

Chemical Analysis Report

CEN-DIST-2021-02-19-02

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

Event Description: **Minnie/Alma/Blank**
Request ID: **RQ-2021-02-01-26**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 12-MAR-2021 17:33



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: Lake Minnie @ Center

Collection Date/Time: 02/18/2021 10:50

Field ID: G2CE0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226092	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P394030	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P394240	
		Sulfate	3.1		mg SO4/L	P394242	
	SM 2120 B-2011	Color (true)	270		PCU	P394027	
	SM 2320 B-2011	Total Alkalinity	34		mg CaCO3/L	P394364	
	SM 2540 C-2011	TDS	154		mg/L	P394350	
	SM 2540 D-2011	TSS	3	I	mg/L	P394342	
	SM 4500 F-C-2011	Fluoride	0.060	I	mg F/L	P394163	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P394297	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P394082	
2226093	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P394047	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P394059	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P394609	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.032		mg P/L	P394022	
	dissolved						

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: P394030

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394240

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394242

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394297

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394082

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394047

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394059

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394022

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

Reference Method: SM 2120 B-2011
Batch ID: P394027

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P394364

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

Reference Method: SM 2540 C-2011
Batch ID: P394350

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P394342

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394163

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P394609

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: P394240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394242

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: P394297

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394047

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: P394059

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394022

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

Reference Method: SM 2120 B-2011
Batch ID: P394027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.3		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P394364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.5		P	93 - 104

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P394163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P394609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226053	Chloride	101		P	90 - 110
2226141	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226053	Sulfate	98.1		P	90 - 110
2226141	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226074	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226084	Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226067	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226054	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226241	O-Phosphate-P	97.1	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P394163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226073	Fluoride	101	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P394609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226085	Organic Carbon	94.6	93.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226082	Turbidity	1.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226053	Chloride	0.431	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226053	Sulfate	0.498	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226074	Ammonia-N	0.598	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226084	Kjeldahl Nitrogen	0.620	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226067	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226054	Total-P	0.755	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226241	O-Phosphate-P	0.561	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P394027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226082	Color (true)	1.01	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P394364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226104	Total Alkalinity	1.51	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P394350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226066	TDS	2.51	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P394163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226073	Fluoride	0.472	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P394609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226085	Organic Carbon	0.496	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103693

Included Lab Sample IDs: 2226094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	97.4	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A103695

Included Lab Sample IDs: 2226092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103696

Included Lab Sample IDs: 2226092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103705

Included Lab Sample IDs: 2226093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103718

Included Lab Sample IDs: 2226093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103737

Included Lab Sample IDs: 2226092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	99.3	P/P	90 - 110
Sulfate	98.9	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103744

Included Lab Sample IDs: 2226092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103774

Included Lab Sample IDs: 2226093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	93.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103808

Included Lab Sample IDs: 2226093

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

Reference Method: SM 2320 B-2011

Run ID: A103841

Included Lab Sample IDs: 2226092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	92.7	94.8	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A103939

Included Lab Sample IDs: 2226093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.5	94.8	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	MS
EPA 180.1 Rev. 2.0	Turbidity				1.83	
EPA 300.0 Rev. 2.1	Chloride	94.4	101	98.6	0.431	
	Sulfate	99.2	98.1	98.0	0.498	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	100		0.598
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.8	105	104		0.620
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	101	101		0.0
EPA 365.1 Rev. 2.0	Total-P	107	108	109		0.755
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	97.1	96.5		0.561
SM 2120 B-2011	Color (true)	98.3			1.01	
SM 2320 B-2011	Total Alkalinity	94.5			1.51	
SM 2540 C-2011	TDS				2.51	
SM 4500 F-C-2011	Fluoride	99.3	101	100		0.472
SM 5310 B-2011	Organic Carbon	94.1	94.6	93.9		0.496

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2226092
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2226092
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2226092
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2226093
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2226093
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2226093
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2226093
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2226094
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2226092
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2226092
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2226092
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2226092
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2226092
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2226093

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	02/19/2021			02/19/2021 14:29	Yen Ta	2226092
EPA 300.0 Rev. 2.1	02/19/2021			02/24/2021 16:52	Lipi Saha	2226092
EPA 350.1 Rev. 2.0	02/19/2021			02/27/2021 11:12	Ping Hua	2226093
EPA 351.2 Rev. 2.0	02/19/2021	02/23/2021 12:00	Yen Ta	02/25/2021 14:30	Julia Storbeck	2226093
EPA 353.2 Rev. 2.0	02/19/2021			02/22/2021 09:36	Beverly Y. Sanders	2226093
EPA 365.1 Rev. 2.0	02/19/2021	02/22/2021 12:30	Yen Ta	02/23/2021 11:33	Shengyu Wang	2226093
EPA 365.1 Rev. 2.0 dissolved	02/19/2021			02/19/2021 14:04	Samantha Davila	2226094
SM 2120 B-2011	02/19/2021			02/19/2021 16:37	Benjamin T. Nordmann	2226092
SM 2320 B-2011	02/19/2021			02/27/2021 07:50	Dale L. Simmons	2226092
SM 2540 C-2011	02/19/2021			02/22/2021 14:12	Yijie Li	2226092
SM 2540 D-2011	02/19/2021			02/22/2021 14:12	Yijie Li	2226092
SM 4500 F-C-2011	02/19/2021			02/23/2021 22:29	Dale L. Simmons	2226092
SM 5310 B-2011	02/19/2021			03/06/2021 01:05	Madeline Gruver	2226093