

Chemical Analysis Report

NE-DIST-2022-03-15-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Nassau North Boat 2022**

Request ID: **RQ-2022-02-21-28**

Customer: **NE-DIST**

Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 30-MAR-2022 09:14

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Plummer Creek @ Second Island

Collection Date/Time: 03/14/2022 12:30

Field ID: G4NE0301

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2312276	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P411130	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P411201	
	SM 2540 D-2011	TSS	16		mg/L	P411536	
	SM 4500 F-C-2011	Fluoride	0.063	I	mg F/L	P411204	
2312277	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P411184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P411277	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P411225	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P411389	
	SM 5310 B-2011	Organic Carbon	25		mg C/L	P411294	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411130

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411184

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411277

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411225

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411389

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: SM 2320 B-2011
Batch ID: P411201

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 D-2011
Batch ID: P411536

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P411204

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P411294

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411130

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	103		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P411201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P411204

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P411294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312221	Ammonia-N	99.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312161	Kjeldahl Nitrogen	98.8	89.1	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312294	NO2NO3-N	97.0	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312277	Total-P	104	106	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P411204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312293	Fluoride	99.7	99.1	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P411294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312295	Organic Carbon	105	90.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312335	Turbidity	11.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312221	Ammonia-N	0.221	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312161	Kjeldahl Nitrogen	5.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312294	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312277	Total-P	1.45	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P411201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312293	Total Alkalinity	2.56	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P411204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312293	Fluoride	0.500	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P411294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312295	Organic Carbon	7.85	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A110947

Included Lab Sample IDs: 2312276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A110971

Included Lab Sample IDs: 2312277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A110979

Included Lab Sample IDs: 2312276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A110979

Included Lab Sample IDs: 2312276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A110993

Included Lab Sample IDs: 2312277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A111024

Included Lab Sample IDs: 2312277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111110

Included Lab Sample IDs: 2312277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111130

Included Lab Sample IDs: 2312277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	96.3	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity	97.1				11.0	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	99.6	100			0.221
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.4	98.8	89.1			5.96
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	97.0	97.0			0.0
EPA 365.1 Rev. 2.0	Total-P	103	104	106			1.45
SM 2320 B-2011	Total Alkalinity	97.4				2.56	
SM 4500 F-C-2011	Fluoride	98.9	99.7	99.1			0.500
SM 5310 B-2011	Organic Carbon	96.5	105	90.8			7.85

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2312276
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2312277
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2312277
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2312277
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2312277
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2312276
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2312276
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2312276
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2312277

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/15/2022			03/15/2022 14:29	Khloe J Berg	2312276
EPA 350.1 Rev. 2.0	03/15/2022			03/16/2022 11:52	Ping Hua	2312277
EPA 351.2 Rev. 2.0	03/15/2022	03/22/2022 11:30	Samantha L Bates	03/24/2022 12:41	Alexandra J Mattheus	2312277
EPA 353.2 Rev. 2.0	03/15/2022			03/17/2022 10:18	Beverly Y. Sanders	2312277
EPA 365.1 Rev. 2.0	03/15/2022	03/22/2022 17:15	Simonne.V. Calhoun	03/23/2022 12:11	Sarah A Nixon	2312277
SM 2320 B-2011	03/15/2022			03/16/2022 20:20	Dale L. Simmons	2312276
SM 2540 D-2011	03/15/2022			03/18/2022 15:46	Yijie Li	2312276
SM 4500 F-C-2011	03/15/2022			03/16/2022 20:20	Dale L. Simmons	2312276
SM 5310 B-2011	03/15/2022			03/17/2022 22:03	Khloe J Berg	2312277