Chemical Analysis Report

NE-DIST-2018-12-27-01

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

Event Description: **Rocky 3449**
Request ID: **RQ-2018-12-10-52**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 14-JAN-2019 13:42

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: ROCKY CR @ CR 136 **Collection Date/Time: 12/26/2018 10:15**

Field ID: 21010016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2050910	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P356672	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P356869	
		Sulfate	1.6		mg SO4/L	P356873	
	SM 2120 B	Color (true)	330		PCU	P356649	
	SM 2320 B-97	Total Alkalinity	4.9		mg CaCO3/L	P356933	
	SM 2540 C-97	TDS	98		mg/L	P356782	
	SM 2540 D-97	TSS	2	I	mg/L	P356763	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P356938	
2050911	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P356751	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P356756	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P356736	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P356768	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P356741	
2050912	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.26		mg P/L	P356652	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356672

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356869

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356751

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356756

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356736

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356768

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356652

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

Reference Method: SM 2120 B
Batch ID: P356649

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P356933

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

Reference Method: SM 2540 C-97
Batch ID: P356782

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356763

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P356741

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: P356869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356652

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

Reference Method: SM 2120 B
Batch ID: P356649

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

Reference Method: SM 2320 B-97
Batch ID: P356933

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050990	Chloride	96.4		P	90 - 110
2051275	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050990	Sulfate	96.6		P	90 - 110
2051275	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050911	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050911	NO2NO3-N	98.2	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050923	Total-P	97.9	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050924	O-Phosphate-P	94.2	94.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051828	Fluoride	93.4	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050651	Organic Carbon	101	97.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050910	Turbidity	5.49	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050990	Chloride	0.973	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050990	Sulfate	0.668	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050911	Ammonia-N	1.96	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050923	Kjeldahl Nitrogen	0.146	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050911	NO2NO3-N	0.425	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050923	Total-P	5.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050924	O-Phosphate-P	0.635	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P356649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050917	Color (true)	0.609	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P356933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051828	Total Alkalinity	0.0128	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P356782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050917	TDS	3.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051828	Fluoride	1.96	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P356741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050651	Organic Carbon	2.69	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: SM 2120 B
Run ID: A88537
Included Lab Sample IDs: 2050910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.2	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A88538
Included Lab Sample IDs: 2050912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A88548
Included Lab Sample IDs: 2050910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A88590
Included Lab Sample IDs: 2050911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A88596
Included Lab Sample IDs: 2050911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A88604
Included Lab Sample IDs: 2050911

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A88626
Included Lab Sample IDs: 2050910

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A88643
Included Lab Sample IDs: 2050911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	97.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A88671
Included Lab Sample IDs: 2050911

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

Reference Method: SM 2320 B-97
Run ID: A88689
Included Lab Sample IDs: 2050910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A88689
Included Lab Sample IDs: 2050910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	96.7	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					5.49	
EPA 300.0 Rev. 2.1	Chloride	98.2	96.4	97.5		0.973	
	Sulfate	97.2	96.6	98.3		0.668	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	104	102			1.96
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.9					0.146
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	98.2	98.7			0.425
EPA 365.1 Rev. 2.0	Total-P	99.8	97.9	103			5.45
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	94.2	94.8			0.635
SM 2120 B	Color (true)	100				0.609	
SM 2320 B-97	Total Alkalinity	101				0.0128	
SM 2540 C-97	TDS					3.59	
SM 4500 F-C-97	Fluoride	95.1	93.4	95.7			1.96
SM 5310 B-00	Organic Carbon	96.9	101	97.9			2.69

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2050910
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2050910
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2050910
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2050911
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2050911
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2050911
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2050911
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2050912
SM 2120 B / E31780	True Color measured at 450 nm	2050910
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2050910
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2050910
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2050910
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2050910
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2050911

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	12/27/2018			12/27/2018 14:17	Blanca Fach	2050910
EPA 300.0 Rev. 2.1	12/27/2018			01/04/2019 21:07	Lipi Saha	2050910
EPA 350.1 Rev. 2.0	12/27/2018			01/02/2019 12:30	Ping Hua	2050911
EPA 351.2 Rev. 2.0	12/27/2018	01/03/2019 11:20	Adrian Shelby	01/04/2019 11:30	Joseph Suarez	2050911
EPA 353.2 Rev. 2.0	12/27/2018			01/02/2019 14:58	Lauren Bottorf	2050911
EPA 365.1 Rev. 2.0	12/27/2018	01/03/2019 13:10	Sima Feizi	01/07/2019 10:11	Beverly Y. Sanders	2050911
EPA 365.1 Rev. 2.0 dissolved	12/27/2018			12/27/2018 14:45	Jhamieka S. Greenwood	2050912
SM 2120 B	12/27/2018			12/27/2018 15:11	Chelsea Hernandez	2050910
SM 2320 B-97	12/27/2018			01/08/2019 06:49	Dale L. Simmons	2050910
SM 2540 C-97	12/27/2018			12/28/2018 17:03	Yijie Li	2050910
SM 2540 D-97	12/27/2018			12/28/2018 17:03	Yijie Li	2050910
SM 4500 F-C-97	12/27/2018			01/08/2019 06:49	Dale L. Simmons	2050910
SM 5310 B-00	12/27/2018			01/02/2019 06:11	Megan Treadwell	2050911