

August 22, 2022

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

RE: Project: 1,4-Dx-522 (weekly)
Pace Project No.: 35737080

Dear Glenn Walker:

Enclosed are the analytical results for sample(s) received by the laboratory on August 05, 2022. 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,



Bill White
bill.white@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,
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CERTIFICATIONS

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

Pace Project No.: 35737080

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.: 35737080

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35737080001	080422-SO1	Water	08/04/22 08:00	08/05/22 08:30
35737080002	080422-EO1	Drinking Water	08/04/22 08:00	08/05/22 08:30

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SAMPLE ANALYTE COUNT

Project: 1,4-Dx-522 (weekly)
Pace Project No.: 35737080

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35737080001	080422-SO1	EPA 522	EC	2	PASI-O
35737080002	080422-EO1	EPA 522	EC	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.: 35737080

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 080422-SO1 Lab ID: 35737080001 Collected: 08/04/22 08:00 Received: 08/05/22 08:30 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)	1.1	ug/L	0.21	0.12	1	08/18/22 03:02	08/19/22 14:48	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	53	%	70-130		1	08/18/22 03:02	08/19/22 14:48		J(S0), S8, V

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 080422-EO1 Lab ID: 35737080002 Collected: 08/04/22 08:00 Received: 08/05/22 08:30 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)	1.3	ug/L	0.19	0.12	1	08/18/22 03:02	08/19/22 15:21	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	54	%	70-130		1	08/18/22 03:02	08/19/22 15:21		J(S0), P2, S8

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QUALITY CONTROL DATA

Project: 1,4-Dx-522 (weekly)
Pace Project No.: 35737080

QC Batch: 848952	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: 35737080001, 35737080002

METHOD BLANK: 4670557 Matrix: Water
Associated Lab Samples: 35737080001, 35737080002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	08/19/22 11:02	
1,4-Dioxane-d8 (S)	%	80	70-130		08/19/22 11:02	

LABORATORY CONTROL SAMPLE & LCSD: 4670558 4670559

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	2	1.4	1.5	70	74	70-130	6	20	
1,4-Dioxane-d8 (S)	%				66	63	70-130			J(S0)

LABORATORY CONTROL SAMPLE: 4670560

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.14 I	72	50-150	
1,4-Dioxane-d8 (S)	%			66	70-130	J(S0)

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.: 35737080

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: 849044

[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.

J(S0) Estimated Value. Surrogate recovery outside laboratory control limits.

P2 Re-extraction or re-analysis could not be performed due to insufficient sample amount.

S8 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-extraction and/or re-analysis)

V Indicates that the analyte was detected in both the sample and the associated method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1,4-Dx-522 (weekly)
Pace Project No.: 35737080

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35737080001	080422-SO1	EPA 522	848952	EPA 522	849044
35737080002	080422-EO1	EPA 522	848952	EPA 522	849044

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WO#: 35737080



35737080

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section C

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 #:
 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)

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	Received on	TEMP in C	Ice (Y/N)	Sealed Custody (Y/N)	Cooler (Y/N)	Intact Samples (Y/N)
			START	END														
1	080422 -SO1	WT G	8-4-22	8:00	8-4-22	8:00	1	1	1	522 - 1,4 - Dioxane	8-5-22	8:30	5.8	Y	Y	Y	Y	Y
2	080422 -EO1	DW G	8-4-22	8:00	8-4-22	8:00	1	1	1	522 - 1,4 - Dioxane								
3																		
4																		
5																		
6																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Phil McCulloch	8/4/2022	1100	CAS Jmm	8-5-22	8:30	5.8 Y

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Phil McCulloch
 SIGNATURE of SAMPLER: *Phil McCulloch*
 DATE Signed: 8-4-22

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



Sample Condition Upon Receipt Form (SCUR)

Project #
Project Manager:
Client:

WO# : 35737080

PM: WBW **Due Date: 08/17/22**
CLIENT: BRUNCOWS

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

Thermometer Used: T-394 Date: 8-5-22 Time: 8:36 Initials: CEJ

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

- Cooler #1 Temp. °C 5.8 (Visual) 0.0 (Correction Factor) 5.8 (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 # 2763 9190 2180

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

Packing Material: Bubble Wrap Bubble Bags one 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	
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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: Vials, Microbiology, O&G, PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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):

