Chemical Analysis Report

NE-DIST-2018-12-06-02

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

Event Description: **Unnamed 2156**
Request ID: **RQ-2018-12-03-65**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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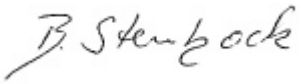
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 27-DEC-2018 14:29



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 above Alligator Creek **Collection Date/Time: 12/05/2018 13:05**

Field ID: G4NE0288 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046845	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P355756	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P356154	
		Sulfate	83		mg SO4/L	P356212	
	SM 2120 B	Color (true)	210		PCU	P355790	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P355946	
	SM 2540 C-97	TDS	268		mg/L	P356115	
	SM 2540 D-97	TSS	3	IA	mg/L	P356006	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P355949	
2046846	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P355907	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P356223	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P355841	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P355900	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P355956	
2046847	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P355764	

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: P355756

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356154

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355841

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355764

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

Reference Method: SM 2120 B
Batch ID: P355790

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P355946

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

Reference Method: SM 2540 C-97
Batch ID: P356115

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356006

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P355956

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: P356154

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355841

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: P355900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355764

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.7		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P355790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P355946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	98 - 107

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046778	Chloride	91.9		P	90 - 110
2046835	Chloride	91.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047281	Sulfate	93.5		P	90 - 110
2047629	Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046838	Ammonia-N	97.4	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046870	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046838	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046914	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046810	O-Phosphate-P	94.2	95.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047114	Fluoride	101	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046837	Organic Carbon	103	99.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046808	Turbidity	1.22	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046778	Chloride	1.35	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047281	Sulfate	2.08	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046838	Ammonia-N	1.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046870	Kjeldahl Nitrogen	0.394	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046838	NO2NO3-N	0.909	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046914	Total-P	0.589	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046810	O-Phosphate-P	1.19	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P355790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046834	Color (true)	1.80	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P355946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047114	Total Alkalinity	0.572	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P356115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046779	TDS	2.05	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047114	Fluoride	0.979	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P355956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046837	Organic Carbon	2.14	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: A88214
Included Lab Sample IDs: 2046845

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A88215
Included Lab Sample IDs: 2046847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.5	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A88219
Included Lab Sample IDs: 2046845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	106	106	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A88232
Included Lab Sample IDs: 2046846

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A88258
Included Lab Sample IDs: 2046846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A88275
Included Lab Sample IDs: 2046845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A88275
Included Lab Sample IDs: 2046845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A88280
Included Lab Sample IDs: 2046846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A88308
Included Lab Sample IDs: 2046846

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A88324
Included Lab Sample IDs: 2046845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.2	P/P	90 - 110
Sulfate	98.2	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A88403
Included Lab Sample IDs: 2046846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	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					1.22	
EPA 300.0 Rev. 2.1	Chloride	96.9	91.9	91.5		1.35	
	Sulfate	96.1	93.5	95.8		2.08	
EPA 350.1 Rev. 2.0	Ammonia-N	97.7	97.4	99.3			1.54
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	107			0.394
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	102			0.909
EPA 365.1 Rev. 2.0	Total-P	95.6	102	103			0.589
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	94.2	95.6			1.19
SM 2120 B	Color (true)	99.4				1.80	
SM 2320 B-97	Total Alkalinity	99.8				0.572	
SM 2540 C-97	TDS					2.05	
SM 4500 F-C-97	Fluoride	98.9	101	99.7			0.979
SM 5310 B-00	Organic Carbon	99.6	103	99.7			2.14

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2046845
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2046845
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2046845
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2046846
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2046846
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2046846
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2046846
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2046847
SM 2120 B / E31780	True Color measured at 450 nm	2046845
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2046845
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2046845
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2046845
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2046845
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2046846

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	12/06/2018			12/06/2018 16:50	Megan Treadwell	2046845
EPA 300.0 Rev. 2.1	12/06/2018			12/13/2018 20:53	Lipi Saha	2046845
	12/06/2018			12/14/2018 21:00	Lipi Saha	2046845
EPA 350.1 Rev. 2.0	12/06/2018			12/07/2018 14:15	Ping Hua	2046846
EPA 351.2 Rev. 2.0	12/06/2018	12/14/2018 12:30	Adrian Shelby	12/17/2018 15:22	Chelsea Hernandez	2046846
EPA 353.2 Rev. 2.0	12/06/2018			12/07/2018 13:53	Lauren Bottorf	2046846
EPA 365.1 Rev. 2.0	12/06/2018	12/11/2018 11:15	Sima Feizi	12/12/2018 11:21	Beverly Y. Sanders	2046846
EPA 365.1 Rev. 2.0 dissolved	12/06/2018			12/06/2018 15:01	Jhamieka S. Greenwood	2046847
SM 2120 B	12/06/2018			12/06/2018 15:56	Chelsea Hernandez	2046845
SM 2320 B-97	12/06/2018			12/11/2018 02:55	Lauren Bottorf	2046845
SM 2540 C-97	12/06/2018			12/10/2018 14:10	Yijie Li	2046845
SM 2540 D-97	12/06/2018			12/10/2018 14:10	Yijie Li	2046845
SM 4500 F-C-97	12/06/2018			12/11/2018 02:55	Lauren Bottorf	2046845
SM 5310 B-00	12/06/2018			12/10/2018 06:43	Megan Treadwell	2046846