

Chemical Analysis Report

NE-DIST-2018-03-30-01

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

Event Description: **Nassau East**
Request ID: **RQ-2018-03-19-59**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental

Date Certified: 20-APR-2018 11:30



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 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: Thomas CR 6.0 MI below City Prison

Collection Date/Time: 03/29/2018 11:05

Field ID: G4NE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979358	EPA 180.1 Rev. 2.0	Turbidity	8.6	A	NTU	P342515	
	EPA 300.0 Rev. 2.1	Sulfate	82		mg SO4/L	P342689	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P343027	RPD
	SM 2540 D-97	TSS	10	IA	mg/L	P342963	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P343648	
1979359	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P343148	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P342606	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P342848	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P342651	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P343082	
1979360	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.076		mg P/L	P342540	

Ref. Method and Comment:

SM 2540 D-97: 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: P342515

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P342689

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P343148

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P342606

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P342848

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P342651

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342651

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342540

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

Reference Method: SM 2320 B-97
Batch ID: P343027

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

Reference Method: SM 2540 D-97
Batch ID: P342963

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343648

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343082

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: P342689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343148

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342848

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342651

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342540

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.6		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P343027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343648

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979517	Sulfate	97.4		P	90 - 110
1979575	Sulfate	93.0		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979359	Ammonia-N	98.4	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979317	Kjeldahl Nitrogen	94.4	92.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979374	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979381	Total-P	103	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979376	O-Phosphate-P	96.7	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P343648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979516	Fluoride	97.2	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979043	Organic Carbon	94.4	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979358	Turbidity	0.927	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979517	Sulfate	0.338	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979359	Ammonia-N	0.0223	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979317	Kjeldahl Nitrogen	1.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979374	NO2NO3-N	0.926	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979381	Total-P	3.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979376	O-Phosphate-P	0.824	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P343027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979516	Total Alkalinity	4.27	Sample	F	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P343648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979516	Fluoride	0.477	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P343082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979043	Organic Carbon	1.61	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82962
Included Lab Sample IDs: 1979358

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82970
Included Lab Sample IDs: 1979360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	99.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83001
Included Lab Sample IDs: 1979358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	97.6	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83020
Included Lab Sample IDs: 1979359

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83043
Included Lab Sample IDs: 1979359

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83062
Included Lab Sample IDs: 1979359

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A83116
Included Lab Sample IDs: 1979358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83136
Included Lab Sample IDs: 1979359

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83153
Included Lab Sample IDs: 1979359

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

Reference Method: SM 4500 F-C-97
Run ID: A83315
Included Lab Sample IDs: 1979358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.927	
EPA 300.0 Rev. 2.1	Sulfate	96.5	97.4 93.0		0.338	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	98.4 98.4			0.0223
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.9	94.4 92.3			1.58
EPA 353.2 Rev. 2.0	NO2NO3-N	106	108 108			0.926
EPA 365.1 Rev. 2.0	Total-P	102	103 98.9			3.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	96.7 97.5			0.824
SM 2320 B-97	Total Alkalinity	98.6			4.27	
SM 4500 F-C-97	Fluoride	98.1	97.2 97.8			0.477
SM 5310 B-00	Organic Carbon	96.0	94.4 97.0			1.61

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1979358
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1979358

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1979359
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1979359
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1979359
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1979359
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1979360
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1979358
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1979358
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1979358
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1979359

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	03/30/2018			03/30/2018 15:46	Tanya Welborn	1979358
EPA 300.0 Rev. 2.1	03/30/2018			04/03/2018 22:18	Lipi Saha	1979358
EPA 350.1 Rev. 2.0	03/30/2018			04/10/2018 11:51	Ping Hua	1979359
EPA 351.2 Rev. 2.0	03/30/2018	04/03/2018 09:50	Adrian Shelby	04/04/2018 14:42	Joseph Suarez	1979359
EPA 353.2 Rev. 2.0	03/30/2018			04/05/2018 14:53	Lauren Bottorf	1979359
EPA 365.1 Rev. 2.0	03/30/2018	04/03/2018 13:07	Sima Feizi	04/04/2018 09:24	Beverly Y. Sanders	1979359
EPA 365.1 Rev. 2.0 dissolved	03/30/2018			03/30/2018 16:55	Megan Treadwell	1979360
SM 2320 B-97	03/30/2018			04/07/2018 06:33	Dale L. Simmons	1979358
SM 2540 D-97	03/30/2018			04/04/2018 15:34	Yijie Li	1979358
SM 4500 F-C-97	03/30/2018			04/17/2018 18:54	Dale L. Simmons	1979358
SM 5310 B-00	03/30/2018			04/06/2018 22:52	Julia Storbeck	1979359