

Chemical Analysis Report

SW-DIST-2020-12-30-01

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

Event Description: **HA Little Charlie Creek**

Request ID: **RQ-2020-12-28-30**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

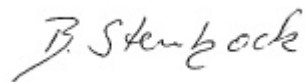
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Date Certified: 19-JAN-2021 15:31



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: Little Charlie Creek At 664

Collection Date/Time: 12/29/2020 11:50

Field ID: G3SW0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2216072	EPA 180.1 Rev. 2.0	Turbidity	2.0	A	NTU	P391872	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P392041	
		Sulfate	50		mg SO4/L	P392043	
	SM 2120 B-2011	Color (true)	98		PCU	P391867	
	SM 2320 B-2011	Total Alkalinity	122		mg CaCO3/L	P391892	
	SM 2540 C-2011	TDS	252		mg/L	P392111	
	SM 2540 D-2011	TSS	2	I	mg/L	P392114	
	SM 4500 F-C-2011	Fluoride	0.80		mg F/L	P391894	MS
2216073	EPA 350.1 Rev. 2.0	Ammonia-N	0.094		mg N/L	P391884	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P391937	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P391900	
	EPA 365.1 Rev. 2.0	Total-P	0.39		mg P/L	P391914	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P391941	
2216074	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.35		mg P/L	P391874	

Ref. Method and Comment:

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: P391872

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391900

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391874

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

Reference Method: SM 2120 B-2011
Batch ID: P391867

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P391892

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

Reference Method: SM 2540 C-2011
Batch ID: P392111

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P392114

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391941

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: P392041

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: P392043

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391900

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391874

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

Reference Method: SM 2120 B-2011
Batch ID: P391867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P391892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Chloride	97.5		P	90 - 110
2215984	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Sulfate	97.0		P	90 - 110
2215984	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2216087	Ammonia-N	96.8	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2216087	Kjeldahl Nitrogen	112	101	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2216073	NO2NO3-N	95.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2216088	O-Phosphate-P	105	106	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215931	Fluoride	93.0	91.5	F/F	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215897	Organic Carbon	100		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216072	Turbidity	2.03	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Chloride	0.00329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Sulfate	0.448	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216087	Ammonia-N	0.121	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216087	Kjeldahl Nitrogen	6.66	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216073	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216026	Total-P	2.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216088	O-Phosphate-P	0.663	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P391867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216105	Color (true)	0.577	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215931	Total Alkalinity	2.78	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P392111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215931	TDS	3.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215931	Fluoride	1.45	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215897	Organic Carbon	0.883	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A102835

Included Lab Sample IDs: 2216072

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: A102838

Included Lab Sample IDs: 2216072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102840

Included Lab Sample IDs: 2216074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102851

Included Lab Sample IDs: 2216073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102854

Included Lab Sample IDs: 2216072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.3	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102854

Included Lab Sample IDs: 2216072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.8	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102857

Included Lab Sample IDs: 2216073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102874

Included Lab Sample IDs: 2216073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102875

Included Lab Sample IDs: 2216072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	100	P/P	90 - 110
Sulfate	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102886

Included Lab Sample IDs: 2216073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	100	P/P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102905

Included Lab Sample IDs: 2216073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	96.1	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					2.03	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5	97.6		0.0032	
	Sulfate	99.0	97.0	99.8		0.448	
EPA 350.1 Rev. 2.0	Ammonia-N	101	96.8	97.0			0.121
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	112	101			6.66
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	95.0				0.0
EPA 365.1 Rev. 2.0	Total-P	100					2.66
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	105	106			0.663
SM 2120 B-2011	Color (true)	99.8				0.577	
SM 2320 B-2011	Total Alkalinity	97.1				2.78	
SM 2540 C-2011	TDS					3.55	
SM 4500 F-C-2011	Fluoride	95.7	93.0	91.5			1.45
SM 5310 B-2011	Organic Carbon	95.3	100				0.883

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2216072
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2216072
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2216072
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2216073
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2216073
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2216073
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2216073
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2216074
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2216072
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2216072
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2216072
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2216072
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2216072
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2216073

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	12/30/2020			12/30/2020 11:01	Samantha Davila	2216072
EPA 300.0 Rev. 2.1	12/30/2020			01/07/2021 01:15	Lipi Saha	2216072
EPA 350.1 Rev. 2.0	12/30/2020			01/03/2021 15:17	Ping Hua	2216073
EPA 351.2 Rev. 2.0	12/30/2020	01/04/2021 15:35	David Boose	01/06/2021 14:09	Virginia P. Brown	2216073
EPA 353.2 Rev. 2.0	12/30/2020			01/04/2021 09:13	Beverly Y. Sanders	2216073
EPA 365.1 Rev. 2.0	12/30/2020	01/04/2021 13:12	Yen Ta	01/05/2021 14:44	Lipi Saha	2216073
EPA 365.1 Rev. 2.0 dissolved	12/30/2020			12/30/2020 14:48	Blanca Fach	2216074
SM 2120 B-2011	12/30/2020			12/30/2020 11:18	Benjamin T. Nordmann	2216072
SM 2320 B-2011	12/30/2020			12/30/2020 19:04	Dale L. Simmons	2216072
SM 2540 C-2011	12/30/2020			01/02/2021 13:21	Yijie Li	2216072
SM 2540 D-2011	12/30/2020			01/02/2021 13:21	Yijie Li	2216072
SM 4500 F-C-2011	12/30/2020			12/30/2020 19:04	Dale L. Simmons	2216072
SM 5310 B-2011	12/30/2020			01/04/2021 10:39	Touraj Touran	2216073