July 26, 2022

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

RE: Project: 1,4-Dx-522 (Weekly)
           Pace Project No.:   35731888

Dear Glenn Walker:

Enclosed are the analytical results for sample(s) received by the laboratory on July 15, 2022. 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,

Bill White
bill.white@pacelabs.com
(386) 672-5668
Project Manager

Enclosures

cc: Billy Benton, BRUNSWICK COUNTY PUBLIC UTILITIES

REPORT OF LABORATORY ANALYSIS

CERTIFICATIONS

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

Pace Project No.:   35731888

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174	Missouri Certification #: 236
Alaska DEC- CS/UST/LUST	Montana Certification #: Cert 0074
Alabama Certification #: 41320	Nebraska Certification: NE-OS-28-14
Colorado Certification: FL NELAC Reciprocity	New Hampshire Certification #: 2958
Connecticut Certification #: PH-0216	New Jersey Certification #: FL022
Delaware Certification: FL NELAC Reciprocity	New York Certification #: 11608
Florida Certification #: E83079	North Carolina Environmental Certificate #: 667
Georgia Certification #: 955	North Carolina Certification #: 12710
Guam Certification: FL NELAC Reciprocity	North Dakota Certification #: R-216
Hawaii Certification: FL NELAC Reciprocity	Ohio DEP 87780
Illinois Certification #: 200068	Oklahoma Certification #: D9947
Indiana Certification: FL NELAC Reciprocity	Pennsylvania Certification #: 68-00547
Kansas Certification #: E-10383	Puerto Rico Certification #: FL01264
Kentucky Certification #: 90050	South Carolina Certification: #96042001
Louisiana Certification #: FL NELAC Reciprocity	Tennessee Certification #: TN02974
Louisiana Environmental Certificate #: 05007	Texas Certification: FL NELAC Reciprocity
Maine Certification #: FL01264	US Virgin Islands Certification: FL NELAC Reciprocity
Maryland Certification: #346	Virginia Environmental Certification #: 460165
Massachusetts Certification #: M-FL1264	West Virginia Certification #: 9962C
Michigan Certification #: 9911	Wisconsin Certification #: 399079670
Mississippi Certification: FL NELAC Reciprocity	Wyoming (EPA Region 8): FL NELAC Reciprocity

REPORT OF LABORATORY ANALYSIS

SAMPLE SUMMARY

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

Pace Project No.:   35731888

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35731888001	071422-SO1	Water	07/15/22 07:00	07/15/22 10:10
35731888002	071422-E01	Drinking Water	07/15/22 07:00	07/15/22 10:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35731888

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35731888001	071422-SO1	EPA 522	EC	2	PASI-O
35731888002	071422-E01	EPA 522	EC	2	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

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

Pace Project No.:   35731888

Sample: 071422-SO1   **Lab ID: 35731888001**   Collected: 07/15/22 07:00   Received: 07/15/22 10:10   Matrix: 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)	**0.34**	ug/L	0.20	0.12	1	07/22/22 09:32	07/25/22 22:55	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	85	%	70-130		1	07/22/22 09:32	07/25/22 22:55		

Sample: 071422-E01   **Lab ID: 35731888002**   Collected: 07/15/22 07:00   Received: 07/15/22 10:10   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)	**0.37**	ug/L	0.20	0.12	1	07/22/22 09:32	07/25/22 23:11	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	88	%	70-130		1	07/22/22 09:32	07/25/22 23:11		

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: 1,4-Dx-522 (Weekly)
Pace Project No.: 35731888

QC Batch:	841624	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: 35731888001, 35731888002

METHOD BLANK: 4628909   Matrix: Water

Associated Lab Samples: 35731888001, 35731888002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	07/25/22 18:57	
1,4-Dioxane-d8 (S)	%	82	70-130		07/25/22 18:57	

LABORATORY CONTROL SAMPLE & LCSD: 4628910   4628911

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	20	15.4	15.4	77	77	70-130	0	20	
1,4-Dioxane-d8 (S)	%				85	83	70-130			

LABORATORY CONTROL SAMPLE: 4628912

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.15 I	76	50-150	
1,4-Dioxane-d8 (S)	%			82	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

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QUALIFIERS

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

Pace Project No.:   35731888

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 842184

[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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

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

Pace Project No.:   35731888

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35731888001	071422-SO1	EPA 522	841624	EPA 522	842184
35731888002	071422-E01	EPA 522	841624	EPA 522	842184

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu...

Pace Analytical

35731888

Page : 1 Of 1

Section A
Required Client 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**

Section B
Required Project Information:

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

Section C
Invoice Information:

Attention: Accounts Payable
Company Name: See Section A
Address:
Pace Quote:
Pace Project Manager: Lisa Harvey
Pace Profile #: **9551-1 (SO1), -2 (EO1)**

Regulatory Agency
State / Location: NC
NC

SAMPLE ID
One Character per box.
(A-Z, 0-9 /, -)
Sample Ids must be unique

MATRIX CODE
DW Drinking Water
WT Water
WW Waste Water
P Product
SL Soil/Solid
OL Oil
WP Wipe
AR Air
OT Other
TS Tissue

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	TIME	END DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Sodium sulfite and sodium bisulfate	Y/N	522 - 1,4 - Dioxane	522 - 1,4 - Dioxane	Residual Chlorine (Y/N)
1	071422-SO1	WT	G		700		700		1						1		1		1		line 1
2	071422-E01	DW	G		700		700		1						1		1			1	line 2
3																					
4																					
5																					
6																					

Preservatives

Analyses Test

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
					7/14/22	10:10

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Phil Mcculloch

SIGNATURE of SAMPLER: _Phillip McCulloch_   DATE Signed: 7/14/2022

SO1 is Raw Water (WT)
EO1 is Potable DWTR (DW)

SAMPLE CONDITIONS

Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

TEMP in C

Sample Condition Upon Receipt Form (SCUR)

Pace

Project # WO#: 35731888

Project Manager: PM: WBW Due Date: 07/27/22

Client: CLIENT: BRUNCOWS

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

Thermometer Used: T-312 Date: 1-15-22 Time: 10:53 Initials: CEJ

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

Cooler #1 Temp.°C 2.2 (Visual) −0.2 (Correction Factor) 2.0 (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
Recheck for OOT °C_____(Visual) _____(Correction Factor) _____(Actual) Time:_____ Initials:_____

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 # 2755 5288 4227

Custody Seal on Cooler/Box Present: ☑ Yes ☐ No **Seals intact:** ☑ Yes ☐ No **Ice:** Wet Blue Melted 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	☐ Yes ☐ No ☐ N/A	
Chain of Custody Filled Out	☐ Yes ☐ No ☐ N/A	
Relinquished Signature & Sampler Name COC	☐ Yes ☐ No ☐ N/A	
Samples Arrived within Hold Time	☐ Yes ☐ No ☐ N/A	
Rush TAT requested on COC	☐ Yes ☐ No ☐ N/A	
Sufficient Volume	☐ Yes ☐ No ☐ N/A	
Correct Containers Used	☐ Yes ☐ No ☐ N/A	
Containers Intact	☐ Yes ☐ No ☐ N/A	
Sample Labels match COC (sample IDs & date/time of collection)	☐ Yes ☑ No ☐ N/A	No date on COC
All containers needing acid/base preservation have been checked.	☐ Yes ☐ No ☐ N/A	Preservation Information: Preservative:_____
All Containers needing preservation are found to be in compliance with EPA recommendation:	☐ Yes ☐ No ☐ N/A	Lot #/Trace #:_____ Date:_____ Time:_____
Exceptions: Vials, Microbiology, O&G, PFAS		Initials:_____
Headspace in VOA Vials? (>6mm):	☐ Yes ☐ No ☐ N/A	
Trip Blank Present:	☐ Yes ☐ No ☐ N/A	

Comments/ Resolution (use back for additional comments):
_____