Chemical Analysis Report

TLH-ROC-2020-08-24-02

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

Event Description: **Run 1**
Request ID: **RQ-2020-07-20-35**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 15-SEP-2020 11:30

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: Mule Creek @ Alvie Holmes Rd. **Collection Date/Time: 08/24/2020 11:15**

Field ID: G3TLHR0017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191917	EPA 180.1 Rev. 2.0	Turbidity	13	A	NTU	P386526	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P387078	
		Sulfate	1.1		mg SO4/L	P387079	
	SM 2120 B-2011	Color (true)	240		PCU	P386527	
	SM 2320 B-2011	Total Alkalinity	6.2		mg CaCO3/L	P386621	
	SM 2540 C-2011	TDS	53		mg/L	P386992	
	SM 2540 D-2011	TSS	5	I	mg/L	P386985	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P386623	
2191918	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P386833	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P386602	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P386508	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P386551	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P386595	
2191919	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P386533	

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: P386526

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387078

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387079

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386833

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386602

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386551

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386533

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

Reference Method: SM 2120 B-2011
Batch ID: P386527

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P386621

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

Reference Method: SM 2540 C-2011
Batch ID: P386992

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386985

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386595

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: P387078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386833

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: P386602

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386551

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386533

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

Reference Method: SM 2120 B-2011
Batch ID: P386527

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

Reference Method: SM 2320 B-2011
Batch ID: P386621

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386595

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: P387078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191897	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191897	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191906	Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191972	Kjeldahl Nitrogen	111	113	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191733	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191850	Total-P	104	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191907	O-Phosphate-P	98.1	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192055	Fluoride	95.0	96.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P386595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191946	Organic Carbon	102	101	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191917	Turbidity	3.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191897	Chloride	5.22	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191897	Sulfate	1.11	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191906	Ammonia-N	0.901	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191972	Kjeldahl Nitrogen	0.669	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191733	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191850	Total-P	2.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191907	O-Phosphate-P	0.204	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P386527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191905	Color (true)	2.78	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192055	Total Alkalinity	0.680	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191848	TDS	2.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192055	Fluoride	0.915	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191946	Organic Carbon	0.0720	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100631
Included Lab Sample IDs: 2191918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A100641
Included Lab Sample IDs: 2191917

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

Reference Method: SM 2120 B-2011
Run ID: A100643
Included Lab Sample IDs: 2191917

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A100644
Included Lab Sample IDs: 2191919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.8	100	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100665
Included Lab Sample IDs: 2191918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100666
Included Lab Sample IDs: 2191918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A100675
Included Lab Sample IDs: 2191917

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

Reference Method: SM 4500 F-C-2011
Run ID: A100675
Included Lab Sample IDs: 2191917

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100708
Included Lab Sample IDs: 2191918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100761
Included Lab Sample IDs: 2191918

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100847
Included Lab Sample IDs: 2191917

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	98.4	P/P	90 - 110
Sulfate	98.3	96.8	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					3.12	
EPA 300.0 Rev. 2.1	Chloride	95.2	98.8			5.22	
	Sulfate	93.9	97.6			1.11	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.4	100			0.901
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	111	113			0.669
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	100			0.499
EPA 365.1 Rev. 2.0	Total-P	103	104	107			2.74
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	98.1	97.9			0.204
SM 2120 B-2011	Color (true)	98.3				2.78	
SM 2320 B-2011	Total Alkalinity	104				0.680	
SM 2540 C-2011	TDS					2.00	
SM 4500 F-C-2011	Fluoride	97.1	95.0	96.8			0.915
SM 5310 B-2011	Organic Carbon	100	102	101			0.0720

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2191917
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2191917
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2191917
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2191918
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2191918
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2191918
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2191918
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2191919
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2191917
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2191917
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2191917
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2191917
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2191917
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2191918

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	08/24/2020			08/25/2020 16:17	Yen Ta	2191917
EPA 300.0 Rev. 2.1	08/24/2020			09/04/2020 08:35	Elliott Rodriguez	2191917
EPA 350.1 Rev. 2.0	08/24/2020			09/01/2020 18:55	Ping Hua	2191918
EPA 351.2 Rev. 2.0	08/24/2020	08/27/2020 10:15	Sima Feizi	08/28/2020 13:03	Virginia P. Brown	2191918
EPA 353.2 Rev. 2.0	08/24/2020			08/25/2020 09:12	Beverly Y. Sanders	2191918
EPA 365.1 Rev. 2.0	08/24/2020	08/26/2020 12:59	Yen Ta	08/27/2020 08:21	Benjamin T. Nordmann	2191918
EPA 365.1 Rev. 2.0 dissolved	08/24/2020			08/25/2020 15:44	Blanca Fach	2191919
SM 2120 B-2011	08/24/2020			08/25/2020 16:27	Benjamin T. Nordmann	2191917
SM 2320 B-2011	08/24/2020			08/26/2020 18:02	Dale L. Simmons	2191917
SM 2540 C-2011	08/24/2020			08/27/2020 15:08	Yijie Li	2191917
SM 2540 D-2011	08/24/2020			08/27/2020 15:08	Yijie Li	2191917
SM 4500 F-C-2011	08/24/2020			08/26/2020 18:02	Dale L. Simmons	2191917
SM 5310 B-2011	08/24/2020			08/26/2020 20:15	David Boose	2191918