Chemical Analysis Report

CEN-DIST-2020-06-24-01

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

Event Description: **Felter**
Request ID: **RQ-2020-06-22-58**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 13-JUL-2020 16:26

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 Felter @ Center **Collection Date/Time: 06/23/2020 11:20**

Field ID: G1CE0042 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178207	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P383625	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P383967	
		Sulfate	0.88		mg SO4/L	P383971	
	SM 2120 B-2011	Color (true)	61		PCU	P383629	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P383727	
	SM 2540 C-2011	TDS	85		mg/L	P384125	
	SM 2540 D-2011	TSS	2	I	mg/L	P384121	
	SM 4500 F-C-2011	Fluoride	0.080	I	mg F/L	P383733	
2178208	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P383765	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P383654	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P383641	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P383671	
	SM 5310 B-2011	Organic Carbon	25		mg C/L	P383791	
2178209	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P383633	

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: P383625

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383967

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383971

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383765

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383654

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383641

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383671

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383633

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

Reference Method: SM 2120 B-2011
Batch ID: P383629

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P383727

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

Reference Method: SM 2540 C-2011
Batch ID: P384125

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384121

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383791

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: P383967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383971

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383765

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383654

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383641

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: P383671

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: P383633

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

Reference Method: SM 2120 B-2011
Batch ID: P383629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P383727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383791

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177367	Chloride	105		P	90 - 110
2178018	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177367	Sulfate	108		P	90 - 110
2178018	Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178212	Ammonia-N	105	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178212	Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178029	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178188	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178199	O-Phosphate-P	98.9	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178195	Fluoride	99.4	97.1	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P383791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178291	Organic Carbon	98.5	99.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178211	Turbidity	2.20	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177367	Chloride	0.765	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177367	Sulfate	0.882	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178212	Ammonia-N	1.95	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178212	Kjeldahl Nitrogen	0.741	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178029	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178188	Total-P	0.386	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178199	O-Phosphate-P	0.304	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P383629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178187	Color (true)	0.375	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P383727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178195	Total Alkalinity	2.38	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P384125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178163	TDS	7.38	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178195	Fluoride	1.45	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P383791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178291	Organic Carbon	0.884	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A99497
Included Lab Sample IDs: 2178207

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

Reference Method: SM 2120 B-2011
Run ID: A99499
Included Lab Sample IDs: 2178207

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99500
Included Lab Sample IDs: 2178209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99508
Included Lab Sample IDs: 2178208

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

Reference Method: SM 2320 B-2011
Run ID: A99540
Included Lab Sample IDs: 2178207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A99540
Included Lab Sample IDs: 2178207

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A99553
Included Lab Sample IDs: 2178208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99556
Included Lab Sample IDs: 2178208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.2	99.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A99564
Included Lab Sample IDs: 2178208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99586
Included Lab Sample IDs: 2178208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.8	94.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99640
Included Lab Sample IDs: 2178207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	98.2	P/P	90 - 110
Sulfate	101	99.8	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.20	
EPA 300.0 Rev. 2.1	Chloride	99.9	105	101		0.765	
	Sulfate	103	108	105		0.882	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	105	107			1.95
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	101	100			0.741
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	102	103	102			0.386
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	98.9	98.6			0.304
SM 2120 B-2011	Color (true)	99.1				0.375	
SM 2320 B-2011	Total Alkalinity	101				2.38	
SM 2540 C-2011	TDS					7.38	
SM 4500 F-C-2011	Fluoride	99.4	99.4	97.1			1.45
SM 5310 B-2011	Organic Carbon	98.6	98.5	99.8			0.884

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2178207
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2178207
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2178207
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2178208
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2178208
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2178208
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2178208
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2178209
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2178207
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2178207
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2178207
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2178207
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2178207
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2178208

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	06/24/2020			06/24/2020 15:01	Yen Ta	2178207
EPA 300.0 Rev. 2.1	06/24/2020			06/30/2020 00:31	Julia Storbeck	2178207
EPA 350.1 Rev. 2.0	06/24/2020			06/27/2020 15:18	Ping Hua	2178208
EPA 351.2 Rev. 2.0	06/24/2020	06/25/2020 10:55	Sima Feizi	06/26/2020 11:46	Jhamieka S. Greenwood	2178208
EPA 353.2 Rev. 2.0	06/24/2020			06/25/2020 08:57	Beverly Y. Sanders	2178208
EPA 365.1 Rev. 2.0	06/24/2020	06/25/2020 11:41	Yen Ta	06/30/2020 08:17	Lipi Saha	2178208
EPA 365.1 Rev. 2.0 dissolved	06/24/2020			06/24/2020 16:37	Julia Storbeck	2178209
SM 2120 B-2011	06/24/2020			06/24/2020 16:28	Benjamin T. Nordmann	2178207
SM 2320 B-2011	06/24/2020			06/25/2020 22:39	Dale L. Simmons	2178207
SM 2540 C-2011	06/24/2020			06/26/2020 14:26	Yijie Li	2178207
SM 2540 D-2011	06/24/2020			06/26/2020 14:26	Yijie Li	2178207
SM 4500 F-C-2011	06/24/2020			06/25/2020 22:39	Dale L. Simmons	2178207
SM 5310 B-2011	06/24/2020			06/26/2020 17:52	David Boose	2178208