



April 21, 2025

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

RE: Project: 1,4-DX-522 (Weekly)
Pace Project No.: 35949135

Dear Glenn Walker:

Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2025. 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,

Todd Baumgartner
todd.baumgartner@pacelabs.com
(386)672-5668
Project Manager

Enclosures

cc: Billy Benton, Brunswick County Public Utilities



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

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

Pace Project No.: 35949135

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174

Alaska DEC- CS/UST/LUST

Alabama Certification #: 41320

California Certification# 3096

Colorado Certification: FL NELAC Reciprocity

Connecticut Certification #: PH-0216

Delaware Certification: FL NELAC Reciprocity

DoD-ANAB #:ADE-3199

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

Nevada Certification: FL NELAC Reciprocity

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

Utah

Utah 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.: 35949135

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35949135001	041425-SO1	Water	04/14/25 08:45	04/15/25 11:00
35949135002	041425-EO1	Drinking Water	04/14/25 08:45	04/15/25 11:00

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SAMPLE ANALYTE COUNT

Project: 1,4-DX-522 (Weekly)
Pace Project No.: 35949135

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35949135001	041425-SO1	EPA 522	TCF	2	PASI-O
35949135002	041425-EO1	EPA 522	TCF	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.: 35949135

Sample: 041425-SO1									
Lab ID: 35949135001									
Collected: 04/14/25 08:45 Received: 04/15/25 11:00 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
522 MSS 1,4 Dioxane									
Analytical Method: EPA 522 Preparation Method: EPA 522									
Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	0.25	ug/L	0.20	0.12	1	04/18/25 00:11	04/18/25 12:31	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	83	%	70-130		1	04/18/25 00:11	04/18/25 12:31		

Sample: 041425-EO1									
Lab ID: 35949135002									
Collected: 04/14/25 08:45 Received: 04/15/25 11:00 Matrix: Drinking Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
522 MSS 1,4 Dioxane									
Analytical Method: EPA 522 Preparation Method: EPA 522									
Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	0.24	ug/L	0.20	0.12	1	04/18/25 00:11	04/18/25 12:48	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	80	%	70-130		1	04/18/25 00:11	04/18/25 12:48		

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QUALITY CONTROL DATA

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

Pace Project No.: 35949135

QC Batch: 1092461	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: 35949135001, 35949135002

METHOD BLANK: 5992789 Matrix: Water

Associated Lab Samples: 35949135001, 35949135002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	04/18/25 09:37	
1,4-Dioxane-d8 (S)	%	76	70-130		04/18/25 09:37	

LABORATORY CONTROL SAMPLE: 5992790

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	2	1.6	78	70-130	
1,4-Dioxane-d8 (S)	%			89	70-130	

LABORATORY CONTROL SAMPLE: 5992791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.15 I	77	50-150	
1,4-Dioxane-d8 (S)	%			88	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5992825 5992826

Parameter	Units	5992825		5992826		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
1,4-Dioxane (p-Dioxane)	ug/L	4.0	2	2	5.6	5.6	79	78	70-130	1	20
1,4-Dioxane-d8 (S)	%						86	86	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.: 35949135

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.

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.: 35949135

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35949135001	041425-SO1	EPA 522	1092461	EPA 522	1092519
35949135002	041425-EO1	EPA 522	1092461	EPA 522	1092519

REPORT OF LABORATORY ANALYSIS

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WO#: 35949135



35949135

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section C

Invoice Information:

Required Project Information:

Company:	Brunswick County Water Systems	Report To:	Glenn Walker
Address:	PO Box 249 Bolivia, NC 28422	Copy To:	
Email To:	Glenn Walker	Purchase Order #:	
Phone:	910-371-3490	Project Name:	1,4-Dx-522 (Weekly)
Requested Due Date:	W007	Project #:	
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	COLLECTED		DATE	TIME	DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
			START	END											
1	041425-SO1	WT G	4/14/2025	0845AM	4/14/2025	0845AM	1	0845AM	BILLY BENTON/BRUNSWICK COUNTY UTILITIES	4/14/2025	0845AM	1	0845AM	0845AM	line 1
2	04125-EO1	DW G	4/14/2025	0845AM	4/14/2025	0845AM	1	0845AM	BILLY BENTON/BRUNSWICK COUNTY UTILITIES	4/14/2025	0845AM	1	0845AM	0845AM	line 2
3															
4															
5															
6															

Requested Analysis Filtered (Y/N)		
Analyses Test	Y/N	
Sodium sulfite and sodium bisulfate		
Methanol		
Na2S2O3		
NaOH		
HCl		
HNO3		
H2SO4		
Unpreserved		
# OF CONTAINERS		
SAMPLE TEMP AT COLLECTION		
SAMPLER NAME AND SIGNATURE		
PRINT Name of SAMPLER: BILLY BENTON		
SIGNATURE of SAMPLER: <i>Billy Benton</i>		
TEMP in C: 4/14/2025		
Received on (Y/N)		
Custody (Y/N)		
Sealed Cooler		
Samples Intact (Y/N)		

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

Pace Container Order #1185892

Addresses	Ship To :	Return To:
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 shelby.sharpe@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	Due Date 02/28/2025	Profile 9551-1	Quote _____
Project Manager Baumgartner, Todd	Return Date _____	Carrier FedEx Standard Overnight	Location NC

Trip Blanks

Include Trip Blanks

Bottle Labels

Blank

Pre-Printed No Sample IDs

Pre-Printed With Sample IDs

Bottles

Boxed Cases

Individually Wrapped

Grouped By Sample ID/Matrix

Return Shipping Labels

No Shipper

With Shipper

Misc

Sampling Instructions

Custody Seal

Temp. Blanks

Coolers

Syringes

Extra Bubble Wrap

Short Hold/Rush Stickers

DI Water

USDA Regulated Soils

COC Options

Number of Blanks

Pre-Printed

# of Samples	Matrix	Test	Container	Total	# of QC	Lot #	Notes
2	WT	1,4-dioxane, method 522	1-1L Amber Glass, Sodium sulfite & Na bisulfate	2	0	101424-1EVP/112524-3DII	

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 ensure proper billing.

Sample Notes :

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

LAB USE:

Ship Date :	02/27/2025
Prepared By:	KWT
Verified By:	
Tracking Num:	

CLIENT USE (Optional):

Date Rec'd:	
Received By:	
Verified By:	



WO# : 35949135

Project #
Project Manager:
Client:

PM: TAB **Due Date: 04/25/25**
CLIENT: BRUNCOWS

Date and Initials of person:
Examining contents:
Verifying pH:
Initials:

Thermometer Used: T-409 Date: 4-15-25 Time: 1116

State of Origin: _____ For WV projects, all containers verified to ≤6 °C
 Cooler #1 Temp.°C 0.7 (Visual) 0.0 (Correction Factor) 0.7 (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)
 Recheck for OOT °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Samples collected sameday, on ice cooling has begun
 Time: _____ Initials: _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other: _____

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

Tracking # 2875 4883 6454

Custody Seal Present: Yes No Seal properly placed and intact: Yes No

Ice: Wet Blue Dry None Melted

Packing Material: Bubble Wrap Bubble Bags None Other: _____

Samples shorted to lab: Yes No (If yes, complete the following)

Shorted Date: _____

Shorted Time: _____

Bottle Quantity / Type: _____

Chain of Custody:	Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Sampler Name: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A										
	Relinquished To Pace: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Sampling Date(s): <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Sampling Time(s): <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A										
Samples Arrived within Hold Time.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:									
Rush Turnaround Requested on COC.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:									
Sufficient Volume.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:									
Correct Containers Used.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:									
Containers Intact.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:									
Sample Labels Match COC (Sample ID, Date/Time of Collection).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:									
All containers needing acid / base preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<table border="1"> <tr> <td colspan="2">Preservation Information</td> </tr> <tr> <td>Preservative: _____</td> <td>Date: _____</td> </tr> <tr> <td>Lot / Trace: _____</td> <td>Time: _____</td> </tr> <tr> <td>Amount added (mL): _____</td> <td>Initials: _____</td> </tr> </table>		Preservation Information		Preservative: _____	Date: _____	Lot / Trace: _____	Time: _____	Amount added (mL): _____	Initials: _____
Preservation Information											
Preservative: _____	Date: _____										
Lot / Trace: _____	Time: _____										
Amount added (mL): _____	Initials: _____										
All containers needing preservation are found to be in compliance with EPA recommendation: <small>Exceptions: Vials, Microbiology, O&G, PHAS</small>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A										
Headspace in Volatile 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 / Resolutions (use back for additional comments): _____

Labeled by: Reviewed by: