

November 05, 2021

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

RE: Project: 1,4-Dx-522
Pace Project No.: 35673707

Dear Glenn Walker:

Enclosed are the analytical results for sample(s) received by the laboratory on October 15, 2021. 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

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CERTIFICATIONS

Project: 1,4-Dx-522

Pace Project No.: 35673707

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174

Alaska DEC- CS/UST/LUST

Alabama Certification #: 41320

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

Maine Certification #: FL01264

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: 1,4-Dx-522

Pace Project No.: 35673707

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35673707001	101421-S01	Water	10/14/21 07:50	10/15/21 10:23
35673707002	101421-E01	Drinking Water	10/14/21 07:50	10/15/21 10:23

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SAMPLE ANALYTE COUNT

Project: 1,4-Dx-522

Pace Project No.: 35673707

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35673707001	101421-S01	EPA 522	CTB	2	PASI-O
35673707002	101421-E01	EPA 522	CTB	2	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

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ANALYTICAL RESULTS

Project: 1,4-Dx-522

Pace Project No.: 35673707

Sample: 101421-S01		Lab ID: 35673707001		Collected: 10/14/21 07:50		Received: 10/15/21 10:23		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)	1.2 U	ug/L	2.0	1.2	1	11/04/21 18:56	11/05/21 13:12	123-91-1	P1
Surrogates									
1,4-Dioxane-d8 (S)	90	%	70-130		1	11/04/21 18:56	11/05/21 13:12		

Sample: 101421-E01		Lab ID: 35673707002		Collected: 10/14/21 07:50		Received: 10/15/21 10:23		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)	0.83	ug/L	0.21	0.12	1	11/02/21 16:01	11/03/21 13:06	123-91-1	
Surrogates									
1,4-Dioxane-d8 (S)	71	%	70-130		1	11/02/21 16:01	11/03/21 13:06		

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QUALITY CONTROL DATA

Project: 1,4-Dx-522

Pace Project No.: 35673707

QC Batch: 774481

QC Batch Method: EPA 522

Analysis Method: EPA 522

Analysis Description: 522 MSS 1,4 Dioxane

Laboratory: Pace Analytical Services - Ormond Beach

Associated Lab Samples: 35673707002

METHOD BLANK: 4240187

Matrix: Water

Associated Lab Samples: 35673707002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	11/03/21 11:45	
1,4-Dioxane-d8 (S)	%	91	70-130		11/03/21 11:45	

LABORATORY CONTROL SAMPLE & LCSD: 4240188

4240189

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	1.6	79	80	70-130	2	20	
1,4-Dioxane-d8 (S)	%				78	82	70-130			

LABORATORY CONTROL SAMPLE: 4240190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.18 I	90	50-150	
1,4-Dioxane-d8 (S)	%			85	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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QUALITY CONTROL DATA

Project: 1,4-Dx-522

Pace Project No.: 35673707

QC Batch:	775287	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: 35673707001

METHOD BLANK: 4245288 Matrix: Water

Associated Lab Samples: 35673707001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.12 U	0.20	0.12	11/05/21 12:23	
1,4-Dioxane-d8 (S)	%	95	70-130		11/05/21 12:23	

LABORATORY CONTROL SAMPLE: 4245289

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.5	92	70-130	
1,4-Dioxane-d8 (S)	%			94	70-130	

LABORATORY CONTROL SAMPLE: 4245290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.2	0.17 I	87	50-150	
1,4-Dioxane-d8 (S)	%			82	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4245813 4245814

Parameter	Units	35673548002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	8.9	20.2	20.2	26.9	26.7	89	88	70-130	1	20	
1,4-Dioxane-d8 (S)	%						88	85	70-130			

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QUALIFIERS

Project: 1,4-Dx-522
Pace Project No.: 35673707

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: 774780

[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.
P1 Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1,4-Dx-522

Pace Project No.: 35673707

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35673707001	101421-S01	EPA 522	775287	EPA 522	775477
35673707002	101421-E01	EPA 522	774481	EPA 522	774780

REPORT OF LABORATORY ANALYSIS

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The Chain-of-Custody is a **LEGAL DOCUMENT**. All relevant fields must be completed accurately

Page: 1 Of 1

[illegible]

WO#: 35673707

PM: WBW Due Date: 10/27/21
CLIENT: BRUNCOWS

Condition Upon Receipt Form (SCUR)

1115

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

Thermometer Used: T-389 Date: 10/15/21 Time: 1023 Initials: KMF

State of Origin: _____

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

Cooler #1 Temp. $^{\circ}\text{C}$ 0.4 (Visual) +0.0 (Correction Factor) 0.4 (Actual)
Cooler #2 Temp. $^{\circ}\text{C}$ _____ (Visual) _____ (Correction Factor) _____ (Actual)
Cooler #3 Temp. $^{\circ}\text{C}$ _____ (Visual) _____ (Correction Factor) _____ (Actual)
Cooler #4 Temp. $^{\circ}\text{C}$ _____ (Visual) _____ (Correction Factor) _____ (Actual)
Cooler #5 Temp. $^{\circ}\text{C}$ _____ (Visual) _____ (Correction Factor) _____ (Actual)
Cooler #6 Temp. $^{\circ}\text{C}$ _____ (Visual) _____ (Correction Factor) _____ (Actual)

☐ Samples on ice, cooling process has begun
☐ Samples on ice, cooling process has begun
☐ Samples on ice, cooling process has begun
☐ Samples on ice, cooling process has begun
☐ Samples on ice, cooling process has begun
☐ Samples on ice, cooling process has begun

Recheck for OOT $^{\circ}\text{C}$ _____ (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 # _____

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	
All containers needing acid/base preservation have been checked.	☐ Yes ☐ No ☒ N/A	Preservation Information:
All Containers needing preservation are found to be in compliance with EPA recommendation:	☐ Yes ☐ No ☒ N/A	Preservative: _____
Exceptions: Vials, Microbiology, O&G, PFAS		Lot #/Trace #: _____
		Date: _____ Time: _____
		Initials: _____
Headspace in VOA Vials? (>6mm):	☐ Yes ☐ No ☒ N/A	
Trip Blank Present:	☐ Yes ☐ No ☒ N/A	

Comments/ Resolution (use back for additional comments):

