

Chemical Analysis Report

NE-DIST-2017-06-09-01

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

Event Description: **Nassau West-6/15/2017**

Request ID: **RQ-2017-06-12-31**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 05-JUL-2017 15:17



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: Unnamed Branch @ CR125

Collection Date/Time: 06/08/2017 10:20

Field ID: G4NE0131 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904803	EPA 180.1 Rev. 2.0	Turbidity	3.2	A	NTU	P326544	
	EPA 300.0 Rev. 2.1	Chloride	9.8		mg Cl/L	P327033	
		Sulfate	2.2		mg SO4/L	P327037	
	SM 2120 B	Color (true)	280		PCU	P326584	
	SM 2320 B-97	Total Alkalinity	3.7		mg CaCO3/L	P326792	
	SM 2540 C-97	TDS	95		mg/L	P327119	
	SM 2540 D-97	TSS	3	I	mg/L	P327085	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P326794	
1904804	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P326549	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P326564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P326677	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P326673	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P326723	
1904805	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P326570	

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: P326544

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327033

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327037

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P326549

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P326564

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326677

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326673

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326570

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

Reference Method: SM 2120 B
Batch ID: P326584

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P326792

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

Reference Method: SM 2540 C-97
Batch ID: P327119

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327085

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P326794

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P326723

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: P327033

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327037

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326549

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: P326564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326677

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326673

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326570

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

Reference Method: SM 2320 B-97
Batch ID: P326792

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

Reference Method: SM 4500 F-C-97
Batch ID: P326794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P326723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	88.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904975	Chloride	102		P	90 - 110
1905441	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904975	Sulfate	98.1		P	90 - 110
1905441	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904804	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P326564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1903759	Kjeldahl Nitrogen	92.3	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P326677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904794	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P326673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904977	Total-P	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P326570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904767	O-Phosphate-P	95.5	96.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P326794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905012	Fluoride	97.6	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P326723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904765	Organic Carbon	90.5	91.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P326544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904803	Turbidity	1.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904975	Chloride	0.330	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904975	Sulfate	2.51	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904804	Ammonia-N	1.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1903759	Kjeldahl Nitrogen	7.60	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904794	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904977	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904767	O-Phosphate-P	0.466	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P326584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904961	Color (true)	3.26	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P326792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905012	Total Alkalinity	0.140	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P327119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904793	TDS	1.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P326794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905012	Fluoride	1.04	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P326723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904765	Organic Carbon	1.47	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A76994

Included Lab Sample IDs: 1904803

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76995

Included Lab Sample IDs: 1904804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76999

Included Lab Sample IDs: 1904805

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A77000

Included Lab Sample IDs: 1904803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	100	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77033

Included Lab Sample IDs: 1904804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77054

Included Lab Sample IDs: 1904804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77075

Included Lab Sample IDs: 1904804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77076

Included Lab Sample IDs: 1904803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	101	P/P	90 - 110
Sulfate	106	108	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77078

Included Lab Sample IDs: 1904803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77078

Included Lab Sample IDs: 1904803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77114

Included Lab Sample IDs: 1904804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	97.0	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					1.85	
EPA 300.0 Rev. 2.1	Chloride	104	102	106		0.330	
	Sulfate	104	98.1	103		2.51	
EPA 350.1 Rev. 2.0	Ammonia-N	100	105	102			1.98
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	92.3	102			7.60
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	101	99.0	101			1.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.0	95.5	96.1			0.466
SM 2120 B	Color (true)					3.26	
SM 2320 B-97	Total Alkalinity	103				0.140	
SM 2540 C-97	TDS					1.76	
SM 4500 F-C-97	Fluoride	97.5	97.6	98.8			1.04
SM 5310 B-00	Organic Carbon	88.0	90.5	91.9			1.47

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1904803
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1904803
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1904803
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1904804
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1904804
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1904804
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1904804
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1904805
SM 2120 B / E31780	True Color measured at 450 nm	1904803
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1904803
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1904803
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1904803
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1904803
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1904804

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	06/09/2017			06/09/2017 16:38	Sima Feizi	1904803
EPA 300.0 Rev. 2.1	06/09/2017			06/17/2017	Julia Storbeck	1904803
EPA 350.1 Rev. 2.0	06/09/2017			06/09/2017	Julie Michelle Frank	1904804
EPA 351.2 Rev. 2.0	06/09/2017	06/12/2017	Adrian Shelby	06/15/2017	Joseph Suarez	1904804
EPA 353.2 Rev. 2.0	06/09/2017			06/13/2017	Beverly Y. Sanders	1904804
EPA 365.1 Rev. 2.0	06/09/2017	06/13/2017	Adrian Shelby	06/14/2017	Christopher Armour	1904804
EPA 365.1 Rev. 2.0 dissolved	06/09/2017			06/09/2017 15:24	Anthony C. Onicha	1904805
SM 2120 B	06/09/2017			06/09/2017 16:18	Tanya Welborn	1904803
SM 2320 B-97	06/09/2017			06/13/2017	Dale L. Simmons	1904803
SM 2540 C-97	06/09/2017			06/14/2017	Yijie Li	1904803
SM 2540 D-97	06/09/2017			06/14/2017	Yijie Li	1904803
SM 4500 F-C-97	06/09/2017			06/13/2017	Dale L. Simmons	1904803
SM 5310 B-00	06/09/2017			06/13/2017	Christopher Armour	1904804