10	06/21/20 13:1	0		
su 7.16 1 0.000 ample (OS) • Duplicate (DUP) 0 • (DUP) R3541094-3 06/21/20 13:10 nal Result DUP Result Dilution DUP RPD DUP Qualifier su 9.23 1 0.000		Original Ru	esult DUP Result		UP RPD		RPD ts
5 1 0.000 5) • Duplicate (DUP) 41094-3 06/21/20 13:10 7 1 0.000 3 1 0.000		SU	su	88		8	
5) • Duplicate (DUP) 41094-3 06/21/20 13:10 P Result Dilution DUP RPD DUP Qualifier % 3 1 0.000		7,16	7.16	1 0.	000	<i>fue</i>	
5) • Duplicate (DUP) 41094-3 06/21/20 13:10 P Result Dilution DUP RPD DUP Qualifier % 3 1 0.000	rative;						
5) • Duplicate (DUP) 41094-3 06/21/20 13:10 P Result Dilution DUP RPD DUP Qualifier % 3 1 0.000	at 22.4C						
5) • Duplicate (DUP) 41094-3 06/21/20 13:10 P Result Dilution DUP RPD <u>DUP Qualifier</u> % 3 1 0.000	5 at 22.3C						
5) • Duplicate (DUP) 41094-3 06/21/20 13:10 P Result Dilution DUP RPD DUP Qualifier % 3 1 0.000							
P Result Dilution DUP RPD DUP Qualifier % 3 1 0.000	76-01 0	riginal Samp	ole (OS) • Du	plicate (DL	(dr		
P Result Dlurton DUP RPD DUP Qualifier % 3 1 0.000	0876-01 06	5/21/20 13:10 - (D	UP) R3541094-3	06/21/20 13:10	0		
°0.000 ₩		Original Re	esult DUP Result	Dilution Di	UP RPD		RPD
3 1 0.000		SL	SU	8		8	
at 22.1C 3 at 22.1C July Control Sample (LCS)		9.23	9.23	1 0.	000	+	
at 22.1C 3 at 22.1C tory Control Sample (LCS)	rrative:						
at 20.00 tory Control Sample (LCS)	at 22.1C						
tory Control Sample (LCS)	2 dt 22.IL						
	tory Con	troi Sample	(LCS)				

ount		LCS Rec.	Rec. Limits	LCS Qualifier
	SU	8	%	
10.0	10.0	100	101-0.66	

Sample Narrative: LCS: 10 at 20.9C

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WG1495535	Wet Chemistry by Method

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Method Blank (MB)

L1/28497-01 Original Sample (OS) * Duplicate (DUP) (OS) L1228497-01 06/21/20 22:31 • (DUP) R3541362-3 06/21/20 22:42

DUP Qualifier DUP RPD Limits	æ	<u>1</u> 5	15
Dilution DUP RPD	%	1 2.75	1 1.32
Original Result DUP Result	mg/l	4.84	17.2
Origi		Chloride 4.98	

² Tc ³ Sc ³ Sc ³ Sc

L1230878-02 Original Sample (OS) • Duplicate (DUP)

	DUP RPD Limits	8	15	15
	DUP Qualifier			ار
0 04:29	Dilution DUP RPD	%	1.92	1.10
6 06/22/2	Dilution		-	•
P) R3541362-	DUP Result	Mg/l	18.0	2.27
(OS) L1230878-02 06/22/20 03:57 • (DUP) R3541362-6 06/22/20 04:29	Original Result DUP Result	mg/l	18.4	2.29
(OS) L1230878-02		Analyte	Chloride	Sulfate

Laboratory Control Sample (LCS)

	LCS Qualifier				
	Rec. Limits	*	80.0-120	80.0-120	
	LCS Rec.	ж	99.7	99.1	
	LCS Result	_	39.9		
5/21/20 22:09	Spike Amount	l∕gm	40.0	40.0	
(LCS) R3541362-2 06/21/20 22:09		Analyte	Chloride	Sulfate	

L1230878-02 Original Sample (OS) • Matrix Spike (MS)

0 04:40	ult MS Rec. Dilution Rec. Limits MS Qualifier	° °	1 80.0-120	104 1 80.0-120
3541362-7 06/22/	Spike Amount Original Result MS Result	l/gm l/gm	8.4 70.9	2.29 54.3
(US) L1230878-02 06/22/20 03:57 • (MS) R3541362-7 06/22/20 04:40	Spike Amount C		50.0 11	
20-8/805211(50)		Analyte	Chloride	Sulfate

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Laboratory Control Sample (LCS)

(LCS) R3539203-2 06/16/20 11:06	/20 11:06					
	Spike Amount LCS Result	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	п9/1	mg/l	%	%		
Mercury	0.00300	0.00289	96.4	80.0-120		

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Method Blank (MB)

(MB) R3541382-1 06/22/20 07:47

MB RDL	mg/i	0.200	0.100	0.0100	0.0100
MB MDL	1/6m	0.0704	0.0458	0.00327	0.00735
MB Qualifler					
MB Result	l/gm	n	n	n	n
	Analyte	Aluminum, Dissolved	Iron, Dissolved	Manganese, Dissolved	Selenium, Dissolved

Laboratory Control Sample (LCS)

(LCS) R3541382-2 06/22/20 07:49	/20 07:49				
	Splke Amount LCS Result	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	l/Gm	l/gm	*	°€	
Aluminum, Dissofved	10.0	9.79	97.9	80.0-120	
Iron,Dissoived	10.0	9.66	96.6	80.0-120	
Manganese, Dissolved	1.00	0.986	98.6	80.0-120	
Selenium, Dissolved	1.00	0.966	96.6	80.0-120	

³ Ss³ Ss

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Method Blank (MB)

(MB) R3541389-1 06/22/20 10:17

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² Cu ³ Ss ³ Tc ⁴ Cu ³ Ss ³ Ss ³ Ss ³ Ss ³ Ss ⁴ Cu ⁴

Laburatory Control Sample (LCS)	I sample (L(()				
(LCS) R3541389-2 06/22/20 10:19	/20 10:19					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	l∕gm	mg/l	24	%		
Barium	1.00	966.0	9.66	80.0-120		
Calcium	10.0	10.0	100	80.0-120		
Magnesium	10.0	9.31	93.1	80.0-120		
Potassium	10.0	8.79	87.9	80.0-120		
Sodium	10.0	9.91	1.66	80.0-120		

SDG:

PAGE

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

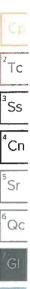
	Method Detection Limit.
MDL RDL	Reported Detection Limit.
	•
Rec. RPD	Recovery. Relative Percent Difference.
	Sample Delivery Group.
SDG U	Not detected at the Reporting Limit (or MDL where applicable).
0	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes
Analyte	reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the resul reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
- T8	Sample(s) received past/too close to holding time expiration.

PROJECT:

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ACCREDITATIONS & LOCATIONS

Pace National 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. * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico 1	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinois	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
lansas	E-10277	Rhode Island	LA000356
(entucky ¹⁶	90010	South Carolina	84004
Centucky ²	16	South Dakota	n/a
ouisiana	AI30792	Tennessee 14	2006
ouisiana ¹	LA180010	Texas	T104704245-18-15
laine	TN0002	Texas ⁵	LAB0152
laryland	324	Utah	TN00003
lassachusetts	M-TN003	Vermont	VT2006
lichigan	9958	Virginia	460132
linnesota	047-999-395	Washington	C847
lississippi	TN00003	West Virginia	233
lissouri	340	Wisconsin	9980939910
lontana	CERT0086	Wyoming	AZLA

A2LA -- ISO 17025 1461.01 AIHA-LAP, LLC EMLAP 100789 AZLA - ISO 17025 5 1461.02 DOD 1461.01 Canada 1461.01 USDA P330-15-00234 EPA-Crypto TN00003

¹Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

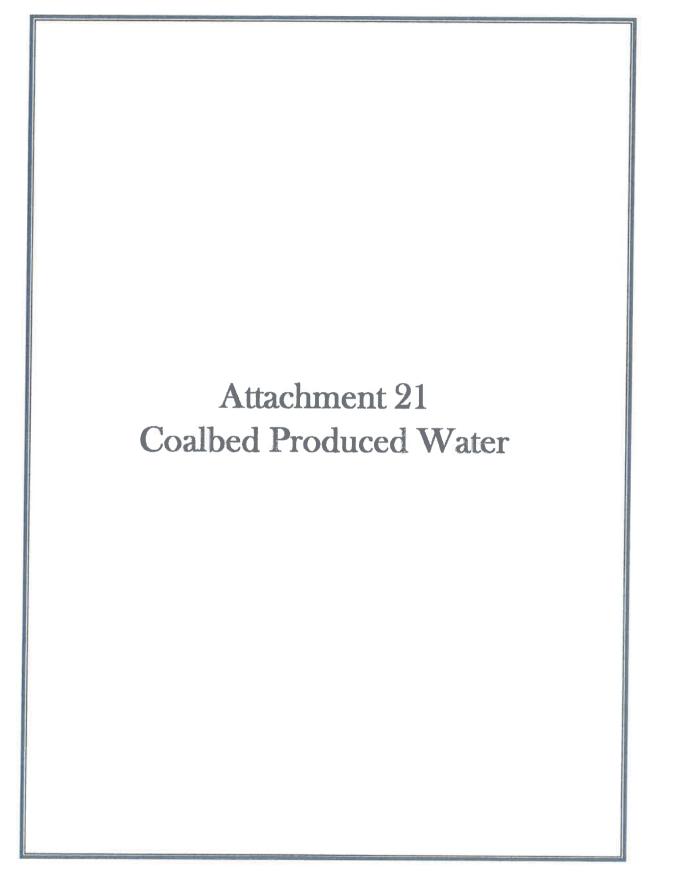
Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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* Matrix: 55 - Soli AlR - Air F - Filter GW - Groutwater B Bloassay	Remarks:		4		C Internation	6	ICOL COMME	ā Ē	Ha	Temp Cother	Coc Banelis Percelar 20 Coc Banel Present/Survey Coc Signed Accuration Softles article Index	
	Samples returned via:	Courter		Tractong # []	90	500	2715	23	1113	72	Tofficient white sont	
Relinquished by: (Signature)		are: (1-10-20	Time: H,oU	Received by: (Signature)	(anne)			Trip B	frip Blank Received.	eived: Yes/No HCL/MeoH Tan	Breeksreation Cotract/Ch	ckeda 📈 👘
Rejuritished by: (Signature)	Date:	n on more report from the second s	Jme:	Received by: (Signature)	ature)			Temp 9.0	12-1	P.C. Battles Received	If preservetion required by Login: Data/Time	a: Data/Time
Relinguished by : (Signature)	Date	A province of the second and the second	Thme:	Received for Jab by. (Signature)	y: (Signatu	P		Date:	6/13/20	Time: UgoO	Hold:	Condition



COALBED PRODUCED WATER – ATTACHMENT 21

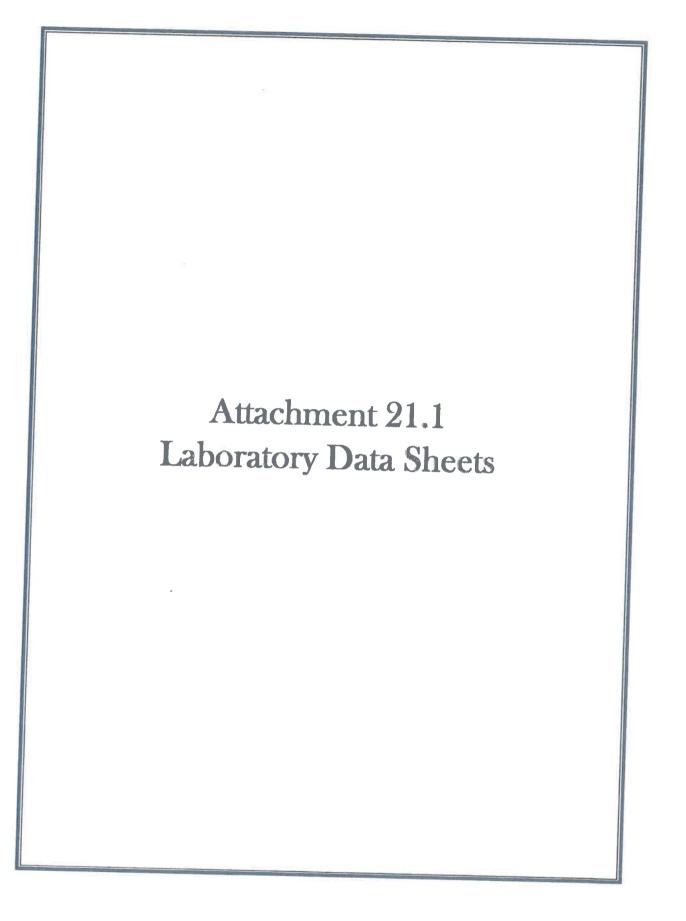
(A) Analytical Data

Produced water has been sampled since 2007 from this location. The new analytical parameters of the effluent for this facility were conducted in January 2010 for the produced water. Historical laboratory data has been submitted on a monthly basis to the OOG in the form of monthly discharge monitoring reports (DMRs). Copies of the recent analytical data is provided as **Attachment 21.1**. The analysis were conducted by Environmental Science Corporation of Mt. Juliet, Tennessee which is a WVDEP Office of Water Resources Certified Laboratory, Certificate #233.

(B) Daily Volumes

Based on a current maximum production of 2,200 BPD.

e²C EnviroCheck of Virginia, Inc. "Energy, Environmental Consulting"





ANALYTICAL REPORT

EnviroCheck of Va., Inc

Sample Delivery Group: 1	L1270799
Samples Received:	10/07/2020
Project Number:	DGO KS-HARVEY/TYGRET
Description:	DGO
Site:	KS HARVEY 081-01385/01391
Report To:	Mr. J. L. Rhudy
	120 Lovelane Street
	Bluefield, VA 24605

Entire Report Reviewed By:

Jennifer Huckaba

Jennifer Huckaba Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SDP-MTJL-0067 and ENV-SDP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

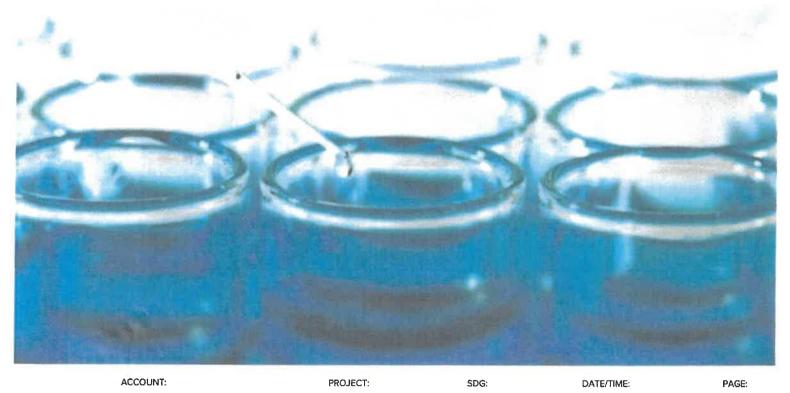


TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
TYGRETT 08101391 L1270799-01	5
Qc: Quality Control Summary	6
Gravimetric Analysis by Method 2540 C-2011	. 6
Wet Chemistry by Method 9040C	7
Wet Chemistry by Method 9056A	8
Mercury by Method 7470A	10
Metals (ICP) by Method 6010D	11
GI: Glossary of Terms	13
Al: Accreditations & Locations	14
Sc: Sample Chain of Custody	15

Cp ³Ss ⁴Cn ⁵Sr ⁶Qc ⁷Gl ⁸Al ⁹Sc

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ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:

SAMPLE SUMMARY

1

10/09/20 21:21

10/10/20 17:33

CCE

TYGRETT 08101391 L1270799-01 GW			Collected by Frank Lampart	Collected date/time 09/30/20 10:20	Received da 10/07/20 09:	
Method	Batch	Dilution	Preparation date/time	Analysîs date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1555884	1	10/09/20 01:24	10/09/20 03:55	VRP	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1556367	1	10/08/20 20:45	10/08/20 20:45	WOS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1557358	1	10/12/20 03:20	10/12/20 03:20	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1557358	5	10/12/20 03:30	10/12/20 03:30	ELN	Mt. Juliet, TN
Mercury by Method 7470A	WG1555909	1	10/08/20 09:05	10/09/20 10:33	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1556075	1	10/08/20 17:55	10/09/20 17:29	TRB	Mt. Juliet, TN

WG1556420

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ONE LAB. NATIONWIDE.

Mt. Juliet, TN

Mt. Juliet, TN

ACCOUNT:

Metals (ICP) by Method 6010D

PROJECT:

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CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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.

Jennifer Huckaba

Jennifer Huckaba Project Manager

²Tc ³Ss ⁵Cn ⁵Sr ⁶Qc ⁷GI ⁹Sc

ACCOUNT:

PROJECT:

DATE/TIME:

PAGE:

TYGRETT 08101391 Collected date/time: 09/30/20 10:20

SAMPLE RESULTS - 01 L1270799

ONE LAB. NATIONWIDE.

Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	MDL		RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l		mg/l		date / time		
Dissolved Solids	681	<u>T8</u>	2.82		10.0	1	10/09/2020 03:55	WG1555884	
Wet Chemistry	by Method 9	040C							
	Resu	ılt <u>Q</u> u	ualifier	Dilution	Analysis		Batch		
Analyte	Su				date / time				
рH	8.02	T8	3	1	10/08/2020	20:45	WG1556367		
L1270799-01 WG1556	367: 8.02 at 18C								
L1270799-01 WG1556	by Method 90		MD			Dibetion	Antonio		
L1270799-01 WG1556: Wet Chemistry	by Method 90 Result	056A Qualifier	MDL		RDL	Dilution	Analysis date / time	Batch	
Sample Narrative: L1270799-01 WG1556: Wet Chemistry Analyte Chloride	by Method 90		mg/ł	n	ng/l		date / time		
L1270799-01 wG1556: Wet Chemistry Analyte	by Method 90 Result mg/l	Qualifier		n 5		Dilution 5		WG1557358	
L1270799-01 WG1556: Wet Chemistry Analyte Chloride Sulfate	by Method 90 Result mg/l 127 4.59		mg/ł 1.90	n 5	ng/l 5.00		date / time 10/12/2020 03:30		
L1270799-01 WG1556: Wet Chemistry Analyte Chloride	by Method 9(Result mg/l 127 4.59 thod 7470A	Qualifier	mg/ł 1.90	n 5	ng/l 5.00		date / time 10/12/2020 03:30	WG1557358	
L1270799-01 WG1556: Wet Chemistry Analyte Chloride Sulfate Mercury by Met	by Method 90 Result mg/l 127 4.59	Qualifier	mg/ł 1.90	រ 5 5	ng/l 5.00		date / time 10/12/2020 03:30	WG1557358	
L1270799-01 WG1556: Wet Chemistry Analyte Chloride Sulfate	by Method 9(Result mg/l 127 4.59 thod 7470A	<u>Qualifier</u> J	mg/ł 1.90 0.594	n 5 5 8 8	ng/I 5.00 5.00	5 1	date / time 10/12/2020 03:30 10/12/2020 03:20	WG1557358 WG1557358	

Metals (ICP) by Method 6010D

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l	mg/l		date / time	
Aluminum, Dissofved	U		0.0704	0.200	1	10/09/2020 17:29	WG1556075
Barium	0.233		0.000895	0.00500	1	10/10/2020 17:33	WG1556420
Calcium	3.39		0.389	1.00	1	10/10/2020 17:33	WG1556420
Iron,Dissolved	0.0982	J	0.0458	0.100	1	10/09/2020 17:29	WG1556075
Magnesium	0.998	ī	0.111	1.00	1	10/10/2020 17:33	WG1556420
Manganese,Dissolved	0.00356	1	0.00327	0.0100	1	10/09/2020 17:29	WG1556075
Potassium	2.71		0,510	2.00	1	10/10/2020 17:33	WG1556420
Selenium, Dissolved	U		0.00735	0.0100	1	10/09/2020 17:29	WG1556075
Sodium	254		1.40	3.00	1	10/10/2020 17:33	WG1556420

SDG:

DATE/TIME:

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58	
52	
5	
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Gravimetric Analysis by Method 2540 C-2011

Method Blank (MB)

	MB RDL mg/l 10.0	
	MB MDL mg/l 2.82	
	MB Qualifier	
10/09/20 03:55	MB Result mg/l U	Tokanatan Original Andrews
(MB) R3579913-1 10/09/20 03:55	Analyte Dissolved Solids	(

Laboratory Control Sample (LCS)

	LCS Qualifier		
	Rec. Limits	96	77.4-123
	LCS Rec.	86	96.4
	LCS Result	тд/!	8480
/09/20 03:55	Spike Amount LCS Result	l/gm	8800
(LCS) R3579913-2 10/09/20 03:55		Analyte	Dissolved Solids

ACCOUNT:

SDG:

*

Laboratory Control Sample (LCS)

(LCS) R3579490-1 10/08/20 20:45

LCS Qualifler			
Rec. Limits	ж	99.0-101	
LCS Rec.	*	100	
LCS Result	SU	10.0	
Spike Amount	SU	10.0	
	Analyte	рН	

Sample Narrative: LCS: 10.04 at 20.60

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*	C C S S S S S S	G G G	Sc	
ONE LAB. NATIONWIDE				유민 드 패뷰:
				የ 20 81.1 ዓም የ 20 የ 20 የ 20 የ 20 የ 20 የ 20 የ 20 የ 20
				MSD Qualifier 8
×				MS Qualifier
QUALITY CONTROL SUMMARY				Rec. Limits % 80.0-120
0NTROL S				MSD)
CONT L1270		DUP RPD Limits % 15	DUP RPD Limits 15 15	ualmer e Duplicate (A 10/12/20 02:47 tc. % 102 100
UALITY		UP Qualifier	UP Qualifier	LCS Qualifier IX Spike DU 0526-5 10/12/2 MS Rec. % 104 102
ō	MB RDL mg/l 5.00	Cd E (Q	Rec. Limits % 80.0-120 80.0-120 80.0-120 80.0-120 6 - (MSD) & Matr (MSD) & Matr 6 - (MSD) & S358 MSD Result mg/l 71.2 50.9
	MB MDL mg/l 0.379 0.594 plicate (Dl	t 10/12/20 02:25 Dilution DUP RPD % 1 0.503 1 3.19 plicate (DUP)	i 10/12/20 06:24 Dilution DUP RPD % 1 2.02 1 1.80	LCS Result LCS Rec. mg/l % 39.3 98.3 39.3 98.3 39.3 98.2 38.3 98.2 98.2 3580526-4 10/12/20 02:3 5580526-4 10/12/20 02:3 5580526-4 10/12/20 02:3 07/2/20 02:3 0.722 51.7
	AB Qualifier	02:14 • (DUP) R3580526-3 Original Result DUP Result mg/l mg/l 20.3 0.722 0.745 0.722 0.745	06:13 • (DUP) R3580526-6 Original Result DUP Result mg/l mg/l 4.03 4.11 2.58 2.53 2.53 2.53 2.53	t LCS Result mg/l 39.3 39.3 39.3 39.3 39.3 39.3 20.3 0.722 0.722
3 lethod 9056A B)	2/20 01:08 MB Resuft mg/l 0.692 U ginal Sample	2/20 02:14 • (DUF Original Resu mg/ 20.3 0.722 ginal Sample	2/20 06:13 • (DUF Original Resu mg/ 4.03 2.58 2.58 0 Sample (I	2/20 01:19 Spike Amount mg/l 40.0 40.0 40.0 2/20 02:14 • (MS) R Spike Amount mg/l 50.0 50.0
WG1557358 wet chemistry by Method 9056A Method Blank (MB)	(MB) R3580526-1 10/12/20 01:08 MB Resuft MB Qualifier MB MDL Analyte mg/l Chloride 0.692 J 0.379 Sulfate U 0.594 L1270593-01 Original Sample (OS) • Duplicate (DUP)	(OS) L1270593-01 10/12/20 02:14 (DUP) R3580526-3 10/12/20 02:25 Original Result DUP Result Analyte mg/l % Analyte 01 07 % Analyte mg/l mg/l % Analyte 0.722 0.745 1 3.19 Sulfate 0.722 0.745 1 3.19 L1270841-08 <original (dup)<="" (os)="" duplicate="" sample="" td="" •=""></original>	(OS) L1270841-08 10/12/20 06:13 • (DUP) R3580526-6 10/12/20 06:24 Analyte Original Result DUP Result Dllution DUP Analyte mg/l mg/l mg/l % % Analyte 103 4.11 1 % Chloride 4.03 4.11 1 2.02 Sulfate 2.58 2.53 1 1.80 Laboratory Control Sample (LCS) 1 1.80 #	LCD/M300020-2 Curruntson Eec. Limits LCS Qualifier Analyte mg/l mg/l % % Analyte mg/l mg/l % % Chloride 40.0 39.3 98.3 80.0-120 Sulfate 40.0 39.3 98.3 80.0-120 Chloride 40.0 39.3 98.3 80.0-120 Sulfate 40.0 39.3 98.2 80.0-120 Colloride 40.0 39.3 98.2 80.0-120 Colloride 40.0 39.3 98.2 80.0-120 Cultoride 0.0 39.3 98.2 80.0-120 Colloridinal Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD) (OS) L1270593-01 10/12/20 02:14 • (MS) Rasse0556-4 10/12/20 02:36 • (MSD) • Matrix Spike Duplicate (MSD) Analyte mg/l mg/l mg/l % % Analyte mg/l mg/l mg/l % % % Analyte mg/l mg/l mg/l mg/l % % % Solide 50.0
Wet Wet	(MB) R3 Analyte Chloride Sulfate L1270	(OS) L12 Analyte Chloride Sulfate L127C	(OS) L12 Analyte Chloride Sulfate Labor	Analyte Chloride Sulfate Chloride Sulfate Sulfate Sulfate Sulfate Sulfate

PAGE

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	9026
G1557358	wet Unemistry by Method

L1270841-08 Original Sample (OS) • Matrix Spike (MS)

	MS Qualifier			
	Dilution Rec. Limits	%	80.0-120	80.0-120
	Dilution		-	6
	MS Rec.	%	103	104
3580526-7 10/12/20 06:35	Original Result MS Result	1/6m	55,5	54.3
33580526-7		шg/I	4.03	2.58
(OS) L1270841-08 10/12/20 06:13 • (MS) F	Spike Amount	mg/l	50.0	50.0
(OS) L1270841-08		Analyte	Chloride	Sulfate

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1555909	iry by Method 7470A
	Mercury

Method Blank (MB)

(MB) R3579659-1 10/09/20 09:48

MB RDL				
MB MDL	₩g/ł	0.000100		
MB Qualifier				
MB Result	идл	Ŋ		
	Analyte	Mercury		
	MB Qualifier MB MDL M	MB Result MB Qualifier MB MDL MB RDL mg/l mg/l mg/l	MB Result MB MDL MB RDL mg/l mg/l mg/l U 0.000100 0.000200	MB Result MB Qualifier MB MDL MB RDL mg/l mg/l mg/l U 0.000100 0.000200

Laboratory Control Sample (LCS)

(LCS) R3579659-2 10/09/20 (20 09:50				
	Spike Amount LCS Result	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	2%	8	
Mercury	0.00300	0.00316	105	80,0-120	

r.

² Sc ³ Ss ³

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	60100
6075	by Method
WG155	Metals (ICP)

Method Blank (MB)

MARY D2670061 1 10/00/20 16

	MB RDL	l/gm	0.200	0.100	0.0100	0.0100	
	MB MDL	mg/l	0.0704	0.0458	0.00327	0.00735	
	MB Qualifier						
20 16:54	MB Result	∥gm	n	n	n	n	
(MB) R3579951-1 10/09/20 16:54		Analyte	Aluminum, Dissolved	Iron, Dissolved	Manganese, Dissolved	Selenium, Dissolved	

Laboratory Control Sample (LCS)

(LCS) R3579951-2 10/09/20 16:56	1/20 16:56				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	l/bu	l/gm	*	*	
Aluminum, Dissolved	10.0	10.4	104	80.0-120	
Iron, Dissolved	10.0	10.5	105	80.0-120	
Manganese, Dissolved	1.00	0.974	97.4	80.0-120	
Selenium, Dissolved	1.00	0.992	2.66	80.0-120	

⁵ Cn ³ Ss ³ Tc

ACCOUNT:

PROJECT:

SDG

56420	P) by Method 6010D
	Metals (ICP)

Method Blank (MB)

	MB Qualifier	
10/12/20 01:09	MB Result	l/gm
(MB) R3580318-1 10/12/20 01:09		Analyte

MB RDL

MB MDL

	0.000895 0.00500				
l/gm	Ŋ	n	Ŋ	N	
Analyte	Barlum	Calcium	Magneslum	Potassium	Sodium

Ċ

² C ³ S ³ S ² C ² C

		LCS Qualifier						
		Rec. Limits	8	80.0-120	80.0-120	80.0-120	80.0-120	80.0-120
		LCS Rec.	9 6	95.4	98.3	95.9	94.2	98.7
CS)		LCS Result	l/gm	0.954	9.83	9.59	9.42	9.87
aboratory Control Sample (LCS)	10/12/20 01:14	Spike Amount LCS Result	l/gm	1.00	10.0	10.0	10.0	10.0
Laboratory Co	(LCS) R3580318-2 10/12/20 01:14		Analyte	Barium	Calcium	Magnesium	Potassium	Sodium

ACCOUNT:

DATE/TIME:

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the resu reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section fo each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
8	Sample(s) received past/too close to holding time expiration.

PROJECT:

SDG:

DATE/TIME:

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Sc

ACCREDITATIONS & LOCATIONS

Pace National 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 benefil to our one location design of our laboratory campus. The model is conducive to accelerated productivity, decreasing tum-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. * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico 1	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinois	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
Cansas	E-10277	Rhode Island	LA000356
(entucky 16	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
ouisiana	A130792	Tennessee 14	2006
ouisiana	LA180010	Texas	T104704245-18-15
laine	TN0002	Texas ⁵	LAB0152
Aaryland	324	Ulah	TN00003
Aassachusetts	M-TN003	Vermont	VT2006
lichigan	9958	Virginia	460132
linnesota	047-999-395	Washington	C847
lississippi	TN00003	West Virginia	233
Aissouri	340	Wisconsin	9980939910
Montana	CERTOD86	Wyoming	A2LA

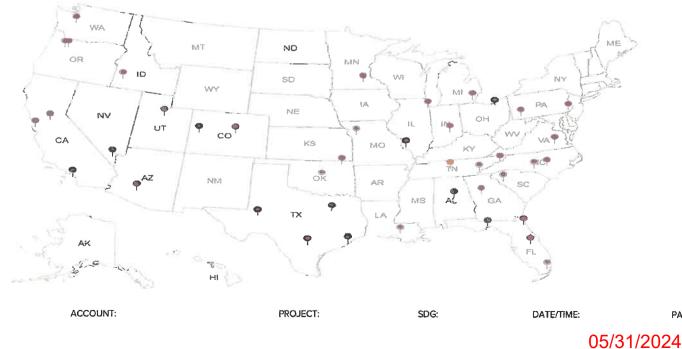
Third Party Federal Accreditations

A2LA ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA - ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



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Attachment 22 Background Sampling

BACKGROUND SAMPLING – ATTACHMENT 22

Historical background laboratory data has been submitted to the WVDEP since 2007 at this facility. Vegetation, surface water, and semi-annual soils data has been submitted under separate cover to the WVDEP. An excel spreadsheet summarizing the surface water is provided in **Appendix 22.1**.

e²C EnviroCheck of Virginia, Inc. "Energy, Environmental Consulting"

Attachment 22.1 Laboratory Data Sheets



ANALYTICAL REPORT June 22, 2020

EnviroCheck of Va., Inc

Sample Delivery Group:	L1229080
Samples Received:	06/13/2020
Project Number:	NYTIS 109-02401
Description:	Nytis
Site:	205 B/C 109-02401
Report To:	Mr. J. L. Rhudy
	375 Mountain Lane
	Tazewell, VA 24651

Entire Report Reviewed By: Panula A. Ly foul

Pam Langford Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTUL-0067 and ENV-SOP-MTUL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and at the complex per provided. and as the samples are received.

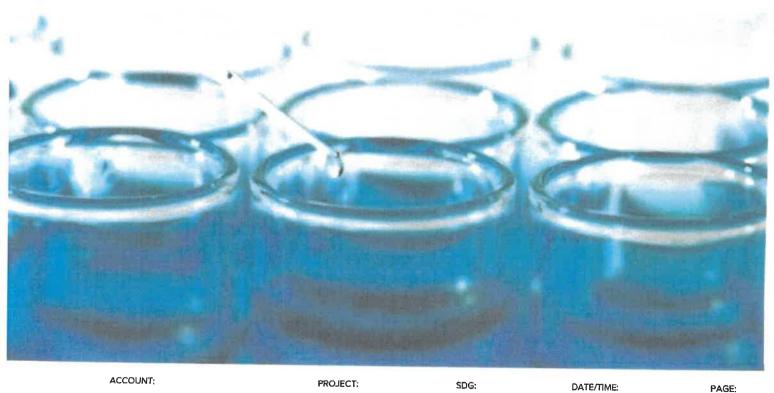


TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
LA KS (081-01385) L1229080-01	5
CA KS (081-01385) L1229080-02	6
TYGRETT LA (081-01391) L1229080-03	7
TYGRETT CA (081-01391) L1229080-04	8
Qc: Quality Control Summary	9
Total Solids by Method 2540 G-2011	9
Wet Chemistry by Method 9045D	10
Wet Chemistry by Method 9056A	11
Mercury by Method 7471A	12
Metals (ICP) by Method 6010D	13
GI: Glossary of Terms	15
Al: Accreditations & Locations	16
Sc: Sample Chain of Custody	17

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ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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LA KS (081-01385) L1229080-01 Solid			John Moratto	06/10/20 09:00	06/13/20 09	
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		-
Total Solids by Method 2540 G-2011	WG1493883	1	06/17/20 16:45	06/17/20 16:58	KBC	Mt. Juliet, Tl
Wet Chemistry by Method 9045D	WG1495629	1	06/19/20 14:00	06/19/20 15:00	KEG	Mt. Juliet, T
Wet Chemistry by Method 9056A	WG1495855	1	06/21/20 21:05	06/22/20 04:51	ELN	Mt. Juliet, T
Mercury by Method 7471A	WG1493441	1	06/16/20 12:39	06/16/20 19:41	TCT	Mt. Juliet, T
Metals (ICP) by Method 6010D	WG1493637	1	06/16/20 16:19	06/18/20 21:40	EL	Mt. Juliet, Ti
Metais (ICP) by Method 6010D	WG1495787	1	06/19/20 14:40	06/20/20 10:36	TRB	Mt. Juliet, Ti
			Collected by	Collected date/time	Received da	ite/time
CA KS (081-01385) L1229080-02 Solid			John Moratto	06/10/20 09:15	06/13/20 09	:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Total Solids by Method 2540 G-2011	WG1493883	1	06/17/20 16:45	06/17/20 16:58	KBC	Mt. Juliet, TN
Net Chemistry by Method 9045D	WG1495629	1	06/19/20 14:00	06/19/20 15:00	KEG	Mt. Juliet, TM
Net Chemistry by Method 9056A	WG1495855	1	06/21/20 21:05	06/22/20 06:06	ELN	Mt. Juliet, TN
Mercury by Method 7471A	WG1493441	1	06/16/20 12:39	06/16/20 19:43	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1493637	1	06/16/20 16:19	06/18/20 21:47	EL	Mt. Juliet, TN
fetals (ICP) by Method 6010D	WG1495787	1	06/19/20 14:40	06/20/20 10:38	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
TYGRETT LA (081-01391) L1229080-03 Solid			John Moratto	06/10/20 10:00	06/13/20 09	:00
fethod	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
otal Solids by Method 2540 G-2011	WG1493883	1	06/17/20 16:45	06/17/20 16:58	KBC	Mt. Juliet, TN
/et Chemistry by Method 9045D	WG1495629	1	06/19/20 14:00	06/19/20 15:00	KEG	Mt. Juliet, TN
et Chemistry by Method 9056A	WG1495855	1	06/21/20 21:05	06/22/20 06:21	ELN	Mt. Juliet, TN
ercury by Method 7471A	WG1493441	1	06/16/20 12:39	06/16/20 19:46	TCT	Mt. Juliet, TN
fetals (ICP) by Method 6010D	WG1493637	1	06/16/20 16:19	06/18/20 21:50	EL	Mt. Juliet, TN
etals (ICP) by Method 6010D	WG1495787	1	06/19/20 14:40	06/20/20 10:41	TRB	Mt. Juliet, TN
YGRETT CA (081-01391) L1229080-04 Solid			Collected by John Moratto	Collected date/time 06/10/20 10:15	Received dat 06/13/20 09:	
Aethod	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time	, and for	
otal Solids by Method 2540 G-2011	WG1493883	1	06/17/20 16:45	06/17/20 16:58	KBC	Mt. Juliet, TN
et Chemistry by Method 9045D	WG1495629	1	06/19/20 14:00	06/19/20 15:00	KEG	Mt. Juliet, TN
et Chemistry by Method 9056A	WG1495855	1	06/21/20 21:05	06/22/20 06:36	ELN	Mt. Juliet, TN
ercury by Method 7471A	WG1493441	1	06/16/20 12:39	06/16/20 19:49	TCT	Mt. Juliet, TN
	WG1493637	1	06/16/20 16:19	06/18/20 21:53	EL	Mt. Juliet, TN
etals (ICP) by Method 6010D		1	06/19/20 14:40	06/20/20 10:49	TRB	Mt. Juliet, TN

ACCOUNT:

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CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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.

Panela A. Inford

Pam Langford Project Manager

²Tc ³Ss ⁶Cn ⁵Sr ⁶Qc ⁷Gl ⁹Sc

ACCOUNT:

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SAMPLE RESULTS - 01

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifie	r Dilution	Analysis date / time		Batch		
Total Solids	77.8		1	06/17/2020 16	:58	WG1493883		
Wet Chemist	y by Method 904	5D						
	Result	Qualifie	r Dilution	Analysis		Batch		
Analyte	SU			date / time				
рН	5.77	<u>T8</u>	1	06/19/2020 15	:00	WG1495629		
Sample Narrative: L1229080-01 WG14	95629: 5.77 at 22.8C							
L1229080-01 WG14 Wet Chemisti	y by Method 905 Result (dry)	ôA Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch	
L1229080-01 WG14 Wet Chemistr Analyte	y by Method 905 Result (dry) mg/kg		mg/kg	mg/kg		date / time		
L1229080-01 WG14 Wet Chemisti	y by Method 905 Result (dry)				Dilution 1 1		Batch WG1495855 WG1495855	
L1229080-01 WG14 Wet Chemistr Analyte Chloride	y by Method 905 Result (dry) mg/kg U U U		mg/kg 11.8	mg/kg 25.7	1	date / tīme 06/22/2020 04:51	WG1495855	
L1229080-01 WG14 Wet Chemistr Analyte Chloride Sulfate	y by Method 905 Result (dry) mg/kg U U U		mg/kg 11.8	mg/kg 25.7	1	date / tīme 06/22/2020 04:51	WG1495855	
L1229080-01 WG14 Wet Chemistr Analyte Chloride Sulfate	y by Method 905 Result (dry) mg/kg U U U	Qualifier	mg/kg 11.8 16.6	mg/kg 25.7 64.3	1 1	date / time 06/22/2020 04:51 06/22/2020 04:51	WG1495855 WG1495855	

Metals (ICP) by Method 6010D

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17100		10.5	12.9	1	06/18/2020 21:40	WG1493637
Barium	62.7		0.309	0.643	1	06/18/2020 21:40	WG1493637
Calcium	149		38.6	129	1	06/18/2020 21:40	WG1493637
Iron	25700		6.43	12.9	1	06/18/2020 21:40	WG1493637
Magnesium	2190		26.4	129	1	06/18/2020 21:40	WG1493637
Manganese	355		0.315	1.29	1	06/18/2020 21:40	WG1493637
Potassium	1400		26.9	129	1	06/18/2020 21:40	WG1493637
Selenium	0.832	7	0.793	2.57	1	06/18/2020 21:40	WG1493637
Sodium	57.7	<u>1</u>	42.7	129	1	06/20/2020 10:36	WG1495787

SDG:

DATE/TIME:

SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.

	Result	Qualifi	er Dilution	Analysis	Batch		
Analyte	%		-	date / time			E
Total Solids	74,4		1	06/17/2020 16:58	WG1493883		
Wet Chemist	ry by Method 9045	5D					
	Result	Qualifi	er Dilution	Analysis	Batch		
Analyte	su			date / time			ť
рН	5.23	<u>T8</u>	1	06/19/2020 15:00	WG1495629		L
Sample Narrative:							
	495629: 5.23 at 22.7C						
	495629: 5.23 at 22.7C						
L1229080-02 WG1	495629: 5.23 at 22.7C ry by Method 9056	5A					4
L1229080-02 WG1		6A Qualifier	MDL (dry)	RDL (dry) Dilut	on Analysis	Batch	2
L1229080-02 WG1 Wet Chemist	ry by Method 9056		MDL (dry) mg/kg	RDL (dry) Dilut	on Analysis date / time	Batch	
L1229080-02 WG1 Wet Chemisti Analyte	ry by Method 9056 Result (dry)					Batch WG1495855	
L1229080-02 WG1 Wet Chemistr Analyte Chloride	ry by Method 9056 Result (dry) mg/kg		mg/kg	mg/kg	date / time		
L1229080-02 WG1 Wet Chemistr Analyte Chloride	ry by Method 9056 Result (dry) mg/kg U		mg/kg 12.4	mg/kg 26.9 1	date / time 06/22/2020 06:06	WG1495855	
L1229080-02 WG1 Wet Chemistr Analyte Chloride Sulfate	ry by Method 9056 Result (dry) mg/kg U U U		mg/kg 12.4	mg/kg 26.9 1	date / time 06/22/2020 06:06	WG1495855	7
L1229080-02 WG1 Wet Chemistr Analyte Chloride Sulfate	ry by Method 9056 Result (dry) mg/kg U U U		mg/kg 12.4	mg/kg 26.9 1	date / time 06/22/2020 06:06 06/22/2020 06:06	WG1495855	
L1229080-02 WG1	ry by Method 9056 Result (dry) mg/kg U U U U	Qualifier	mg/kg 12.4 17.3	mg/kg 26.9 1 67.2 1	date / time 06/22/2020 06:06 06/22/2020 06:06	WG1495855 WG1495855	7

Metals (ICP) by Method 6010D

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	19700		11.0	13.4	1	06/18/2020 21:47	WG1493637
Barium	74.0		0.323	0.672	1	06/18/2020 21:47	WG1493637
Calcium	198		40.3	134	1	06/18/2020 21:47	WG1493637
Iron	24700		6.72	13.4	1	06/18/2020 21:47	WG1493637
Magnesium	2160		27.6	134	1	06/18/2020 21:47	WG1493637
Manganese	244		0.329	1.34	1	06/18/2020 21:47	WG1493637
Potassium	1550		28.1	134	1	06/18/2020 21:47	WG1493637
Selenium	1.22	7	0.830	2.69	1	06/18/2020 21:47	WG1493637
Sodium	61.6	1	44.6	134	1	06/20/2020 10:38	WG1495787

ACCOUNT:

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SAMPLE RESULTS - 03

ONE LAB. NATIONWIDE.

Total Solids by Method 2540 G-2011

	Result	Qualif	ier Dilution	Analysis		Batch		
Analyte	%			date / time				
Total Solids	80.4		1	06/17/2020 16:5	58	WG1493883		
Wet Chemistr	y by Method 904	5D						
	Result	Qualifi	er Dilution	Analysis		Batch		
Analyte	SU			date / time				
pН	5.29	<u>T8</u>	1	06/19/2020 15:0	00	WG1495629		
Sample Narrative: L1229080-03 WG14	195629: 5.29 at 22.6C							
L1229080-03 WG14 Wet Chemistr	y by Method 905 Result (dry)	ôA <u>Qualifier</u>	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch	
L1229080-03 WG14 Wet Chemistr Analyte	y by Method 905 Result (dry) mg/kg		mg/kg	mg/kg	Dilution	date / time		
L1229080-03 WG14 Wet Chemistr	y by Method 905 Result (dry)				Dilution 1 1	•	Batch WG1495855 WG1495855	
L1229080-03 WG14 Wet Chemistr Analyte Chloride	ry by Method 9054 Result (dry) mg/kg U U U		mg/kg 11.4	mg/kg 24.9	1	date / time 06/22/2020 06:21	WG1495855	
L1229080-03 WG14 Wet Chemistr Analyte Chloride Sulfate	ry by Method 9054 Result (dry) mg/kg U U U		mg/kg 11.4	mg/kg 24.9	1	date / time 06/22/2020 06:21	WG1495855	
L1229080-03 WG14 Wet Chemistr Analyte Chloride Sulfate	y by Method 905 Result (dry) mg/kg U U U	<u>Qualifier</u>	mg/kg 11.4 16 <u>.</u> 1	mg/kg 24.9 62.2	1 1	date / time 06/22/2020 06:21 06/22/2020 06:21	WG1495855 WG1495855	

Metals (ICP) by Method 6010D

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	18500		10.2	12.4	1	06/18/2020 21:50	WG1493637
Barium	69.0		0.299	0.622	1	06/18/2020 21:50	WG1493637
Calcium	136		37.3	124	1	06/18/2020 21:50	WG1493637
Iron	33700		6.22	12.4	1	06/18/2020 21:50	WG1493637
Magnesium	1920		25.5	124	1	06/18/2020 21:50	WG1493637
Manganese	273		0.305	1.24	1	06/18/2020 21:50	WG1493637
Potassium	1490		26.0	124	1	06/18/2020 21:50	WG1493637
Selenium	1.33	7	0.768	2.49	1	06/18/2020 21:50	WG1493637
Sodium	57.8	ī	41.3	124	1	06/20/2020 10:41	WG1495787

DATE/TIME:

TYGRETT CA (081-01391) Collected date/time: 06/10/20 10:15

SAMPLE RESULIS - 04

-

Collected date/tir	me: 06/10/20 10:15			L1229	080			
Total Solids b	by Method 2540 G	G-2011						
	Result	Qualifie	Dilution	Analysis		Batch		
Analyte	%			date / time				2
Total Solids	81.6		1	06/17/2020 16:5	8	WG1493883		Z
Wet Chemist	ry by Method 904	5D						3
	Result	Qualifie	Dilution	Analysis		Batch		
Analyte	SU			date / time				4
рН	5.37	<u>T8</u>	1	06/19/2020 15:0	10	WG1495629		
Sample Narrative:								
L1229080-04 WG1	495629: 5.37 at 22.7C							
								6
Wet Chemist	ry by Method 905	6A						
	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch	7
Analyte	mg/kg		mg/kg	mg/kg		date / time		
Chloride	U		11.3	24.5	1	06/22/2020 06:36	WG1495855	0
Sulfate	U		15.8	61.3	1	06/22/2020 06:36	WG1495855	
Mercury by N	lethod 7471A							9
	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg	mg/kg		date / time		
Mercury	0.0309	ī	0.0221	0.0490	1	06/16/2020 19:49	WG1493441	
Metals (ICP) b	y Method 6010D							
	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg	mg/kg		date / time		
Aluminum	20900		10.1	12.3	1	06/18/2020 21:53	WG1493637	
Bərium	76.7		0.294	0.613	1	06/18/2020 21:53	WG1493637	
Calcium	108	<u>L</u>	36.8	123	1	06/18/2020 21:53	WG1493637	
ron	25800		6.13	12.3	1	06/18/2020 21:53	WG1493637	
Magnesium	2110		25.1	123	1	06/18/2020 21:53	WG1493637	
-								

ACCOUNT:

196

1530

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Manganese

Potassium

Selenium

Sodium

PROJECT:

0.300

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0.757

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123

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SDG:

06/18/2020 21:53

06/18/2020 21:53

06/18/2020 21:53

06/20/2020 10:49

WG1493637

WG1493637

WG1493637

WG1495787

DATE/TIME:

PAGE:



	2540 G-2011
WG1493883	Total Solids by Method

QUALITY CONTROL SUMMARY [1229080-01,02,03,04]

*

Method Blank (MB)

				-
MB Qualifier MB MDL		MB MDL	MB RDL	
	~	8	86	himing
				163
11229080-02 Original Sample (OS) • Duplicate (DI IP)		icate (DI		_

(And) algorithm (co) aldulate (DOP) >>>>++

(OS) L1229080-02 06/17/20 16:58 • (DUP) R3540111-3 06/17/20 16:58

DUP RPD Limits			
DUP Qualifier DU	8	10	
DUP RPD	%	0.818	
Dilution		-	
Original Result DUP Result	96	73.8	
Original R	89	74.4	Comple
	Analyte	Total Solids	Lahoratow Control Samula (LCC)

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	LCS Qualifier		
	Rec. Limits	86	85.0-115
	LCS Rec.	%	100
	LCS Result	8	50.0
06/17/20 16:58	Spike Amount LCS Result	9 ₆	50.0
(LCS) R3540111-2 06/17/20 16:58		Analyte	Total Solids

ACCOUNT:

PROJECT:

SDG:

QUALITY CONTROL SUMMARY 11229080-01,02,03,04

DUP RPD Limits **DUP Qualifier** Dilution DUP RPD L1229080-04 Original Sample (OS) • Duplicate (DUP) 0.935 (OS) L1229080-04 06/19/20 15:00 • (DUP) R3540803-2 06/19/20 15:00 % Original Result DUP Result su 5.32 5.37 SU Analyte Hd

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OS: 5.37 at 22.7C DUP: 5.32 at 22.9C

L1229097-06 Original Sample (OS) • Duplicate (DUP)

	Driginal Result DUP Result Dilution DUP RPD DUP Qualifier DUP RPD Limits	8	1 0.352 1
P) R354080	t DUP Resul	ns	8.50
(OS) L1229097-06 06/19/20 15:00 • (DUP) R3540803-3 06/19/20 15:00	Original Result	su	8.53
(OS) L1229097-0		Analyte	Hd

OS: 8.53 at 22.8C

Sc

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Ss

U3. 8.33 at 22.7C

Laboratory Control Sample (LCS)

	LCS Qualifier			
	Rec. Limits	8	99.0-101	
	LCS Rec.	*	8.66	
	LCS Result	su	9.98	
06/19/20 15:00	Spike Amount LCS Result LCS Rec.	SU	10.0	
(LCS) R3540803-1 06/19/20 15:00		Analyte	μd	

Sample Narrative: LCS: 9.98 at 21.8C

05/31/2024

SDG

PAGE:

	9056A
WG1495855	Wet Chemistry by Method

QUALITY CONTROL SUMMARY 1,1229080-01,02,03,04

-

Mathod Black (MB)

MB Result MB Qualifier MB MDL MB RDL Analyte mg/kg mg/kg mg/kg Analyte mg/kg mg/kg mg/kg Chloide U 9.20 20.0 Suffate U 12.9 50.0 Suffate U 12.9 50.0 L1228720-01 Original Sample CS) - Duplicate DUP CoS) L1228720-01 O6/22/20 00:23 - (DUP) R35412233 06/22/20 00:37 Original Result Original Result DUP Result DUP RPP DUP Qualifier	(MB) R3541223-1 06/21/20 23:06	16/21/20 23:06						
тд/ка тд/ка тд/ка U 9.20 20.0 U 12.9 50.0 7/20-01 Original Sample (OS) • Duplicate (DUP) 28720-01 06/22/20 00:23 • (DUP) R3541223-3 06/22/20 00:37 Original Result DUP Result DUP Result DUP RPD DUP RPD DUP Qualifier (dry) (dry)		MB Result	MB Qualifier	MB MDL	MB RDL			
U 9.20 20.0 U 12.9 50.0 7720-01 Original Sample (OS) • Duplicate (DUP) 28720-01 06/22720 00:23 • (DUP R5stlt DUP Result DUP Result DUP Result DUP Result DUP Result DUP Rep DUP Qualifier (dry)	Analyte	шд/кд		mg/kg	mg/kg			
0.0 DUP Qualifier	Chloride	n		9.20	20.0			
D DUP Qualifier	Sulfate	П		12.9	50.0			
D DUP Qualifier	L1228720-01	Original Sample	e (OS) • Dup	olicate (DI	(d)			
Dilution DUP RPD DUP Qualifier	(OS) L1228720-01	06/22/20 00:23 · (D	UP) R3541223-3	3 06/22/20 C	10:37			
		Original Resu	ult DUP Result	Dilution D		P Qualifier	P RPD	

	DUP Qualifier	
06/22/20 00:37	Dilution DUP RPD	8
') K3541223-3	DUP Result (dry)	mg/kg
(US) LIZZB/ZU-UI U5/ZZ/ZU UU:23 + (UUP) K3541223-3 06/22/20 00:37	Original Result DUP Result (dry) (dry)	mg/kg
(n2) FIZZ8/ZN-1		Analyte

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Chloride Sulfate

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L1229079-03 Original Sample (OS) • Duplicate (DUP)

	DUP RPD Limits	₽%	15	15
	DUP Qualifier			
0 04:21	Dilution DUP RPD	%	0.000	0,000
06/22/2	Dilution		ļ	-
^o) R3541223-4	DUP Result (dry)	mg/kg	n	n
(OS) L1229079-03 06/22/20 04:06 • (DUP) R3541223-4 06/22/20 04:21	Original Result DUP Result (dry) (dry)	mg/kg	n	n
(OS) L1229079-03		Ånalyte	Chloride	Sulfate

Laboratory Control Sample (LCS)

	LCS Qualifier				
	Rec. Limits	8	80.0-120	80.0-120	
	LCS Rec.	8	105	102	
	LCS Result		210		
06/21/20 23:21	Spike Amount	mg/kg	200	200	
(LCS) R3541223-2 06/21/20 23:21		Analyte	Chloride	Sulfate	

PROJECT:

PAGE:

3441	Method 7471A
WG149	Mercury by

Method Blank (MB)

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Laboratory Control Sample (LCS)

	S Result LCS Rec. Rec. Limits LCS Qualifier	8	116 80.0-120
	It LCS Res	mg/kg	0.579
(LCS) R3539410-4 06/16/20 21:12	Spike Amount LCS Result	mg/kg	0.500
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DATE/TIME:

Method Blank (MB)

	MB Qualifier		
1 06/18/20 21:16	MB Result	mg/kg	n
(MB) R3540366-1		Analyte	Aluminum

MB RDL mg/kg

MB MDL mg/kg 10.0 0.500

0.240

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Barlum Catclum

lron

Magnesium Manganese Potassium Selenium

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8.20

100 100 1100 2.00

30.0 5.00 20.5 0.245 20.9 0.617

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Laboratory Control Sample (LCS)

Sc Ss Ss Ss C

(LCS) R3540366-2 06/18/20 21:19	6/18/20 21:19					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	mg/kg	mg/kg	%	%		
Aluminum	1000	1060	106	80.0-120		
Barium	100	108	108	80.0-120		
Calcium	1000	1080	108	80.0-120		
Iron	1000	1070	107	80.0-120		
Magnesium	1000	1090	109	80.0-120		
Manganese	100	106	106	80.0-120		
Potassium	1000	1020	102	80.0-120		
Selenium	100	101	101	80.0-120		

PAGE:

ACCOUNT:

	6010D
787	Method
S	by
49	(ICP)
WG1	Metals

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Method Blank (MB)

MB Result MB Qualifier ma/ka	102 TAD TAD		
		MB RDL	
	mg/kg	шg¥g	
Π	33.2	100	

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	Limits LCS Qualifier	ł	20
	LCS Rec. Rec. LI	%	102 80.0-120
	CS Result	lg/kg	1020
	ÿ	E	
(LCS) R3540906-2 06/20/20 09:16	Spike Amount LC	mg/kg n	1000

² C ³ S ³ S ³ C ² C

ACCOUNT:

SDG:

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this Information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL (dea)	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD SDG	Relative Percent Difference.
U	Sample Delivery Group. Not detected at the Reporting Limit (or MDL where applicable).
0	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes
Analyte	reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the resul reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The Identification of the analyte is acceptable; the reported value is an estimate.
18	Sample(s) received past/too close to holding time expiration.
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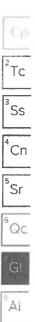
ACCOUNT:

PROJECT:

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DATE/TIME:

05/31/2024



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ACCREDITATIONS & LOCATIONS

Pace National 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.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina	DW21704
Georgia	NELAP	North Carolina ³	41
Seorgia ¹	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinois	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky 16	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
ouisiana	AI30792	Tennessee 14	2006
ouisiana ¹	LA180010	Texas	T104704245-18-1
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
lassachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
lissouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

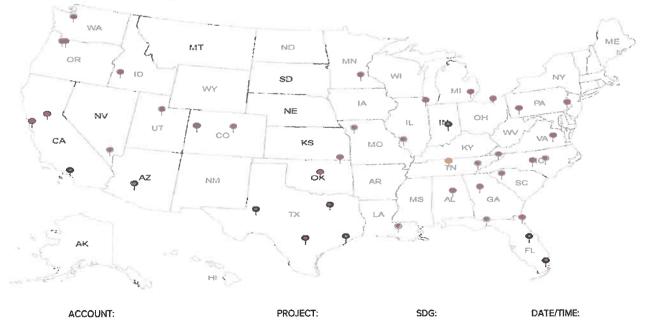
Third Party Federal Accreditations

A2LA - ISO 17025	1451.01	AIHA-LAP,LLC EMLAP	100789
A2LA ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

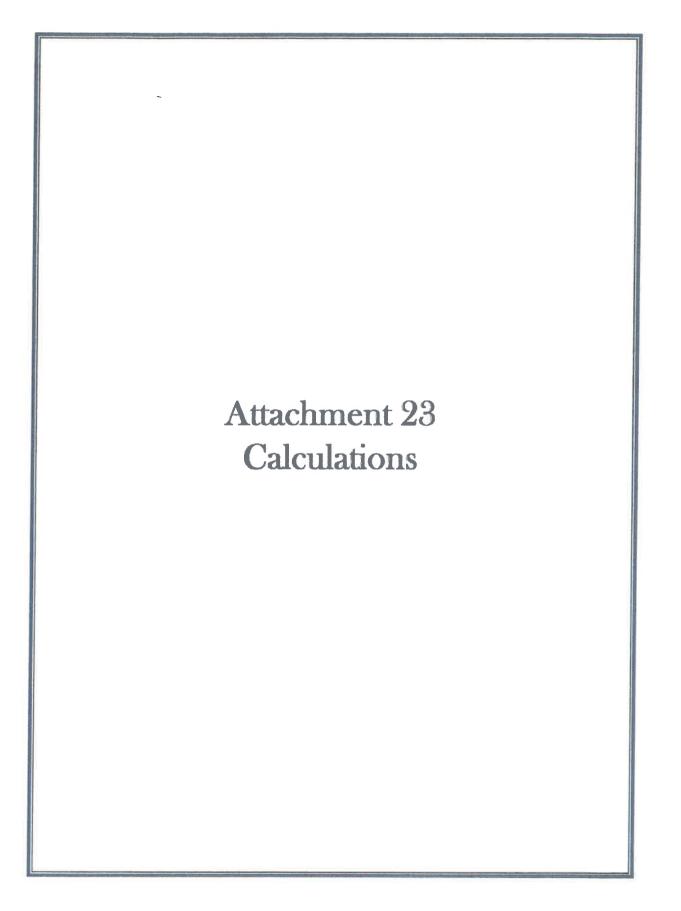
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



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Project Description: Nytis			City/State Collected: Ravencliff, WV	ancliff, WV	1				Phone: 615-758-6658 Phone: 800-767-5859 Far: 615-758-5859	
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CALCULATIONS – ATTACHMENT 23

The Tygrett will be utilizing approximately 4 acres or 1,552,914 ft². It is expected that the land application area will utilize approximately 70% of that area or 48,787 ft². The projected drainage area of the Tygrett is much larger (see **Topographic Map**, **Attachment 18**). The system will discharge 31,500 gallons/day or 1,312 gallons/hour or 22 gpm. The general soils in this area are the Pineville-Berks association which has a moderate permeability 0.6" to 2.0" per hour and moderately slow permeability of 0.2" to 0.6" per hour (Soil Survey of Wyoming County). Permeability is by definition, the quality of soil that enables water or air to move downward through the profile. Any volume greater than the effective permeability would likely cause runoff and erosion. At this facility, produced water will be discharged at 22 gpm. The calculated inches/hour discharged at this facility.

22gpm x
$$\frac{60 \min}{hour}$$
 x $\frac{1 \text{ft}^3}{7.48 \text{gallons}} = 176 \text{ft}^3 / \text{hour}$
Applied
Volume $\frac{176 \text{ft}^3 / \text{hour}}{48,787 \text{ft}^3}$ (land application area)
= 0.0036 ft/hour
= 0.0036 ft/hour the dual of the state o

= 0.04*inches* / *hour*

Thus, the volume applied at the land application area is much lower than the published permeability based on soil type. Therefore, runoff and erosion should not occur at this site.

e²C EnviroCheck of Virginia, Inc. "Energy, Environmental Consulting"