

August 21, 2020

Glenn Walker PO Box
Brunswick County Water Systems
PO Box 249
Bolivia, NC 28422

RE: Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35570768

Dear Glenn PO Box:

Enclosed are the analytical results for sample(s) received by the laboratory on August 14, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Ormond Beach

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Lisa Harvey
lisa.harvey@pacelabs.com
(386) 672-5668
Project Manager

Enclosures

cc: Billy Benton, BRUNSWICK COUNTY PUBLIC UTILITIES



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: 1,4-Dx-522 (Weekly)

Pace Project No.: 35570768

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174

Alaska DEC- CS/UST/LUST

Alabama Certification #: 41320

Arizona Certification# AZ0819

Colorado Certification: FL NELAC Reciprocity

Connecticut Certification #: PH-0216

Delaware Certification: FL NELAC Reciprocity

Florida Certification #: E83079

Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity

Hawaii Certification: FL NELAC Reciprocity

Illinois Certification #: 200068

Indiana Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383

Kentucky Certification #: 90050

Louisiana Certification #: FL NELAC Reciprocity

Louisiana Environmental Certificate #: 05007

Maryland Certification: #346

Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236

Montana Certification #: Cert 0074

Nebraska Certification: NE-OS-28-14

New Hampshire Certification #: 2958

New Jersey Certification #: FL022

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710

North Dakota Certification #: R-216

Ohio DEP 87780

Oklahoma Certification #: D9947

Pennsylvania Certification #: 68-00547

Puerto Rico Certification #: FL01264

South Carolina Certification: #96042001

Tennessee Certification #: TN02974

Texas Certification: FL NELAC Reciprocity

US Virgin Islands Certification: FL NELAC Reciprocity

Virginia Environmental Certification #: 460165

West Virginia Certification #: 9962C

Wisconsin Certification #: 399079670

Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: 1,4-Dx-522 (Weekly)

Pace Project No.: 35570768

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35570768001	81320 S01	Drinking Water	08/13/20 07:30	08/14/20 12:25
35570768002	81320 E01	Drinking Water	08/13/20 07:30	08/14/20 12:25

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SAMPLE ANALYTE COUNT

Project: 1,4-Dx-522 (Weekly)

Pace Project No.: 35570768

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35570768001	81320 S01	EPA 522	CTB	2	PASI-O
35570768002	81320 E01	EPA 522	CTB	2	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

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ANALYTICAL RESULTS

Project: 1,4-Dx-522 (Weekly)

Pace Project No.: 35570768

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 81320 S01 Lab ID: 35570768001 Collected: 08/13/20 07:30 Received: 08/14/20 12:25 Matrix: Drinking Water									
522 MSS 1,4 Dioxane Analytical Method: EPA 522 Preparation Method: EPA 522 Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	0.20	I	ug/L	0.20	0.12	1	08/20/20 07:39	08/20/20 18:27	123-91-1
Surrogates									
1,4-Dioxane-d8 (S)	78	%	70-130			1	08/20/20 07:39	08/20/20 18:27	

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 81320 E01 Lab ID: 35570768002 Collected: 08/13/20 07:30 Received: 08/14/20 12:25 Matrix: Drinking Water									
522 MSS 1,4 Dioxane Analytical Method: EPA 522 Preparation Method: EPA 522 Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	0.22		ug/L	0.21	0.12	1	08/20/20 07:39	08/20/20 18:43	123-91-1
Surrogates									
1,4-Dioxane-d8 (S)	123	%	70-130			1	08/20/20 07:39	08/20/20 18:43	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1,4-Dx-522 (Weekly)

Pace Project No.: 35570768

QC Batch: 658704	Analysis Method: EPA 522
QC Batch Method: EPA 522	Analysis Description: 522 MSS 1,4 Dioxane
	Laboratory: Pace Analytical Services - Ormond Beach

Associated Lab Samples: 35570768001, 35570768002

METHOD BLANK: 3581792 Matrix: Water

Associated Lab Samples: 35570768001, 35570768002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	08/20/20 17:23	
1,4-Dioxane-d8 (S)	%	92	70-130		08/20/20 17:23	

LABORATORY CONTROL SAMPLE & LCSD: 3581793 3581809

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	17.4	17.1	87	86	70-130	2	20	
1,4-Dioxane-d8 (S)	%				96	90	70-130			

LABORATORY CONTROL SAMPLE: 3581794

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.17 I	86	50-150	
1,4-Dioxane-d8 (S)	%			91	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 1,4-Dx-522 (Weekly)

Pace Project No.: 35570768

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 658936

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U Compound was analyzed for but not detected.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35570768

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35570768001	81320 S01	EPA 522	658704	EPA 522	658936
35570768002	81320 E01	EPA 522	658704	EPA 522	658936

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WO#: 35570768



35570768

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:
 Company: Brunswick County Water System
 Address: 3954 Clearwell Dr. NE
 Leland, NC 28451
 Email: glenn.walker@brunswickcountync.gov
 Phone: 910-371-3490
 Requested Due Date:

Required Project Information:
 Report To: Glenn - Bottles
 Copy To:
 Purchase Order #: 1,4-Dr-522 (Weekly)
 Project Name:
 Project #:

Section C

Invoice Information:
 Attention:
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: lisa.harvey@pacelabs.com
 Pace Profile #: 9551-1

Regulatory Agency:
State / Location: NC

Page: 1 Of 1

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives						Y/N	1,4-dioxane, method 522	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			START DATE	START TIME				END DATE	END TIME	Unpreserved	H2SO4	HNO3	HCl				
1	Drinking Water	DW	8-13-20	0730	8-13-20	0730	1										
2	Waste Water	WT	8-13-20	0730	8-13-20	0730	1										
3	Water	WV															
4	Product	P															
5	Soil/Solid	SL															
6	Oil	OL															
7	Wipe	WP															
8	Air	AR															
9	Other	OT															
10	Tissue	TS															
11																	
12																	

ADDITIONAL COMMENTS:
 Empty Bottles

RELINQUISHED BY / AFFILIATION:
 REP. Bottle Prep
 Phillip McColloch

DATE: 8/13/20

TIME: 0732

ACCEPTED BY / AFFILIATION:
 TRB/ARSE

DATE: 8/13/20

TIME: 1300

SAMPLE CONDITIONS:
 Received on Ice (Y/N)
 Custody Sealed (Y/N)
 Cooler (Y/N)
 Samples (Y/N)

SAMPLER NAME AND SIGNATURE:
 PRINT Name of SAMPLER: Phillip McColloch
 SIGNATURE of SAMPLER: Phillip McColloch

DATE Signed: 8-13-20



Document Name:
Sample Condition Upon Receipt Form
Document No.:
F-FL-C-007 rev. 13

Document Revised:
May 30, 2018
Issuing Authority:
Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project # **WO# : 35570768**

Project Manager: **PM: LMH Due Date: 08/26/20**

Client: **CLIENT: BRUNCOWS**

Date and Initials of person:

Examining contents: TRB

Label: _____

Deliver: _____

pH: TRB

Thermometer Used: T-329 Date: 8/14/20 Time: 1225 Initials: ASCSA

State of Origin: _____ For WV projects, all containers verified to ≤ 6 °C

Cooler #1 Temp. °C 3.8 (Visual) ±0.1 (Correction Factor) 3.9 (Actual)

Cooler #2 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #3 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #4 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #5 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #6 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Samples on ice, cooling process has begun

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Shipping Method: First Overnight Priority Overnight Standard Overnight Ground International Priority

Other _____

Billing: Recipient Sender Third Party Credit Card Unknown

Tracking # _____

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No Ice: Wet Blue Dry None

Packing Material: Bubble Wrap Bubble Bags None Other Bag

Samples shorted to lab (If Yes, complete) Shorted Date: _____ Shorted Time: _____ Qty: _____

Comments:

Chain of Custody Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Preservation Information:</p> <p>Preservative: _____</p> <p>Lot #/Trace #: _____</p> <p>Date: _____ Time: _____</p> <p>Initials: _____</p>
Chain of Custody Filled Out	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Relinquished Signature & Sampler Name COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush TAT requested on COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient Volume	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels match COC (sample IDs & date/time of collection)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing acid/base preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All Containers needing preservation are found to be in compliance with EPA recommendation:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC, O&G, Carbamates		
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution (use back for additional comments): _____

Project Manager Review: _____ Date: _____

Pace Container Order #620126

Please Return
This Copy
With COC

Addresses		Ship To :	Return To:		
Order By :					
Company	Brunswick County Water System	Company	Brunswick County Water System	Company	Pace Analytical Ormond Beach
Contact	- Bottles, Glenn	Contact	- Bottles, Glenn	Contact	Harvey, Lisa
Email	glenn.walker@brunswickcountync.gov	Email	glenn.walker@brunswickcountync.gov	Email	lisa.harvey@pacelabs.com
Address	3954 Clearwell Dr. NE	Address	3954 Clearwell Dr. NE	Address	8 East Tower Circle
Address 2		Address 2		Address 2	
City	Leland	City	Leland	City	Ormond Beach
State	NC Zip 28451	State	NC Zip 28451	State	FL Zip 32174
Phone	910-371-3490	Phone	910-371-3490	Phone	(386) 672-5668

Project Name	1,4-Dx-522 (Weekly)	Due Date	07/21/2020	Profile	9551-1	Quote	
Project Manager	Harvey, Lisa	Return Date		Carrier	FedEx Ground	Location	NC

Trip Blanks <input type="checkbox"/> Include Trip Blanks	Bottle Labels <input type="checkbox"/> Blank <input checked="" type="checkbox"/> Pre-Printed No Sample IDs <input type="checkbox"/> Pre-Printed With Sample IDs	Bottles <input type="checkbox"/> Boxed Cases <input type="checkbox"/> Individually Wrapped <input type="checkbox"/> Grouped By Sample ID/Matrix
--	---	---

Return Shipping Labels <input type="checkbox"/> No Shipper <input type="checkbox"/> With Shipper	Misc <input type="checkbox"/> Sampling Instructions <input checked="" type="checkbox"/> Custody Seal <input checked="" type="checkbox"/> Temp. Blanks <input checked="" type="checkbox"/> Coolers <input style="width: 50px;" type="text" value="1"/> <input type="checkbox"/> Syringes <input style="width: 100px;" type="text"/>
---	--

COC Options <input type="checkbox"/> Number of Blanks <input style="width: 100px;" type="text"/> <input checked="" type="checkbox"/> Pre-Printed <input style="width: 100px;" type="text"/>	<input type="checkbox"/> Extra Bubble Wrap <input type="checkbox"/> Short Hold/Rush Stickers <input type="checkbox"/> DI Water <input style="width: 50px;" type="text" value="Liter(s)"/> <input type="checkbox"/> USDA Regulated Soils
--	--

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
2	WT	1,4-dioxane, method 522	1-1L Amber Glass, Sodium sulfite & Na bisulfate	2	0		

NO SEAL FOR COOLER

Hazard Shipping Placard In Place : NO

*Sample receiving hours are Mon-Fri 8:00am-6:00pm and Sat 10:00am-6:00pm unless special arrangements are made with your project manager.
 *Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.
 *Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage/disposal.
 *Payment term are net 30 days.
 *Please include the proposal number on the chain of custody to insure proper billing.

LAB USE:

Ship Date :	7/21/20
Prepared By:	RP
Verified By:	
Tracking Num:	

Sample	CLIENT USE (Optional):
weekly sampling 2-locations per week	Date Rec'd:
	Received By:
	Verified By:

Internal	