Chemical Analysis Report

NE-DIST-2020-03-10-02

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

Event Description: **Nassau West 1 2020**
Request ID: **RQ-2020-03-02-23**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 25-MAR-2020 10:21

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: Unnamed Drain to Brandy Branch at US301 **Collection Date/Time: 03/09/2020 11:30**

Field ID: G4NE0302 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163499	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P380405	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P380614	
		Sulfate	2.9		mg SO4/L	P380618	
	SM 2120 B-2011	Color (true)	260		PCU	P380434	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P380864	
	SM 2540 C-2011	TDS	91		mg/L	P381107	
	SM 2540 D-2011	TSS	2	I	mg/L	P380980	
	SM 4500 F-C-2011	Fluoride	0.040	I	mg F/L	P380715	
2163500	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P380883	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P380925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380845	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P380733	
	SM 5310 B-2011	Organic Carbon	34		mg C/L	P380562	
2163501	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P380400	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380405

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380733

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380400

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B-2011
Batch ID: P380434

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P380864

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

Reference Method: SM 2540 C-2011
Batch ID: P381107

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380980

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380562

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.2		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P380434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P380864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P380562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163477	Chloride	99.0		P	90 - 110
2163649	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163477	Sulfate	98.9		P	90 - 110
2163649	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163479	Ammonia-N	99.0	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163542	Kjeldahl Nitrogen	98.7	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163479	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163501	O-Phosphate-P	92.9	93.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163662	Fluoride	101	100	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163385	Organic Carbon	96.6	95.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163476	Turbidity	1.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163649	Chloride	0.677	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163649	Sulfate	0.687	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163479	Ammonia-N	2.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163542	Kjeldahl Nitrogen	0.658	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163479	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163388	Total-P	1.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163501	O-Phosphate-P	0.701	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P380434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163476	Color (true)	0.284	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163648	Total Alkalinity	0.484	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163566	TDS	6.39	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163662	Fluoride	0.992	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163385	Organic Carbon	0.653	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A98096
Included Lab Sample IDs: 2163499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	98.8	P/P	90 - 110
Sulfate	99.5	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A98115
Included Lab Sample IDs: 2163501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.5	95.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A98117
Included Lab Sample IDs: 2163499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A98122
Included Lab Sample IDs: 2163499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	90 - 115

Reference Method: SM 5310 B-2011
Run ID: A98163
Included Lab Sample IDs: 2163500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A98215
Included Lab Sample IDs: 2163499

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98216
Included Lab Sample IDs: 2163500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98268
Included Lab Sample IDs: 2163500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A98269
Included Lab Sample IDs: 2163499

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A98276
Included Lab Sample IDs: 2163500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98369
Included Lab Sample IDs: 2163500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	98.9	P/P	90 - 110

* 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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.06	
EPA 300.0 Rev. 2.1	Chloride	98.8	99.7	99.0		0.677	
	Sulfate	99.1	99.2	98.9		0.687	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	99.0	102			2.73
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	98.7	98.0			0.658
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	107					1.73
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.2	92.9	93.6			0.701
SM 2120 B-2011	Color (true)	99.9				0.284	
SM 2320 B-2011	Total Alkalinity	103				0.484	
SM 2540 C-2011	TDS					6.39	
SM 4500 F-C-2011	Fluoride	98.7	101	100			0.992
SM 5310 B-2011	Organic Carbon	96.2	96.6	95.6			0.653

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2163499
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2163499
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2163499
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2163500
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2163500
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2163500
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2163500
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2163501
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2163499
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2163499
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2163499
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2163499
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2163499
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2163500

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	03/10/2020			03/10/2020 16:49	Blanca Fach	2163499
EPA 300.0 Rev. 2.1	03/10/2020			03/12/2020 21:26	Lipi Saha	2163499
EPA 350.1 Rev. 2.0	03/10/2020			03/18/2020 11:58	Ping Hua	2163500
EPA 351.2 Rev. 2.0	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:09	Jhamieka S. Greenwood	2163500
EPA 353.2 Rev. 2.0	03/10/2020			03/16/2020 10:48	Beverly Y. Sanders	2163500
EPA 365.1 Rev. 2.0	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 17:06	Benjamin T. Nordmann	2163500
EPA 365.1 Rev. 2.0 dissolved	03/10/2020			03/10/2020 18:32	Carlos Miranda	2163501
SM 2120 B-2011	03/10/2020			03/10/2020 18:38	Madeline Gruver	2163499
SM 2320 B-2011	03/10/2020			03/18/2020 06:21	Dale L. Simmons	2163499
SM 2540 C-2011	03/10/2020			03/13/2020 15:32	Yijie Li	2163499
SM 2540 D-2011	03/10/2020			03/13/2020 15:32	Yijie Li	2163499
SM 4500 F-C-2011	03/10/2020			03/13/2020 06:55	Dale L. Simmons	2163499
SM 5310 B-2011	03/10/2020			03/12/2020 03:26	Lauren Lees	2163500