Chemical Analysis Report

CEN-DIST-2018-10-18-01

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

Event Description: **Site Name+SCI**
Request ID: **RQ-2018-04-16-42**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 14-NOV-2018 11:18

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: SWEETWATER CREEK @ **Collection Date/Time: 10/17/2018 11:45**

Field ID: G2CE0194 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033910	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P353459	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P353721	
		Sulfate	23		mg SO4/L	P353723	
	SM 2120 B	Color (true)	51		PCU	P353298	
	SM 2320 B-97	Total Alkalinity	120		mg CaCO3/L	P353711	
	SM 2540 C-97	TDS	447	A	mg/L	P353887	
	SM 2540 D-97	TSS	12	A	mg/L	P353841	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P353714	
2033911	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P353862	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P353606	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P353353	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P353405	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P353622	
2033912	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P353313	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353459

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353721

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353723

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353862

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353606

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353353

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353405

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353313

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

Reference Method: SM 2120 B
Batch ID: P353298

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P353711

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

Reference Method: SM 2540 C-97
Batch ID: P353887

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P353841

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353714

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P353622

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: P353721

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353862

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: P353606

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353353

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: P353405

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353313

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

Reference Method: SM 2120 B
Batch ID: P353298

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

Reference Method: SM 2320 B-97
Batch ID: P353711

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P353714

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

Reference Method: SM 5310 B-00
Batch ID: P353622

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033859	Chloride	102		P	90 - 110
2033971	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033859	Sulfate	101		P	90 - 110
2033971	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033864	Ammonia-N	98.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033879	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033863	NO2NO3-N	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033974	Total-P	97.8	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033785	O-Phosphate-P	97.4	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P353714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033920	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P353622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033531	Organic Carbon	95.2	94.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033857	Turbidity	6.62	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033859	Chloride	0.142	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033859	Sulfate	0.486	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033864	Ammonia-N	0.771	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033879	Kjeldahl Nitrogen	1.98	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033863	NO2NO3-N	0.738	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033974	Total-P	2.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033785	O-Phosphate-P	0.308	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P353298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033859	Color (true)	2.17	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P353711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033920	Total Alkalinity	0.631	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P353887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033910	TDS	6.71	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P353841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033910	TSS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P353714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033920	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P353622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033531	Organic Carbon	0.154	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: A87127
Included Lab Sample IDs: 2033910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A87131
Included Lab Sample IDs: 2033912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A87160
Included Lab Sample IDs: 2033911

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A87200
Included Lab Sample IDs: 2033910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	101	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A87212
Included Lab Sample IDs: 2033910

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A87213
Included Lab Sample IDs: 2033911

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

Reference Method: SM 5310 B-00
Run ID: A87260
Included Lab Sample IDs: 2033911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A87281
Included Lab Sample IDs: 2033911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	97.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A87299
Included Lab Sample IDs: 2033910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A87299
Included Lab Sample IDs: 2033910

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A87366
Included Lab Sample IDs: 2033911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	103	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					6.62	
EPA 300.0 Rev. 2.1	Chloride	100	102	102		0.142	
	Sulfate	99.7	101	102		0.486	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.7	100			0.771
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	104	106			1.98
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.6	101			0.738
EPA 365.1 Rev. 2.0	Total-P	103	97.8	95.0			2.84
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.4	97.7			0.308
SM 2120 B	Color (true)	101				2.17	
SM 2320 B-97	Total Alkalinity	103				0.631	
SM 2540 C-97	TDS					6.71	
SM 2540 D-97	TSS					6.90	
SM 4500 F-C-97	Fluoride	98.9	97.6	97.6			0.0
SM 5310 B-00	Organic Carbon	96.8	95.2	94.9			0.154

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2033910
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2033910
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2033910
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2033911
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2033911
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2033911
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2033911
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2033912
SM 2120 B / E31780	True Color measured at 450 nm	2033910
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2033910
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2033910
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2033910
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2033910
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2033911

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	10/18/2018			10/18/2018 15:59	Megan Treadwell	2033910
EPA 300.0 Rev. 2.1	10/18/2018			10/25/2018 01:32	Lipi Saha	2033910
EPA 350.1 Rev. 2.0	10/18/2018			10/29/2018 13:13	Ping Hua	2033911
EPA 351.2 Rev. 2.0	10/18/2018	10/24/2018 11:00	Adrian Shelby	10/25/2018 11:22	Joseph Suarez	2033911
EPA 353.2 Rev. 2.0	10/18/2018			10/19/2018 13:30	Lauren Bottorf	2033911
EPA 365.1 Rev. 2.0	10/18/2018	10/22/2018 13:00	Sima Feizi	10/23/2018 08:26	Beverly Y. Sanders	2033911
EPA 365.1 Rev. 2.0 dissolved	10/18/2018			10/18/2018 17:46	Anthony C. Onicha	2033912
SM 2120 B	10/18/2018			10/18/2018 15:45	Chelsea Hernandez	2033910
SM 2320 B-97	10/18/2018			10/24/2018 14:03	Dale L. Simmons	2033910
SM 2540 C-97	10/18/2018			10/23/2018 15:01	Yijie Li	2033910
SM 2540 D-97	10/18/2018			10/23/2018 15:01	Yijie Li	2033910
SM 4500 F-C-97	10/18/2018			10/24/2018 14:03	Dale L. Simmons	2033910
SM 5310 B-00	10/18/2018			10/24/2018 09:19	Megan Treadwell	2033911