



July 23, 2024

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

RE: Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35892281

Dear Glenn Walker:

Enclosed are the analytical results for sample(s) received by the laboratory on July 16, 2024. 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.: 35892281

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

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.: 35892281

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35892281001	071524-SO1	Water	07/15/24 07:30	07/16/24 10:30
35892281002	071524-EO1	Drinking Water	07/15/24 07:30	07/16/24 10:30

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SAMPLE ANALYTE COUNT

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35892281

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35892281001	071524-SO1	EPA 522	BMH	2	PASI-O
35892281002	071524-EO1	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.: 35892281

Sample: 071524-SO1									
Lab ID: 35892281001									
Collected: 07/15/24 07:30									
Received: 07/16/24 10:30									
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)	0.97	ug/L	0.20	0.12	1	07/18/24 08:54	07/19/24 09:53	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	117	%	70-130		1	07/18/24 08:54	07/19/24 09:53		

Sample: 071524-EO1									
Lab ID: 35892281002									
Collected: 07/15/24 07:30									
Received: 07/16/24 10:30									
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)	0.93	ug/L	0.20	0.12	1	07/18/24 08:54	07/19/24 10:27	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	116	%	70-130		1	07/18/24 08:54	07/19/24 10:27		

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QUALITY CONTROL DATA

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

Pace Project No.: 35892281

QC Batch:	1027144	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: 35892281001, 35892281002

METHOD BLANK: 5646016 Matrix: Water

Associated Lab Samples: 35892281001, 35892281002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	07/19/24 09:02	
1,4-Dioxane-d8 (S)	%	123	70-130		07/19/24 09:02	

LABORATORY CONTROL SAMPLE: 5646017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	24.0	120	70-130	
1,4-Dioxane-d8 (S)	%			130	70-130	

LABORATORY CONTROL SAMPLE: 5646018

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.26	132	50-150	
1,4-Dioxane-d8 (S)	%			112	70-130	

MATRIX SPIKE SAMPLE: 5646084

Parameter	Units	35892631001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	136	19.7	159	117	70-130	
1,4-Dioxane-d8 (S)	%				79	70-130	

SAMPLE DUPLICATE: 5646085

Parameter	Units	35892631005 Result	Dup Result	RPD	Max RPD	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	168	173	3	20	
1,4-Dioxane-d8 (S)	%	80	87			

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.: 35892281

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

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.: 35892281

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35892281001	071524-SO1	EPA 522	1027144	EPA 522	1027522
35892281002	071524-EO1	EPA 522	1027144	EPA 522	1027522

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WO#: 35892281



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

Section B

Required Project Information:

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

Section C

Invoice Information:

Regulatory Agency: NC
 State / Location: NC

SAMPLE ID

One Character per box.
 (A-Z, 0-9 / , -)
 Sample ids must be unique

- MATRIX: Drinking Water, Water, Waste Water, Product, Solid, Oil, Wipe, Air, Other, Tissue
- CODE: DW, WT, VW, P, SL, OL, WP, AR, OT, TS

#	ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES				Analyses Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	line 1	line 2	SAMPLE CONDITIONS	
				START DATE	START TIME			END DATE	END TIME	Unpreserved	H2SO4							HNO3
1	071524-SO1	WT G		7/15/2024	0730AM	7/15/2024	0730AM	1										
2	071524-EO1	DW G		7/15/2024	0730AM	7/15/2024	0730AM	1										
3																		
4																		
5																		
6																		
ADDITIONAL COMMENTS																		
No Seal For Cooler																		
RELINQUISHED BY / AFFILIATION: BILLY BENTON/BRUNSWICK COUNTY UTILITIES 7/15/2024																		
ACCEPTED BY / AFFILIATION: <i>[Signature]</i> 7/15/2024 1030																		
DATE: 7/15/2024																		
TIME: 1030																		
TEMP in C: 3.2																		
Received on: (Y/N)																		
Custody: (Y/N)																		
Sealed Cooler: (Y/N)																		
Samples Intact (Y/N)																		

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: BILLY BENTON
 SIGNATURE of SAMPLER: *[Signature]*
 7/15/2024

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

Sample Condition Upon Receipt Form (SCUR)
MO#: 35892281
 PM: TAB Due Date: 07/26/24
 CLIENT: BRUNCOMS

Project #
 Project Manager:
 Client:

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

Thermometer Used: T-427
 State of Origin: FL
 Date: 7-16-24
 Time: 1051
 Initials: AVF

Cooler #1 Temp. °C: 82 (Visual) (Correction Factor) (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)
 Courier: Fed Ex UPS USPS Client Commercial Pace Other:
 Shipping Method: Standard Overnight First Overnight Priority Overnight Ground International Priority Other:
 Billing: Recipient Sender Third Party Credit Card Unknown
 Tracking # 2770 7796 9406
 Custody Seal Present: Yes No Seal properly placed and intact: Yes No
 Packing Material: Bubble Wrap Bubble Bags None Other:
 Samples shorted to lab: Yes No (if yes, complete the following)
 Shorted Date:
 Bottle Quantity / Type:
 Shorted Time:

Chain of Custody: Present Yes No Filled Out: Yes No N/A Sampler Name: Yes No N/A
 Relinquished To Pace: Yes No N/A Sampling Date(s): Yes No N/A Sampling Time(s): Yes No N/A
 Samples Arrived within Hold Time: Comments:
 Rush Turnaround Requested on COC: Yes No N/A Comments:
 Sufficient Volume: Yes No N/A Comments:
 Correct Containers Used: Yes No N/A Comments:
 Containers Intact: Yes No N/A Comments:
 Sample Labels Match COC (Sample ID, Date/Time of Collection): Yes No N/A Comments:
 All containers needing acid / base preservation have been checked: Yes No N/A Comments:
 All containers needing preservation are found to be in compliance with EPA recommendation: Yes No N/A
 Exceptions: Vials, Microbiology, O&G, PFAS
 Headspace in Volatile Vials? (>6mm): Yes No N/A
 Trip Blank Present: Yes No N/A
 Comments / Resolutions (use back for additional comments):

Preservative: _____ Lot / Trace: _____ Amount added (mL): _____
 Date: _____ Time: _____ Initials: _____
 Preservation Information

Labeled by: STL
 Reviewed by: _____
 Delivered by: _____

Pace