

Chemical Analysis Report

TLH-ROC-2021-05-25-01

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

Event Description: **Run 3**
Request ID: **RQ-2021-01-04-25**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Tallahassee, FL 32399
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 16-JUN-2021 17:58



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: TELFORD SPRING

Collection Date/Time: 05/25/2021 10:20

Field ID: G1TLHR0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249937	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P398746	
	EPA 300.0 Rev. 2.1	Chloride	7.7		mg Cl/L	P399194	
		Sulfate	37		mg SO4/L	P399196	
	SM 2120 B-2011	Color (true)	3.7	I	PCU	P398739	
	SM 2320 B-2011	Total Alkalinity	197	A	mg CaCO3/L	P398968	
	SM 2540 C-2011	TDS	242		mg/L	P399198	
	SM 2540 D-2011	TSS	2	I	mg/L	P399001	
	SM 4500 F-C-2011	Fluoride	0.19		mg F/L	P398971	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P399517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P398948	
2249938	EPA 353.2 Rev. 2.0	NO2NO3-N	3.1		mg N/L	P398776	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P398921	
	SM 5310 B-2011	Organic Carbon	0.89	I	mg C/L	P399095	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.051		mg P/L	P398750	
2249939	EPA 365.1 Rev. 2.0 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: P398746

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399194

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399196

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399517

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

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

Reference Method: SM 2120 B-2011
Batch ID: P398739

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P398968

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

Reference Method: SM 2540 C-2011
Batch ID: P399198

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P399001

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P399095

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: P399194

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P399196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P399517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P398948

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P398776

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: P398921

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: P398750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.4		P	90 - 110

Reference Method: SM 2120 B-2011
 Batch ID: P398739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	85 - 115

Reference Method: SM 2320 B-2011
 Batch ID: P398968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.6		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P399095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249571	Chloride	91.2		P	90 - 110
2249944	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249571	Sulfate	100		P	90 - 110
2249944	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249891	Ammonia-N	92.4	90.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249826	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249808	NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249809	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249833	O-Phosphate-P	96.2	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249937	Fluoride	97.2	97.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P399095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250058	Organic Carbon	100	99.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P398746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249616	Turbidity	0.976	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249944	Chloride	0.0352	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249944	Sulfate	0.515	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249891	Ammonia-N	1.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249826	Kjeldahl Nitrogen	3.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249808	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249809	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249833	O-Phosphate-P	0.828	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P398739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249616	Color (true)	0.908	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P398968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249937	Total Alkalinity	1.38	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P399198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249807	TDS	0.837	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249937	Fluoride	0.464	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P399095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250058	Organic Carbon	0.389	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: A105647

Included Lab Sample IDs: 2249937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.3	99.3	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A105648

Included Lab Sample IDs: 2249937

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A105649

Included Lab Sample IDs: 2249939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105660

Included Lab Sample IDs: 2249938

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105754

Included Lab Sample IDs: 2249938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A105756

Included Lab Sample IDs: 2249937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.5	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A105756

Included Lab Sample IDs: 2249937

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105794

Included Lab Sample IDs: 2249938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	92.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A105818

Included Lab Sample IDs: 2249938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A105834

Included Lab Sample IDs: 2249937

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105993

Included Lab Sample IDs: 2249938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.976	
EPA 300.0 Rev. 2.1	Chloride	102	102	91.2		0.0352	
	Sulfate	97.4	102	100		0.515	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	92.4	90.0			1.44
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	101			3.31
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	97.5	97.5			0.0
EPA 365.1 Rev. 2.0	Total-P	105	105	106			1.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	96.2	97.0			0.828
SM 2120 B-2011	Color (true)	98.2				0.908	
SM 2320 B-2011	Total Alkalinity	97.6				1.38	
SM 2540 C-2011	TDS					0.837	
SM 4500 F-C-2011	Fluoride	97.5	97.2	97.8			0.464
SM 5310 B-2011	Organic Carbon	95.8	100	99.8			0.389

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2249937
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2249937
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2249937
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2249938
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2249938
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2249938
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2249938
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2249939
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2249937
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2249937
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2249937
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2249937
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2249937
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2249938

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	05/25/2021			05/25/2021 15:36	Yen Ta	2249937
EPA 300.0 Rev. 2.1	05/25/2021			06/03/2021 23:31	Lipi Saha	2249937
EPA 350.1 Rev. 2.0	05/25/2021			06/10/2021 13:29	Roberta Tatti	2249938
EPA 351.2 Rev. 2.0	05/25/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 14:00	Virginia P. Brown	2249938
EPA 353.2 Rev. 2.0	05/25/2021			05/26/2021 10:32	Beverly Y. Sanders	2249938
EPA 365.1 Rev. 2.0	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 10:56	Shengyu Ding	2249938
EPA 365.1 Rev. 2.0 dissolved	05/25/2021			05/25/2021 15:48	Ping Hua	2249939
SM 2120 B-2011	05/25/2021			05/25/2021 15:41	Sarah A Nixon	2249937
SM 2320 B-2011	05/25/2021			05/27/2021 23:06	Dale L. Simmons	2249937
SM 2540 C-2011	05/25/2021			05/27/2021 14:42	Yijie Li	2249937
SM 2540 D-2011	05/25/2021			05/27/2021 14:42	Yijie Li	2249937
SM 4500 F-C-2011	05/25/2021			05/27/2021 22:54	Dale L. Simmons	2249937
SM 5310 B-2011	05/25/2021			06/01/2021 21:27	Madeline Gruver	2249938