

June 02, 2020

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

RE: Project: 1,4-Dioxane-522 (weekly)
Pace Project No.: 35553166

Dear Glenn PO Box:

Enclosed are the analytical results for sample(s) received by the laboratory on May 29, 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,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

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

Pace Project No.: 35553166

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: 1,4-Dioxane-522 (weekly)
Pace Project No.: 35553166

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35553166001	052820-S01	Drinking Water	05/28/20 07:15	05/29/20 10:40
35553166002	052820-E01	Drinking Water	05/28/20 07:15	05/29/20 10:40

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

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

Pace Project No.: 35553166

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35553166001	052820-S01	EPA 522	CTB	2	PASI-O
35553166002	052820-E01	EPA 522	CTB	2	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

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

Pace Project No.: 35553166

Sample: 052820-S01 **Lab ID: 35553166001** Collected: 05/28/20 07:15 Received: 05/29/20 10:40 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)	0.27	ug/L	0.20	0.12	1	06/01/20 08:44	06/01/20 21:49	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	89	%	70-130		1	06/01/20 08:44	06/01/20 21:49		

Sample: 052820-E01 **Lab ID: 35553166002** Collected: 05/28/20 07:15 Received: 05/29/20 10:40 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)	0.33	ug/L	0.20	0.12	1	06/01/20 08:44	06/01/20 22:05	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	85	%	70-130		1	06/01/20 08:44	06/01/20 22:05		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

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

Pace Project No.: 35553166

QC Batch: 637073	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: 35553166001, 35553166002

METHOD BLANK: 3464978 Matrix: Water

Associated Lab Samples: 35553166001, 35553166002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	06/01/20 16:10	
1,4-Dioxane-d8 (S)	%	82	70-130		06/01/20 16:10	

LABORATORY CONTROL SAMPLE & LCSD: 3464979 3464981

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	1.6	1.5	81	75	70-130	7	20	
1,4-Dioxane-d8 (S)	%				93	86	70-130			

LABORATORY CONTROL SAMPLE: 3464980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.18 I	89	50-150	
1,4-Dioxane-d8 (S)	%			92	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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

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

Pace Project No.: 35553166

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.

BATCH QUALIFIERS

Batch: 637229

[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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1,4-Dioxane-522 (weekly)
Pace Project No.: 35553166

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35553166001	052820-S01	EPA 522	637073	EPA 522	637229
35553166002	052820-E01	EPA 522	637073	EPA 522	637229

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

WO#: 35553166



35553166

Request 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:

Section B

Required Project Inform:

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

Attention:
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: lisa.harvey@paceclabs.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>	CODE <small>DW WT WW P SL OL WP AR OT TS</small>	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives <small>Unpreserved H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other</small>	Analyses Test <small>1,4-dioxane, method 522</small>	Y/N	Requested/Analysis Filtered (Y/N)
					START DATE TIME	END DATE TIME						
1			36	GC	5/28/15 0715	5/28/15 0715		1				
2			36	GC	5-28-15 0715	5/28/15 0715		1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Glenn Walker	5/28/15	16:00	MT	5/28/15	10:40	Y X
	Glenn Walker	5-28-15	1600				

TEMP in C	Received on	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Billy Benton
 SIGNATURE of SAMPLER: *[Signature]*
 DATE Signed: 5-28-15



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 #
Project Manager:
Client:

WO# : 35553166

PM: LMH **Due Date: 06/11/20**
CLIENT: BRUNCOWS

Date and Initials of person:
Examining contents: LMH
Label: _____
Deliver: LMH
H: _____

Thermometer Used: T338 Date: 5/29/20 Time: 1050 Initials: BRN

State of Origin: _____

For WY projects, all containers verified to $\leq 6^\circ\text{C}$

Cooler #1 Temp. °C 4.3 (Visual) -1 (Correction Factor) 4.2 (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)

Samples on ice, cooling process has begun
 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 # 393305790198

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: _____

	Yes	No	N/A	Comments:
Chain of Custody Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain of Custody Filled Out	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Relinquished Signature & Sampler Name COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples Arrived within Hold Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rush TAT requested on COC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sufficient Volume	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Correct Containers Used	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Labels match COC (sample IDs & date/time of collection)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All containers needing acid/base preservation have been checked.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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

Comments/ Resolution (use back for additional comments):

Project Manager Review: _____ Date: _____