Chemical Analysis Report

NE-DIST-2016-10-06-01

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

Event Description: **Nassau East 2**
Request ID: **RQ-2016-10-03-28**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way
Suite 100
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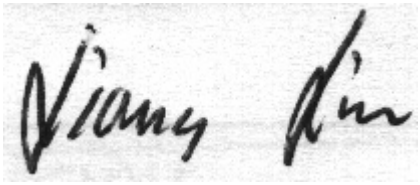
Certified by: Liang Lin, Environmental Administrator

Date Certified: 31-OCT-2016 13:54



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 @ Lem Turner **Collection Date/Time: 10/05/2016 11:15**

Field ID: G4NE0249 10052016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1838810	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P312643	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P313547	
		Sulfate	2.6		mg SO4/L	P313551	
	SM 2120 B	Color (true)	610		PCU	P312655	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P312949	
	SM 2540 C-97	TDS	183		mg/L	P313589	
	SM 2540 D-97	TSS	7	I	mg/L	P313401	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P312950	
1838811	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P313307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P313365	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313101	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P313557	
	SM 5310 B-00	Organic Carbon	62		mg C/L	P312844	
1838812	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P312637	

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: P312643

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313547

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313551

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313307

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313365

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: P313101

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313557

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312637

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

Reference Method: SM 2120 B
Batch ID: P312655

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P312949

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

Reference Method: SM 2540 C-97
Batch ID: P313589

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P313401

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P312950

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312844

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: P313547

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313551

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313307

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313365

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313101

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312637

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

Reference Method: SM 2320 B-97
Batch ID: P312949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P312950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P312844

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838687	Chloride	99.4		P	90 - 110
1838731	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838687	Sulfate	93.7		P	90 - 110
1838731	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838811	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838821	Kjeldahl Nitrogen	102	111	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838811	NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838741	Total-P	97.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838733	O-Phosphate-P	98.9	98.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P312950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838791	Fluoride	99.1	99.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P312844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838492	Organic Carbon	97.2	94.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838810	Turbidity	3.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838731	Chloride	0.0373	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838731	Sulfate	2.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838811	Ammonia-N	0.330	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838821	Kjeldahl Nitrogen	6.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838811	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838741	Total-P	3.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838733	O-Phosphate-P	0.545	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P312655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838791	Color (true)	0.117	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P312949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838791	Total Alkalinity	0.0488	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P313589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838653	TDS	1.96	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P312950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838791	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838492	Organic Carbon	1.40	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 365.1 Rev. 2.0 dissolved
Run ID: A72067
Included Lab Sample IDs: 1838812

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72068
Included Lab Sample IDs: 1838810

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

Reference Method: SM 2120 B
Run ID: A72073
Included Lab Sample IDs: 1838810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A72136
Included Lab Sample IDs: 1838811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.3	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A72166
Included Lab Sample IDs: 1838810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A72166
Included Lab Sample IDs: 1838810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72206
Included Lab Sample IDs: 1838811

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72255
Included Lab Sample IDs: 1838811

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A72305
Included Lab Sample IDs: 1838810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	99.3	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72353
Included Lab Sample IDs: 1838811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72366
Included Lab Sample IDs: 1838811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.8	98.2	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					3.25	
EPA 300.0 Rev. 2.1	Chloride	101	99.7	99.4		0.0373	
	Sulfate	96.2	96.5	93.7		2.18	
EPA 350.1 Rev. 2.0	Ammonia-N	105	103	102			0.330
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	102	111			6.62
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.0	98.5			0.506
EPA 365.1 Rev. 2.0	Total-P	97.4	97.4	101			3.41
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	107	98.9	98.1			0.545
SM 2120 B	Color (true)					0.117	
SM 2320 B-97	Total Alkalinity	103				0.0488	
SM 2540 C-97	TDS					1.96	
SM 4500 F-C-97	Fluoride	96.1	99.1	99.1			0.0
SM 5310 B-00	Organic Carbon	97.4	97.2	94.6			1.40

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1838810
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1838810
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1838810
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1838811
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1838811
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1838811
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1838811
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1838812
SM 2120 B / E31780	True Color measured at 450 nm	1838810
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1838810
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1838810
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1838810
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1838810
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1838811

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	10/06/2016			10/06/2016 15:53	Sima Feizi	1838810
EPA 300.0 Rev. 2.1	10/06/2016			10/20/2016	Ping Hua	1838810
EPA 350.1 Rev. 2.0	10/06/2016			10/14/2016	Sofia Elnemr	1838811
EPA 351.2 Rev. 2.0	10/06/2016	10/18/2016	Adrian Shelby	10/20/2016	Joseph Suarez	1838811
EPA 353.2 Rev. 2.0	10/06/2016			10/13/2016	Beverly Y. Sanders	1838811
EPA 365.1 Rev. 2.0	10/06/2016	10/20/2016	Vijayalakshmi Reddy	10/20/2016	Lipi Saha	1838811
EPA 365.1 Rev. 2.0 dissolved	10/06/2016			10/06/2016 15:28	Julia Storbeck	1838812
SM 2120 B	10/06/2016			10/06/2016 15:38	Julie Michelle Frank	1838810
SM 2320 B-97	10/06/2016			10/11/2016	Dale L. Simmons	1838810
SM 2540 C-97	10/06/2016			10/11/2016	Sima Feizi	1838810
SM 2540 D-97	10/06/2016			10/11/2016	Sima Feizi	1838810
SM 4500 F-C-97	10/06/2016			10/11/2016	Dale L. Simmons	1838810
SM 5310 B-00	10/06/2016			10/10/2016	Julie Michelle Frank	1838811