

June 12, 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.: 35554658

Dear Glenn PO Box:

Enclosed are the analytical results for sample(s) received by the laboratory on June 05, 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-Dx-522 (Weekly)

Pace Project No.: 35554658

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-Dx-522 (Weekly)

Pace Project No.: 35554658

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|-------------|-----------|----------------|----------------|----------------|
| 35554658001 | 6420 S01 | Drinking Water | 06/04/20 08:30 | 06/05/20 10:45 |
| 35554658002 | 6420 E01 | Drinking Water | 06/04/20 08:30 | 06/05/20 10:45 |

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-Dx-522 (Weekly)
Pace Project No.: 35554658

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|-------------|-----------|---------|----------|-------------------|------------|
| 35554658001 | 6420 S01 | EPA 522 | CTB | 2 | PASI-O |
| 35554658002 | 6420 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-Dx-522 (Weekly)

Pace Project No.: 35554658

| Sample: 6420 S01 | | Lab ID: 35554658001 | | Collected: 06/04/20 08:30 | Received: 06/05/20 10:45 | 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) | 0.12 I | ug/L | 0.20 | 0.12 | 1 | 06/11/20 11:47 | 06/12/20 11:14 | 123-91-1 | |
| Surrogates | | | | | | | | | |
| 1,4-Dioxane-d8 (S) | 67 | % | 70-130 | | 1 | 06/11/20 11:47 | 06/12/20 11:14 | | J(S0), S8 |

| Sample: 6420 E01 | | Lab ID: 35554658002 | | Collected: 06/04/20 08:30 | Received: 06/05/20 10:45 | 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) | 0.12 U | ug/L | 0.20 | 0.12 | 1 | 06/09/20 09:18 | 06/09/20 16:53 | 123-91-1 | |
| Surrogates | | | | | | | | | |
| 1,4-Dioxane-d8 (S) | 73 | % | 70-130 | | 1 | 06/09/20 09:18 | 06/09/20 16:53 | | |

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-Dx-522 (Weekly)
Pace Project No.: 35554658

| | |
|--------------------------|---|
| QC Batch: 639334 | 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: 35554658002

METHOD BLANK: 3477112 Matrix: Water

Associated Lab Samples: 35554658002

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|-------------------------|-------|--------------|-----------------|------|----------------|------------|
| 1,4-Dioxane (p-Dioxane) | ug/L | 0.12 U | 0.20 | 0.12 | 06/09/20 14:05 | |
| 1,4-Dioxane-d8 (S) | % | 82 | 70-130 | | 06/09/20 14:05 | |

LABORATORY CONTROL SAMPLE & LCSD: 3477113 3477114

| 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 | 1.5 | 1.6 | 77 | 78 | 70-130 | 1 | 20 | |
| 1,4-Dioxane-d8 (S) | % | | | | 80 | 81 | 70-130 | | | |

LABORATORY CONTROL SAMPLE: 3477115

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-------------------------|-------|-------------|------------|-----------|--------------|------------|
| 1,4-Dioxane (p-Dioxane) | ug/L | 0.2 | 0.18 I | 88 | 50-150 | |
| 1,4-Dioxane-d8 (S) | % | | | 86 | 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.

QUALITY CONTROL DATA

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

Pace Project No.: 35554658

| | |
|--------------------------|---|
| QC Batch: 640081 | 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: 35554658001

METHOD BLANK: 3481169 Matrix: Water

Associated Lab Samples: 35554658001

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|-------------------------|-------|--------------|-----------------|------|----------------|------------|
| 1,4-Dioxane (p-Dioxane) | ug/L | 0.12 U | 0.20 | 0.12 | 06/12/20 09:37 | |
| 1,4-Dioxane-d8 (S) | % | 82 | 70-130 | | 06/12/20 09:37 | |

LABORATORY CONTROL SAMPLE & LCSD: 3481170

| Parameter | Units | 3481171 | | | | | | | | |
|-------------------------|-------|-------------|------------|-------------|-----------|------------|--------------|-----|---------|------------|
| | | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
| 1,4-Dioxane (p-Dioxane) | ug/L | 20 | 15.8 | 16.0 | 79 | 80 | 70-130 | 1 | 20 | |
| 1,4-Dioxane-d8 (S) | % | | | | 82 | 83 | 70-130 | | | |

LABORATORY CONTROL SAMPLE: 3481172

| 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) | % | | | 84 | 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-Dx-522 (Weekly)

Pace Project No.: 35554658

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: 639514

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

Batch: 640498

[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.

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

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-Dx-522 (Weekly)

Pace Project No.: 35554658

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---------------|------------------|------------------------|-----------------|--------------------------|-------------------------|
| 35554658001 | 6420 S01 | EPA 522 | 640081 | EPA 522 | 640498 |
| 35554658002 | 6420 E01 | EPA 522 | 639334 | EPA 522 | 639514 |

REPORT OF LABORATORY ANALYSIS

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

WO#: 35554658



35554658

Request Document

Request 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: 910-371-3490
 Requested Due Date:

Section B

Required Project Information:

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

Invoice Information:

Attention:
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: lisa.harvey@pacelabs.com
 Pace Profile #: 9551-1

Page: 1 Of 1

Regulatory Agency

State / Location

NC

| ITEM # | MATRIX | CODE | COLLECTED | | SAMPLE TYPE (G=GRAB C=COMP) | MATRIX CODE (see valid codes to left) | SAMPLER TEMP AT COLLECTION | | # OF CONTAINERS | Preservatives | Analytes Test | Requested Analysis Filtered (Y/N) | Residual Chlorine (Y/N) |
|--------|----------------|------|------------|----------|-----------------------------|---------------------------------------|----------------------------|------|-----------------|---------------|---------------|-----------------------------------|-------------------------|
| | | | START DATE | END DATE | | | TIME | TIME | | | | | |
| 1 | Drinking Water | DW | 6-4-20 | 6-4-20 | CG | | 0830 | 0830 | 1 | Unpreserved | / | | |
| 2 | Drinking Water | DW | 6-4-20 | 6-4-20 | CG | | 0830 | 0830 | 1 | Unpreserved | / | | |
| 3 | Drinking Water | DW | | | | | | | | | | | |
| 4 | Drinking Water | DW | | | | | | | | | | | |
| 5 | Drinking Water | DW | | | | | | | | | | | |
| 6 | Drinking Water | DW | | | | | | | | | | | |
| 7 | Drinking Water | DW | | | | | | | | | | | |
| 8 | Drinking Water | DW | | | | | | | | | | | |
| 9 | Drinking Water | DW | | | | | | | | | | | |
| 10 | Drinking Water | DW | | | | | | | | | | | |
| 11 | Drinking Water | DW | | | | | | | | | | | |
| 12 | Drinking Water | DW | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | TEMP in C | Received on | Ice (Y/N) | Custody (Y/N) | Sealed (Y/N) | Cooler (Y/N) | Samples Intact (Y/N) |
|----------------------------|-------------------------------|--------|------|---------------------------|--------|------|-----------|-------------|-----------|---------------|--------------|--------------|----------------------|
| KIT PHILIP MCGILLICRACK | PHILIP MCGILLICRACK | 6-4-20 | 1100 | I.R. - Pace | 6/5/20 | 1045 | 4.4 | 4-4-20 | Y | Y | Y | Y | Y |

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Phillip McGillicrack
 SIGNATURE of SAMPLER: *[Signature]*
 DATE Signed: 6-4-20



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#: 35554658

Form (SCUR)

Project
Project Manager
Client

PM: LMH Due Date: 06/17/20
CLIENT: BRUNCOWS

Date and Initials of person:

Examining contents: _____
Label: _____
Deliver: I. [Signature]
pH: _____

Thermometer Used: T353 Date: 6/5/20 Time: 1057 Initials: HNW

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

Cooler #1 Temp. °C 4.4 (Visual) (Correction Factor) 4.4 (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

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 # 3935 3628 5152

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 | 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: _____