

May 07, 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.: 35545727

Dear Glenn PO Box:

Enclosed are the analytical results for sample(s) received by the laboratory on April 24, 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,  
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## CERTIFICATIONS

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

Pace Project No.: 35545727

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### **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

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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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 1,4-Dx-522 (Weekly)  
Pace Project No.: 35545727

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
35545727001	042320-SO1	Drinking Water	04/23/20 07:45	04/24/20 11:40
35545727002	042320-EO2	Drinking Water	04/23/20 07:40	04/24/20 11:40

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### SAMPLE ANALYTE COUNT

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

Pace Project No.: 35545727

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35545727001	042320-SO1	EPA 522	CB1	2	PASI-O
35545727002	042320-EO2	EPA 522	CB1	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.: 35545727

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: 042320-SO1      Lab ID: 35545727001      Collected: 04/23/20 07:45      Received: 04/24/20 11:40      Matrix: Drinking Water</b>									
<b>522 MSS 1,4 Dioxane</b> Analytical Method: EPA 522      Preparation Method: EPA 522 Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	<b>1.0</b>	ug/L	0.20	0.12	1	05/06/20 09:59	05/07/20 09:56	123-91-1	
<b>Surrogates</b>									
1,4-Dioxane-d8 (S)	84	%	70-130		1	05/06/20 09:59	05/07/20 09:56		

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: 042320-EO2      Lab ID: 35545727002      Collected: 04/23/20 07:40      Received: 04/24/20 11:40      Matrix: Drinking Water</b>									
<b>522 MSS 1,4 Dioxane</b> Analytical Method: EPA 522      Preparation Method: EPA 522 Pace Analytical Services - Ormond Beach									
1,4-Dioxane (p-Dioxane)	<b>0.85</b>	ug/L	0.20	0.12	1	05/06/20 09:59	05/06/20 20:21	123-91-1	
<b>Surrogates</b>									
1,4-Dioxane-d8 (S)	86	%	70-130		1	05/06/20 09:59	05/06/20 20:21		

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### QUALITY CONTROL DATA

Project: 1,4-Dx-522 (Weekly)  
Pace Project No.: 35545727

QC Batch: 630670      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: 35545727001, 35545727002

METHOD BLANK: 3428240      Matrix: Water  
Associated Lab Samples: 35545727001, 35545727002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	05/06/20 17:38	
1,4-Dioxane-d8 (S)	%	93	70-130		05/06/20 17:38	

LABORATORY CONTROL SAMPLE: 3428241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	16.9	85	70-130	
1,4-Dioxane-d8 (S)	%			93	70-130	

LABORATORY CONTROL SAMPLE: 3428243

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	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3428352      3428353

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60335381005 Result	Spike Conc.	Spike Conc.	Result								
1,4-Dioxane (p-Dioxane)	ug/L	42.8	19.7	19.5	72.6	70.6	151	142	70-130	3	20	J(M1)	
1,4-Dioxane-d8 (S)	%						98	90	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.: 35545727

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### 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.

### 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(M1) Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

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

Pace Project No.: 35545727

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35545727001	042320-SO1	EPA 522	630670	EPA 522	630903
35545727002	042320-EO2	EPA 522	630670	EPA 522	630903

### REPORT OF LABORATORY ANALYSIS

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WO#: 35545727



35545727

# 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 Cleanwell Dr, NE  
 Leland, NC 28451  
 Email: glenn.walker@brunswickcountync.gov  
 Phone: 910-371-3490 Fax  
 Requested Due Date:

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

**Section C**

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

Page: 1 Of 1

Regulatory Agency  
 State / Location NC

ITEM #	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Analytes Test Y/N	Requested Analysis Filtered (Y/N)	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
		START DATE	END DATE													
1	042320-S01	4/23/08 0745	4/23/08 0745	G		1										
2	042320-E01	4/23/08 0740	4/23/08 0740	G		1										
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

**ADDITIONAL COMMENTS**

RELINQUISHED BY / AFFILIATION: *[Signature]* DATE: 4/23/08 TIME: 1335

ACCEPTED BY / AFFILIATION: *J. W. Pace* DATE: 4/24/08 TIME: 1140

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

SAMPLER NAME AND SIGNATURE: *[Signature]*

PRINT Name of SAMPLER: *Bill Benton*

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed: 4/23/08



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# : 35545727**  
**Project Manager:** **PM: LMH** **Due Date: 05/06/20**  
**Client:** **CLIENT: BRUNCOWS**

**Date and Initials of person:**

**Examining contents:**  
**Label:** \_\_\_\_\_  
**Deliver:** J. [Signature]  
**pH:** \_\_\_\_\_

Thermometer Used: T-218 Date: 4-24-20 Time: 1142 Initials: SRLV

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

- |                                                                                          |                                                                    |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Cooler #1 Temp. °C <u>1.8</u> (Visual) <u>-1</u> (Correction Factor) <u>1.7</u> (Actual) | <input type="checkbox"/> Samples on ice, cooling process has begun |
| Cooler #2 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)               | <input type="checkbox"/> Samples on ice, cooling process has begun |
| Cooler #3 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)               | <input type="checkbox"/> Samples on ice, cooling process has begun |
| Cooler #4 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)               | <input type="checkbox"/> Samples on ice, cooling process has begun |
| Cooler #5 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)               | <input type="checkbox"/> Samples on ice, cooling process has begun |
| Cooler #6 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)               | <input type="checkbox"/> 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 #** 3921 7287 6353

**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 \_\_\_\_\_

**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 checked="" 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	<b>Preservation Information:</b> Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
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: \_\_\_\_\_