

Chemical Analysis Report

CEN-DIST-2020-08-20-01

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

Event Description: **Mills/Dead River/Florence**
Request ID: **RQ-2020-08-17-60**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-SEP-2020 09:21

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 first few letters of the first name.

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: Florence Lake @ Center

Collection Date/Time: 08/19/2020 12:35

Field ID: G3CE0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191489	EPA 180.1 Rev. 2.0	Turbidity	4.9	A	NTU	P386346	
	EPA 300.0 Rev. 2.1	Chloride	180		mg Cl/L	P386939	
		Sulfate	48		mg SO4/L	P386941	
	SM 2120 B-2011	Color (true)	320		PCU	P386353	
	SM 2320 B-2011	Total Alkalinity	76		mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	595		mg/L	P386743	
	SM 2540 D-2011	TSS	3	I	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P386458	
2191490	EPA 350.1 Rev. 2.0	Ammonia-N	0.087		mg N/L	P386443	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P386685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P386474	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P386398	
	SM 5310 B-2011	Organic Carbon	29		mg C/L	P386548	
2191491	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P386365	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: 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: P386346

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386398

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386365

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

Reference Method: SM 2120 B-2011
Batch ID: P386353

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P386454

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

Reference Method: SM 2540 C-2011
Batch ID: P386743

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386576

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386548

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: P386939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

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: P386398

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386365

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

Reference Method: SM 2120 B-2011
Batch ID: P386353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P386454

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: P386458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191533	Chloride	96.8		P	90 - 110
2191617	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191533	Sulfate	96.7		P	90 - 110
2191617	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191592	Ammonia-N	96.8	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192144	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191535	NO2NO3-N	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191538	O-Phosphate-P	98.7	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191305	Fluoride	101	101	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P386548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191730	Organic Carbon	99.8	99.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191489	Turbidity	2.63	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191533	Chloride	0.202	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191533	Sulfate	0.0611	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191592	Ammonia-N	2.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192144	Kjeldahl Nitrogen	2.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191535	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191454	Total-P	0.566	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191538	O-Phosphate-P	0.370	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P386454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191305	Total Alkalinity	0.422	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191453	TDS	0.398	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191305	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191730	Organic Carbon	0.0811	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: A100543

Included Lab Sample IDs: 2191489

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100567

Included Lab Sample IDs: 2191489

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

Reference Method: SM 2120 B-2011

Run ID: A100568

Included Lab Sample IDs: 2191489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100570

Included Lab Sample IDs: 2191491

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100600

Included Lab Sample IDs: 2191490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A100606

Included Lab Sample IDs: 2191489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100606

Included Lab Sample IDs: 2191489

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100616

Included Lab Sample IDs: 2191490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100618

Included Lab Sample IDs: 2191490

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

Reference Method: SM 5310 B-2011

Run ID: A100654

Included Lab Sample IDs: 2191490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100731

Included Lab Sample IDs: 2191490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.2	102	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					2.63	
EPA 300.0 Rev. 2.1	Chloride	98.9	96.8	100		0.202	
	Sulfate	98.1	96.7	100		0.0611	
EPA 350.1 Rev. 2.0	Ammonia-N	94.2	96.8	99.4			2.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.8	101	105			2.50
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	97.8				0.0
EPA 365.1 Rev. 2.0	Total-P	105					0.566
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.7	99.1			0.370
SM 2120 B-2011	Color (true)	99.3					
SM 2320 B-2011	Total Alkalinity	101				0.422	
SM 2540 C-2011	TDS					0.398	
SM 4500 F-C-2011	Fluoride	99.0	101	101			0.0
SM 5310 B-2011	Organic Carbon	100	99.8	99.7			0.0811

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2191489
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2191489
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2191489
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2191490
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2191490
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2191490
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2191490
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2191491
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2191489
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2191489
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2191489
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2191489
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2191489
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2191490

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	08/20/2020			08/20/2020 15:09	Yen Ta	2191489
EPA 300.0 Rev. 2.1	08/20/2020			08/21/2020 18:41	Julia Storbeck	2191489
EPA 350.1 Rev. 2.0	08/20/2020			08/23/2020 19:25	Ping Hua	2191490
EPA 351.2 Rev. 2.0	08/20/2020	08/28/2020 12:10	David Boose	08/31/2020 10:45	Virginia P. Brown	2191490
EPA 353.2 Rev. 2.0	08/20/2020			08/24/2020 10:25	Beverly Y. Sanders	2191490
EPA 365.1 Rev. 2.0	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:17	Benjamin T. Nordmann	2191490
EPA 365.1 Rev. 2.0 dissolved	08/20/2020			08/20/2020 16:22	Blanca Fach	2191491
SM 2120 B-2011	08/20/2020			08/20/2020 16:32	Benjamin T. Nordmann	2191489
SM 2320 B-2011	08/20/2020			08/21/2020 22:57	Dale L. Simmons	2191489
SM 2540 C-2011	08/20/2020			08/21/2020 19:30	Madeline Gruver	2191489
SM 2540 D-2011	08/20/2020			08/21/2020 19:30	Madeline Gruver	2191489
SM 4500 F-C-2011	08/20/2020			08/21/2020 22:57	Dale L. Simmons	2191489
SM 5310 B-2011	08/20/2020			08/25/2020 23:26	Lauren Lees	2191490