Chemical Analysis Report

NE-DIST-2020-08-14-02

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

Event Description: **Nassau West 1**
Request ID: **RQ-2020-08-10-09**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 08-SEP-2020 09:51

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 Stream @ CR 121 **Collection Date/Time: 08/13/2020 09:10**

Field ID: 19010127 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190397	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P386066	
	EPA 300.0 Rev. 2.1	Chloride	6.4		mg Cl/L	P386275	
		Sulfate	0.70		mg SO4/L	P386279	
	SM 2120 B-2011	Color (true)	420		PCU	P386074	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P386144	
	SM 2540 C-2011	TDS	75		mg/L	P386502	
	SM 2540 D-2011	TSS	3	I	mg/L	P386389	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P386329	
2190398	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P386241	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P386315	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P386150	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P386106	
	SM 5310 B-2011	Organic Carbon	33		mg C/L	P386332	
2190399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P386069	

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: P386066

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386275

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386279

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386241

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386150

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386106

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386069

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

Reference Method: SM 2120 B-2011
Batch ID: P386074

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P386144

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

Reference Method: SM 2540 C-2011
Batch ID: P386502

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386389

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386332

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: P386275

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386279

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386241

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386106

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386069

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	100		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P386074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P386144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190230	Chloride	101		P	90 - 110
2190289	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190230	Sulfate	103		P	90 - 110
2190289	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190353	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190290	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190290	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190239	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190293	O-Phosphate-P	97.6	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190933	Fluoride	102	104	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P386332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190680	Organic Carbon	98.5	97.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190357	Turbidity	2.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190230	Chloride	1.24	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190230	Sulfate	1.53	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190353	Ammonia-N	0.552	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190290	Kjeldahl Nitrogen	2.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190290	NO2NO3-N	0.387	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190239	Total-P	1.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190293	O-Phosphate-P	1.03	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P386074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190357	Color (true)	1.02	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190288	Total Alkalinity	0.467	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190357	TDS	4.43	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190933	Fluoride	0.909	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190680	Organic Carbon	0.675	Spike	P	0 - 20

* 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: A100473
Included Lab Sample IDs: 2190397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A100474
Included Lab Sample IDs: 2190399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	98.3	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A100475
Included Lab Sample IDs: 2190397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115

Reference Method: SM 2320 B-2011
Run ID: A100499
Included Lab Sample IDs: 2190397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100504
Included Lab Sample IDs: 2190398

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100524
Included Lab Sample IDs: 2190398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100530
Included Lab Sample IDs: 2190398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	97.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100543
Included Lab Sample IDs: 2190397

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A100560
Included Lab Sample IDs: 2190397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	104	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100563
Included Lab Sample IDs: 2190398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100590
Included Lab Sample IDs: 2190398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	100	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					2.38	
EPA 300.0 Rev. 2.1	Chloride	101	101	98.2		1.24	
	Sulfate	103	103	101		1.53	
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	101			0.552
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	106			2.51
EPA 353.2 Rev. 2.0	NO2NO3-N	100	103	102			0.387
EPA 365.1 Rev. 2.0	Total-P	103	104	103			1.13
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.6	96.6			1.03
SM 2120 B-2011	Color (true)	98.6				1.02	
SM 2320 B-2011	Total Alkalinity	104				0.467	
SM 2540 C-2011	TDS					4.43	
SM 4500 F-C-2011	Fluoride	102	102	104			0.909
SM 5310 B-2011	Organic Carbon	98.5	98.5	97.7			0.675

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2190397
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2190397
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2190397
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2190398
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2190398
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2190398
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2190398
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2190399
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2190397
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2190397
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2190397
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2190397
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2190397
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2190398

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	08/14/2020			08/14/2020 14:57	Yen Ta	2190397
EPA 300.0 Rev. 2.1	08/14/2020			08/18/2020 17:37	Julia Storbeck	2190397
EPA 350.1 Rev. 2.0	08/14/2020			08/18/2020 15:23	Virginia P. Brown	2190398
EPA 351.2 Rev. 2.0	08/14/2020	08/20/2020 11:10	Sima Feizi	08/21/2020 12:34	Jhamieka S. Greenwood	2190398
EPA 353.2 Rev. 2.0	08/14/2020			08/18/2020 08:54	Beverly Y. Sanders	2190398
EPA 365.1 Rev. 2.0	08/14/2020	08/17/2020 11:03	Shengyu Wang	08/19/2020 08:01	Lipi Saha	2190398
EPA 365.1 Rev. 2.0 dissolved	08/14/2020			08/14/2020 15:12	Virginia P. Brown	2190399
SM 2120 B-2011	08/14/2020			08/14/2020 16:23	Blanca Fach	2190397
SM 2320 B-2011	08/14/2020			08/17/2020 16:42	Dale L. Simmons	2190397
SM 2540 C-2011	08/14/2020			08/19/2020 15:39	Yijie Li	2190397
SM 2540 D-2011	08/14/2020			08/19/2020 15:39	Yijie Li	2190397
SM 4500 F-C-2011	08/14/2020			08/20/2020 04:22	Dale L. Simmons	2190397
SM 5310 B-2011	08/14/2020			08/19/2020 20:42	David Boose	2190398