Chemical Analysis Report

SW-DIST-2020-03-11-03

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

Event Description: **Little Charlie HA**
Request ID: **RQ-2020-03-09-67**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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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 @ 664 **Collection Date/Time: 03/10/2020 14:00**

Field ID: G3SW0089 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163782	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P380530	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P380615	
		Sulfate	140		mg SO4/L	P380619	
	SM 2120 B-2011	Color (true)	34		PCU	P380478	
	SM 2320 B-2011	Total Alkalinity	132		mg CaCO3/L	P380926	
	SM 2540 C-2011	TDS	375		mg/L	P381108	
	SM 2540 D-2011	TSS	2	I	mg/L	P380981	
	SM 4500 F-C-2011	Fluoride	1.5		mg F/L	P381258	
2163783	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P380968	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P380630	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P381095	
	EPA 365.1 Rev. 2.0	Total-P	0.53		mg P/L	P380737	
	SM 5310 B-2011	Organic Carbon	8.9		mg C/L	P380667	
2163784	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.49		mg P/L	P380502	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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: P380530

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380615

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380619

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380968

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380630

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381095

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380737

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380502

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

Reference Method: SM 2120 B-2011
Batch ID: P380478

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P380926

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

Reference Method: SM 2540 C-2011
Batch ID: P381108

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380981

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381258

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380667

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: P380615

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380619

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380968

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: P380630

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: P381095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380737

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380502

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

Reference Method: SM 2120 B-2011
Batch ID: P380478

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P380926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P381258

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P380667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163754	Chloride	97.5		P	90 - 110
2163855	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163855	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163861	Ammonia-N	99.4	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163847	Kjeldahl Nitrogen	99.2	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163817	NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163898	O-Phosphate-P	98.8	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P381258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163858	Fluoride	97.8	97.8	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163862	Organic Carbon	100	103	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163856	Turbidity	11.6	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163754	Chloride	0.470	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163754	Sulfate	0.350	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163861	Ammonia-N	0.298	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163847	Kjeldahl Nitrogen	0.168	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163817	NO2NO3-N	0.758	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163713	Total-P	1.75	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163898	O-Phosphate-P	0.813	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P380478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163754	Color (true)	1.85	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164176	Total Alkalinity	0.203	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163665	TDS	3.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163858	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163862	Organic Carbon	1.67	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: A98096
Included Lab Sample IDs: 2163782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.9	P/P	90 - 110
Sulfate	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A98133
Included Lab Sample IDs: 2163784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.5	96.6	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A98135
Included Lab Sample IDs: 2163782

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A98149
Included Lab Sample IDs: 2163782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 5310 B-2011
Run ID: A98194
Included Lab Sample IDs: 2163783

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98222
Included Lab Sample IDs: 2163783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98266
Included Lab Sample IDs: 2163783

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

Reference Method: SM 2320 B-2011
Run ID: A98293
Included Lab Sample IDs: 2163782

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A98309
Included Lab Sample IDs: 2163783

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98374
Included Lab Sample IDs: 2163783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A98428
Included Lab Sample IDs: 2163782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	97.0	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					11.6	
EPA 300.0 Rev. 2.1	Chloride	100	97.5	99.1		0.470	
	Sulfate	100	100			0.350	
EPA 350.1 Rev. 2.0	Ammonia-N	102	99.4	99.1			0.298
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.2	99.5			0.168
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.0	96.0			0.758
EPA 365.1 Rev. 2.0	Total-P	104					1.75
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	98.8	98.0			0.813
SM 2120 B-2011	Color (true)	101				1.85	
SM 2320 B-2011	Total Alkalinity	104				0.203	
SM 2540 C-2011	TDS					3.35	
SM 4500 F-C-2011	Fluoride	96.7	97.8	97.8			0.0
SM 5310 B-2011	Organic Carbon	98.1	100	103			1.67

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2163782
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2163782
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2163782
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2163783
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2163783
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2163783
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2163783
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2163784
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2163782
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2163782
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2163782
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2163782
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2163782
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2163783

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	03/11/2020			03/11/2020 13:28	Yen Ta	2163782
EPA 300.0 Rev. 2.1	03/11/2020			03/13/2020 03:53	Lipi Saha	2163782
EPA 350.1 Rev. 2.0	03/11/2020			03/19/2020 12:12	Ping Hua	2163783
EPA 351.2 Rev. 2.0	03/11/2020	03/13/2020 12:19	Sima Feizi	03/16/2020 14:54	Julia Storbeck	2163783
EPA 353.2 Rev. 2.0	03/11/2020			03/20/2020 10:30	Beverly Y. Sanders	2163783
EPA 365.1 Rev. 2.0	03/11/2020	03/16/2020 14:28	Yen Ta	03/17/2020 16:27	Benjamin T. Nordmann	2163783
EPA 365.1 Rev. 2.0 dissolved	03/11/2020			03/11/2020 16:30	Carlos Miranda	2163784
SM 2120 B-2011	03/11/2020			03/11/2020 18:08	Madeline Gruver	2163782
SM 2320 B-2011	03/11/2020			03/18/2020 22:51	Dale L. Simmons	2163782
SM 2540 C-2011	03/11/2020			03/13/2020 15:32	Yijie Li	2163782
SM 2540 D-2011	03/11/2020			03/13/2020 15:32	Yijie Li	2163782
SM 4500 F-C-2011	03/11/2020			03/24/2020 14:11	Dale L. Simmons	2163782
SM 5310 B-2011	03/11/2020			03/13/2020 01:04	Lauren Lees	2163783