

September 11, 2020

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

RE: Project: Weekly 1,4 Dioxane
Pace Project No.: 35575730

Dear Glenn PO Box:

Enclosed are the analytical results for sample(s) received by the laboratory on September 04, 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: Weekly 1,4 Dioxane

Pace Project No.: 35575730

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

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: Weekly 1,4 Dioxane

Pace Project No.: 35575730

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35575730001	090320-S01	Drinking Water	09/03/20 07:40	09/04/20 11:51
35575730002	090320-E01	Drinking Water	09/03/20 07:40	09/04/20 11:51

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SAMPLE ANALYTE COUNT

Project: Weekly 1,4 Dioxane

Pace Project No.: 35575730

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35575730001	090320-S01	EPA 522	TM2	2	PASI-O
35575730002	090320-E01	EPA 522	TM2	2	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

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ANALYTICAL RESULTS

Project: Weekly 1,4 Dioxane

Pace Project No.: 35575730

Sample: 090320-S01 **Lab ID: 35575730001** Collected: 09/03/20 07:40 Received: 09/04/20 11:51 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)	1.8	ug/L	0.20	0.12	1	09/09/20 09:09	09/10/20 16:18	123-91-1	1p
Surrogates									
1,4-Dioxane-d8 (S)	83	%	70-130		1	09/09/20 09:09	09/10/20 16:18		

Sample: 090320-E01 **Lab ID: 35575730002** Collected: 09/03/20 07:40 Received: 09/04/20 11:51 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)	0.90	ug/L	0.20	0.12	1	09/09/20 09:09	09/10/20 16:34	123-91-1	1p
Surrogates									
1,4-Dioxane-d8 (S)	87	%	70-130		1	09/09/20 09:09	09/10/20 16:34		

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QUALITY CONTROL DATA

Project: Weekly 1,4 Dioxane

Pace Project No.: 35575730

QC Batch: 663831	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: 35575730001, 35575730002

METHOD BLANK: 3610287 Matrix: Water

Associated Lab Samples: 35575730001, 35575730002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	09/10/20 11:47	
1,4-Dioxane-d8 (S)	%	97	70-130		09/10/20 11:47	

LABORATORY CONTROL SAMPLE & LCSD: 3610288 3610357

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	1.7	1.8	87	89	70-130	3	20	
1,4-Dioxane-d8 (S)	%				92	95	70-130			

LABORATORY CONTROL SAMPLE: 3610289

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.17 I	85	50-150	
1,4-Dioxane-d8 (S)	%			94	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: Weekly 1,4 Dioxane

Pace Project No.: 35575730

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: 663831

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 664207

[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.

1p A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Weekly 1,4 Dioxane

Pace Project No.: 35575730

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35575730001	090320-S01	EPA 522	663831	EPA 522	664207
35575730002	090320-E01	EPA 522	663831	EPA 522	664207

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WO#: 35575730



35575730

Document
must be completed accurately.

Page: 1 Of 1

Section B
Required Project 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
Report To: Glenn Walker
Copy To:
Purchase Order #: Weekly 1,4 Dioxane
Project Name:
Project #:

Section A
Required Client Information:

Attention: Accounts Payable
Company Name: See Section A
Address:
Pace Quote:
Pace Project Manager: Lisa Harvey
Pace Profile #: 9551-1
Regulatory Agency
NC
State / Location
NC

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (C=ORAD O=OMP)	COLLECTED		DATE	TIME	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)
			START	END											
1	090320 -S01	WT G	9-3-20	6:40	9-3-20	6:40									
2	090320 -E01	WT G	9-3-20	6:40	9-3-20	6:40									
3															
4															
5															
6															

RELINQUISHED BY / AFFILIATION: *[Signature]* DATE: 9-3-20 TIME: 6:00
 ACCEPTED BY / AFFILIATION: *[Signature]* DATE: 9-4-20 TIME: 11:51
 SAMPLE CONDITIONS: Received on Ice (Y/N) [] Custody Sealed (Y/N) [] Samples Intact (Y/N) []
 SAMPLER NAME AND SIGNATURE: *[Signature]*
 PRINT Name of SAMPLER: Billy Benton
 SIGNATURE of SAMPLER: *[Signature]* DATE Signed: 9-3-20



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

WO# : 35575730 (SCUR)

Project # PM: LMH **Due Date:** 09/16/20
Project Manager: CLIENT: BRUNCOWS
Client:

Date and Initials of person:
Examining contents: *[Signature]*
Label: _____
Deliver: _____
pH: _____
Initials: *BRN*

Thermometer Used: *T337* **Date:** *9-4-20* **Time:** *1205* **Initials:** *BRN*

State of Origin: _____ For WV projects, all containers verified to $\leq 6^\circ\text{C}$

Cooler #1 Temp. °C <i>1.5</i> (Visual) <i>+2</i> (Correction Factor) <i>1.7</i> (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 # *3964 8213 1317*

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	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
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	
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 type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

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

Comments/ Resolution (use back for additional comments):

