

March 20, 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.: 35537352

Dear Glenn PO Box:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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.: 35537352

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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SAMPLE SUMMARY

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35537352

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35537352001	31220 S01	Drinking Water	03/12/20 07:40	03/13/20 11:25
35537352002	31220 E02	Drinking Water	03/12/20 07:40	03/13/20 11:25

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SAMPLE ANALYTE COUNT

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

Pace Project No.: 35537352

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35537352001	31220 S01	EPA 522	CTB	2	PASI-O
35537352002	31220 E02	EPA 522	CTB	2	PASI-O

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ANALYTICAL RESULTS

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

Pace Project No.: 35537352

Sample: 31220 S01 **Lab ID: 35537352001** Collected: 03/12/20 07:40 Received: 03/13/20 11:25 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									
1,4-Dioxane (p-Dioxane)	0.70	ug/L	0.20	0.12	1	03/19/20 09:50	03/19/20 17:07	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	86	%	70-130		1	03/19/20 09:50	03/19/20 17:07		

Sample: 31220 E02 **Lab ID: 35537352002** Collected: 03/12/20 07:40 Received: 03/13/20 11:25 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									
1,4-Dioxane (p-Dioxane)	0.68	ug/L	0.20	0.12	1	03/19/20 09:50	03/19/20 17:22	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	85	%	70-130		1	03/19/20 09:50	03/19/20 17:22		

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QUALITY CONTROL DATA

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35537352

QC Batch: 619134 Analysis Method: EPA 522
QC Batch Method: EPA 522 Analysis Description: 522 MSS 1,4 Dioxane
Associated Lab Samples: 35537352001, 35537352002

METHOD BLANK: 3365170 Matrix: Water
Associated Lab Samples: 35537352001, 35537352002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	03/19/20 13:39	
1,4-Dioxane-d8 (S)	%	89	70-130		03/19/20 13:39	

LABORATORY CONTROL SAMPLE & LCSD: 3365171

Parameter	Units	3365171		3365173		% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec				
1,4-Dioxane (p-Dioxane)	ug/L	20	14.3	14.7	72	73	70-130	3	20
1,4-Dioxane-d8 (S)	%				83	87	70-130		

LABORATORY CONTROL SAMPLE & LCSD: 3365172

Parameter	Units	3365172		3365174		% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec				
1,4-Dioxane (p-Dioxane)	ug/L	20	14.9	14.8	75	74	70-130	1	20
1,4-Dioxane-d8 (S)	%				89	90	70-130		

LABORATORY CONTROL SAMPLE: 3365175

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.20 I	99	50-150	
1,4-Dioxane-d8 (S)	%			89	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.: 35537352

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.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 619332

[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.: 35537352

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35537352001	31220 S01	EPA 522	619134	EPA 522	619332
35537352002	31220 E02	EPA 522	619134	EPA 522	619332

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WO#: 355537352



355537352

Analytical Request Document

DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:
 Company: Brunswick County Water System
 Address: 3954 Clearwell Dr. NE
 Leland, NC 28451
 Email: glenn.walker@brunswickcountync.gov
 Phone: 910-371-3480
 Requested Due Date: _____
 Fax: _____

Report to: Glenn - Bottles
 Copy To:
 Attention:
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: lisa.harvey@pacelabs.com
 Pace Profile #: 9551-1

Regulatory Agency:
 State / Location: NC

ITEM #	MATRIX CODE <small>Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Other Tissue</small>	MATRIX CODE <small>DW WT WW P SL OL WP AR OT TS</small>	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives <small>Unpreserved H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other</small>	Y/N <small>Analyses Test 1,4-dioxane, method 522</small>	Requested Analysis Filtered (Y/N)		TEMP in C	Received on	Custody (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)	
				START DATE	END DATE					DATE	TIME						DATE
1			G	3/12/20	0740	3/12/20	0740										
2	31220 SOI		G	3/12/20	0740	3/12/20	0740										
3	31220 FOI		G	3/12/20	0740	3/12/20	0740										
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS
 RELINQUISHED BY / AFFILIATION: Phillip McCulloch
 DATE: 3/12/20 1400
 ACCEPTED BY / AFFILIATION: Phillip McCulloch
 DATE: 3/12/20 11:25
 SAMPLE CONDITIONS: 1.9
 TEMP in C: 1.9
 Received on: 3/12/20
 Custody (Y/N):
 Sealed Cooler (Y/N):
 Samples Intact (Y/N):

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Phillip McCulloch
 SIGNATURE of SAMPLER: Phillip McCulloch
 DATE Signed: 3-12-20



Sample Condition Upon Receipt Form (SCUR)

Project #
Project Manager:
Client:

WO# : 35537352
PM: LMH Due Date: 03/25/20
CLIENT: BRUNCOWS

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

Thermometer Used: T349 Date: 3-13-20 Time: 1197 Initials: ZDF

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

- Cooler #1 Temp.°C 2.1 (Visual) 0.2 (Correction Factor) 1.9 (Actual)
- Cooler #2 Temp.°C _____ (Visual) -0.2 (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)

- 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 # 8142 2048 4683

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 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 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 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 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 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: VOA, Coliform, TOC, O&G, Carbamates	<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	

Client Notification/ Resolution:
Person Contacted: _____ Date/Time: _____

Comments/ Resolution (use back for additional comments):

Project Manager Review: _____ Date: _____