

January 31, 2023

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

RE: Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35772620

Dear Glenn Walker:

Enclosed are the analytical results for sample(s) received by the laboratory on January 13, 2023. 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,



Shelby Sharpe
shelby.sharpe@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.: 35772620

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174

Alaska DEC- CS/UST/LUST

Alabama Certification #: 41320

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

Maine Certification #: FL01264

Maryland Certification: #346

Massachusetts Certification #: M-FL1264

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.: 35772620

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35772620001	011223S01	Water	01/12/23 07:30	01/13/23 11:35
35772620002	011223E01	Drinking Water	01/12/23 07:30	01/13/23 11:35

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SAMPLE ANALYTE COUNT

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

Pace Project No.: 35772620

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35772620001	011223S01	EPA 522	BMH	2	PASI-O
35772620002	011223E01	EPA 522	BMH	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.: 35772620

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 011223S01 Lab ID: 35772620001 Collected: 01/12/23 07:30 Received: 01/13/23 11:35 Matrix: Water									
522 MSS 1,4 Dioxane Analytical Method: EPA 522 Preparation Method: EPA 522 Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	0.95	ug/L	0.20	0.12	1	01/18/23 09:37	01/18/23 17:26	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	95	%	70-130		1	01/18/23 09:37	01/18/23 17:26		

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 011223E01 Lab ID: 35772620002 Collected: 01/12/23 07:30 Received: 01/13/23 11:35 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)	1.0	ug/L	0.20	0.12	1	01/18/23 09:37	01/18/23 17:44	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	95	%	70-130		1	01/18/23 09:37	01/18/23 17:44		

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QUALITY CONTROL DATA

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35772620

QC Batch: 887142	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: 35772620001, 35772620002

METHOD BLANK: 4879771 Matrix: Water
Associated Lab Samples: 35772620001, 35772620002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	01/18/23 16:17	
1,4-Dioxane-d8 (S)	%	93	70-130		01/18/23 16:17	

LABORATORY CONTROL SAMPLE & LCSD: 4879772 4879773

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	18.4	19.3	92	96	70-130	5	20	
1,4-Dioxane-d8 (S)	%				97	101	70-130			

LABORATORY CONTROL SAMPLE: 4879774

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.17 I	84	50-150	
1,4-Dioxane-d8 (S)	%			93	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.: 35772620

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 887376

[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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35772620

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35772620001	011223S01	EPA 522	887142	EPA 522	887376
35772620002	011223E01	EPA 522	887142	EPA 522	887376

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WO#: 35772620



35772620

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 Systems
 Address: PO Box 249
 Bolivia, NC 28422
 Email To: Glenn Walker
 Phone: 910-371-3490 Fax:
 Requested Due Date: W007

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

Section C

Invoice Information:
 Attention: Accounts Payable
 Company Name: See Section A
 Address:
 Pace Quote:
 Pace Project Manager: Lisa Harvey
 Pace Profile #: 9551-1 (SO1) , -2 (EO1)

Regulatory Agency
 NC
State / Location
 NC

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
			START	END								
1	WT G	01/12/23 0730	01/12/23 0730	01/12/23 0730	1	1	1	522 - 1,4 - Dioxane	11/3/21/23 05	line 1		
2	DW G	01/12/23 0730	01/12/23 0730	01/12/23 0730	1	1	1	522 - 1,4 - Dioxane		line 2		
3												
4												
5												
6												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Phil Mcculloch	01/12/2023	1100	RAS PAIC	11/3/21/23 05		Y Y Y

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Phillip Mcculloch
 SIGNATURE of SAMPLER: *Phillip Mcculloch*
 DATE Signed: 01/12/2023

SO1 is Raw Water (WT)
 EO1 is Potable DWTR (DW)

Pace Container Order #705359

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

Info			
Project Name 1,4-Dx-522 (Weekly)	Due Date 12/07/2022	Profile 9551-1	Quote _____
Project Manager _____	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 checked="" 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 type="checkbox"/> Extra Bubble Wrap
<input checked="" type="checkbox"/> Custody Seal	<input type="checkbox"/> Short Hold/Rush Stickers
<input checked="" type="checkbox"/> Temp. Blanks	<input type="checkbox"/> DI Water <input style="width: 50px;" type="text" value="Liter(s)"/>
<input checked="" type="checkbox"/> Coolers <input style="width: 50px;" type="text" value="1"/>	<input type="checkbox"/> USDA Regulated Soils
<input type="checkbox"/> Syringes <input style="width: 50px;" type="text"/>	

COC Options
<input type="checkbox"/> Number of Blanks <input style="width: 50px;" type="text"/>
<input checked="" type="checkbox"/> Pre-Printed <input style="width: 50px;" type="text" value="special"/>

# 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	040422-1CEO	

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 :	12/05/2022
Prepared By:	SB
Verified By:	

Sample

weekly sampling; 2-locations per week; ; Special COC attached; ;

CLIENT USE (Optional):

Date Rec'd:	
Received By:	
Verified By:	

Pace

Sample Condition Upon Receipt Form (UR)
WO#: 35772620
 PM: WBW Due Date: 01/25/23
 CLIENT: BRUNCOWS

Project #
 Project Manager:
 Client:

Date and Initials of person:
 Examining contents:
 Label: TSI
 Deliver:
 pH:

Thermometer Used: T-407 Date: 1/13/23 Time: 1149 Initials: EAS1

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

- Cooler #1 Temp.°C 0.6 (Visual) -0.1 (Correction Factor) 0.5 (Actual) Samples on ice, cooling process has begun
- Cooler #2 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) Samples on ice, cooling process has begun
- Cooler #3 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) Samples on ice, cooling process has begun
- Cooler #4 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) Samples on ice, cooling process has begun
- Cooler #5 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) Samples on ice, cooling process has begun
- Cooler #6 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) Samples on ice, cooling process has begun
- Recheck for OOT °C _____ (Visual) _____ (Correction Factor) _____ (Actual) Time: _____ Initials: _____

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 # 3933 5452 2090

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

Packing Material: Bubble Wrap Bubble Bags None Other _____

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	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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: Exceptions: Vials, Microbiology, O&G, PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
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	

Comments/ Resolution (use back for additional comments):

