

Chemical Analysis Report

SE-DIST-2020-12-09-02

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

Event Description: **SMP- 2893S**
Request ID: **RQ-2020-12-07-69**
Customer: **SE-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 29-DEC-2020 09:39

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Fort Drum Marsh Conservation Area Northeast Entrance **Collection Date/Time: 12/08/2020 11:05**

Field ID: G3SE0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212033	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P390935	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P391161	
		Sulfate	0.20	U	mg SO4/L	P391163	
	SM 2120 B-2011	Color (true)	190		PCU	P390947	
	SM 2320 B-2011	Total Alkalinity	21		mg CaCO3/L	P391137	
	SM 2540 C-2011	TDS	91		mg/L	P391518	
	SM 2540 D-2011	TSS	9	I	mg/L	P391523	
	SM 4500 F-C-2011	Fluoride	0.069	I	mg F/L	P391030	
2212034	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P391306	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P391555	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391022	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P391093	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P391061	
2212035	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P390931	

Ref. Method and Comment:

SM 2540 D-2011: 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: P390935

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391161

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391163

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391306

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391555

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391022

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391093

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390931

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

Reference Method: SM 2120 B-2011
Batch ID: P390947

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P391137

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P391518

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391523

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391061

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: P391161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391306

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391555

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391022

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: P391093

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390931

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

Reference Method: SM 2120 B-2011
Batch ID: P390947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P391137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211733	Chloride	96.9		P	90 - 110
2212033	Chloride	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211733	Sulfate	96.2		P	90 - 110
2212033	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212034	Ammonia-N	98.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211964	Kjeldahl Nitrogen	101	95.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211954	NO2NO3-N	98.5	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391093

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212034	Total-P	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211955	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211963	Fluoride	98.4	96.4	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211954	Organic Carbon	99.5	99.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212033	Turbidity	5.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211733	Chloride	0.195	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211733	Sulfate	0.179	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212034	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211964	Kjeldahl Nitrogen	4.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211954	NO2NO3-N	2.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212034	Total-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211955	O-Phosphate-P	1.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
 Batch ID: P390947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211953	Color (true)	0.424	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P391137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212395	Total Alkalinity	1.88	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P391518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211720	TDS	2.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P391030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211963	Fluoride	1.43	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P391061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211954	Organic Carbon	0.0	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102455

Included Lab Sample IDs: 2212033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.1	P/P	90 - 110
Sulfate	98.9	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102499

Included Lab Sample IDs: 2212035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102500

Included Lab Sample IDs: 2212033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	104	104	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A102508

Included Lab Sample IDs: 2212033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102539

Included Lab Sample IDs: 2212034

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

Reference Method: SM 4500 F-C-2011

Run ID: A102541

Included Lab Sample IDs: 2212033

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

Reference Method: SM 5310 B-2011

Run ID: A102548

Included Lab Sample IDs: 2212034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102580

Included Lab Sample IDs: 2212033

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102628

Included Lab Sample IDs: 2212034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102672

Included Lab Sample IDs: 2212034

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102729

Included Lab Sample IDs: 2212034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					5.83	
EPA 300.0 Rev. 2.1	Chloride	98.7	96.9	95.6		0.195	
	Sulfate	99.2	96.2	98.7		0.179	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	98.6	100			1.49
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	101	95.2			4.34
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.5	95.0			2.18
EPA 365.1 Rev. 2.0	Total-P	102	102	104			1.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	102	104			1.17
SM 2120 B-2011	Color (true)	102				0.424	
SM 2320 B-2011	Total Alkalinity	103				1.88	
SM 2540 C-2011	TDS					2.34	
SM 4500 F-C-2011	Fluoride	95.6	98.4	96.4			1.43
SM 5310 B-2011	Organic Carbon	99.2	99.5	99.5			0.0

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2212033
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2212033
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2212033
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2212034
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2212034
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2212034
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2212034
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2212035
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2212033
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2212033
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2212033
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2212033
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2212033
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2212034

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	12/09/2020			12/09/2020 15:09	Yen Ta	2212033
EPA 300.0 Rev. 2.1	12/09/2020			12/11/2020 14:55	Lipi Saha	2212033
EPA 350.1 Rev. 2.0	12/09/2020			12/16/2020 17:16	Ping Hua	2212034
EPA 351.2 Rev. 2.0	12/09/2020	12/21/2020 14:46	David Boose	12/22/2020 14:24	Julia Storbeck	2212034
EPA 353.2 Rev. 2.0	12/09/2020			12/11/2020 10:37	Beverly Y. Sanders	2212034
EPA 365.1 Rev. 2.0	12/09/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 11:23	Shengyu Wang	2212034
EPA 365.1 Rev. 2.0 dissolved	12/09/2020			12/09/2020 14:50	Blanca Fach	2212035
SM 2120 B-2011	12/09/2020			12/09/2020 17:37	Benjamin T. Nordmann	2212033
SM 2320 B-2011	12/09/2020			12/15/2020 01:57	Dale L. Simmons	2212033
SM 2540 C-2011	12/09/2020			12/14/2020 14:56	Yijie Li	2212033
SM 2540 D-2011	12/09/2020			12/14/2020 15:56	Yijie Li	2212033
SM 4500 F-C-2011	12/09/2020			12/10/2020 20:14	Dale L. Simmons	2212033
SM 5310 B-2011	12/09/2020			12/11/2020 02:51	Madeline Gruver	2212034