

Chemical Analysis Report

TLH-ROC-2021-03-24-01

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

Event Description: **Run 6**
Request ID: **RQ-2021-02-22-37**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-APR-2021 13:52

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: Bailey Mill Creek @ Wilson Rd

Collection Date/Time: 03/24/2021 11:25

Field ID: G1TLHR0081

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2233534	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P395459	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P395723	
		Sulfate	0.20	U	mg SO4/L	P395724	
	SM 2120 B-2011	Color (true)	150	A	PCU	P395442	
	SM 2320 B-2011	Total Alkalinity	47		mg CaCO3/L	P395662	
	SM 2540 C-2011	TDS	90		mg/L	P395817	
	SM 2540 D-2011	TSS	3	I	mg/L	P395854	
	SM 4500 F-C-2011	Fluoride	0.066	I	mg F/L	P395665	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P395912	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P395792	
2233535	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P395649	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P395545	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P395711	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.040		mg P/L	P395436	
	dissolved						

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: P395459

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395723

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395724

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395912

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395792

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395649

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395545

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395436

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

Reference Method: SM 2120 B-2011
Batch ID: P395442

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P395662

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

Reference Method: SM 2540 C-2011
Batch ID: P395817

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395854

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395665

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395711

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: P395723

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395724

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395912

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395792

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395649

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: P395545

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: P395436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.5		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P395442

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P395662

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: P395665

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

Reference Method: SM 5310 B-2011
Batch ID: P395711

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233513	Chloride	102		P	90 - 110
2233707	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233513	Sulfate	102		P	90 - 110
2233707	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233596	Ammonia-N	96.0	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233535	Kjeldahl Nitrogen	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233535	NO2NO3-N	93.8	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233514	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233387	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P395665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233824	Fluoride	97.6	98.2	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P395711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233314	Organic Carbon	99.2	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233383	Turbidity	2.29	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233707	Chloride	0.237	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233707	Sulfate	0.109	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233596	Ammonia-N	1.22	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233535	Kjeldahl Nitrogen	0.0145	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233535	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233514	Total-P	0.435	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233387	O-Phosphate-P	1.20	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P395442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233534	Color (true)	0.581	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P395662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233824	Total Alkalinity	0.962	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P395817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233369	TDS	6.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P395665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233824	Fluoride	0.469	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233314	Organic Carbon	0.0271	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104252

Included Lab Sample IDs: 2233536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	97.8	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A104253

Included Lab Sample IDs: 2233534

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104266

Included Lab Sample IDs: 2233534

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104326

Included Lab Sample IDs: 2233535

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104356

Included Lab Sample IDs: 2233535

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

Reference Method: SM 2320 B-2011

Run ID: A104360

Included Lab Sample IDs: 2233534

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104360

Included Lab Sample IDs: 2233534

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

Reference Method: SM 5310 B-2011

Run ID: A104385

Included Lab Sample IDs: 2233535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	96.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104389

Included Lab Sample IDs: 2233534

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	101	P/P	90 - 110
Sulfate	99.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104453

Included Lab Sample IDs: 2233535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	94.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104465

Included Lab Sample IDs: 2233535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	98.7	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					2.29	
EPA 300.0 Rev. 2.1	Chloride	102	101	102		0.237	
	Sulfate	101	98.4	102		0.109	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	96.0	97.4			1.22
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	100	100			0.0145
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	93.8	94.2			0.491
EPA 365.1 Rev. 2.0	Total-P	105	106	107			0.435
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	100	102			1.20
SM 2120 B-2011	Color (true)	99.6				0.581	
SM 2320 B-2011	Total Alkalinity	101				0.962	
SM 2540 C-2011	TDS					6.06	
SM 4500 F-C-2011	Fluoride	99.4	97.6	98.2			0.469
SM 5310 B-2011	Organic Carbon	94.5	99.2	99.2			0.0271

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2233534
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2233534
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2233534
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2233535
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2233535
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2233535
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2233535
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2233536
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2233534
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2233534
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2233534
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2233534
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2233534
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2233535

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	03/24/2021			03/24/2021 15:19	Blanca Fach	2233534
EPA 300.0 Rev. 2.1	03/24/2021			03/29/2021 21:00	Lipi Saha	2233534
EPA 350.1 Rev. 2.0	03/24/2021			04/03/2021 11:15	Ping Hua	2233535
EPA 351.2 Rev. 2.0	03/24/2021	04/01/2021 12:36	Benjamin T. Nordmann	04/02/2021 12:05	Virginia P. Brown	2233535
EPA 353.2 Rev. 2.0	03/24/2021			03/30/2021 09:47	Beverly Y. Sanders	2233535
EPA 365.1 Rev. 2.0	03/24/2021	03/26/2021 12:49	Yen Ta	03/29/2021 12:01	Shengyu Ding	2233535
EPA 365.1 Rev. 2.0 dissolved	03/24/2021			03/24/2021 14:57	Patrick M. Roche	2233536
SM 2120 B-2011	03/24/2021			03/24/2021 16:01	Benjamin T. Nordmann	2233534
SM 2320 B-2011	03/24/2021			03/26/2021 19:00	Dale L. Simmons	2233534
SM 2540 C-2011	03/24/2021			03/26/2021 15:08	Yijie Li	2233534
SM 2540 D-2011	03/24/2021			03/26/2021 15:08	Yijie Li	2233534
SM 4500 F-C-2011	03/24/2021			03/26/2021 19:00	Dale L. Simmons	2233534
SM 5310 B-2011	03/24/2021			03/31/2021 01:27	Madeline Gruver	2233535