

Chemical Analysis Report

TLH-ROC-2021-08-17-01

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

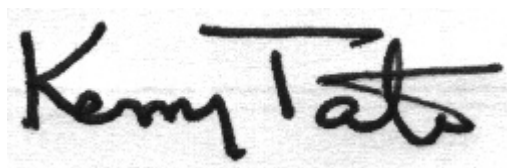
Event Description: **Run 5**
Request ID: **RQ-2021-08-09-35**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-SEP-2021 11:53

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Fenholloway River ENCOC

Collection Date/Time: 08/17/2021 09:50

Field ID: G1TLHR0120

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2269874	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P402587	
	SM 2320 B-2011	Total Alkalinity	111		mg CaCO3/L	P402802	
	SM 2540 D-2011	TSS	4	I	mg/L	P403007	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P402804	
2269876	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P402762	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P403261	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P402677	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P402766	
	SM 5310 B-2011	Organic Carbon	30		mg C/L	P403116	
2269878	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P402585	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Aucilla River @ Mouth

Collection Date/Time: 08/17/2021 11:20

Field ID: G1TLHR0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2269875	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P402587	
	SM 2320 B-2011	Total Alkalinity	82		mg CaCO3/L	P402802	
	SM 2540 D-2011	TSS	2	I	mg/L	P403007	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P402804	
2269877	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P402762	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P403024	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P402677	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P402766	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P403116	
2269879	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P402585	

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: P402587

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402762

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403024

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402677

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402766

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402585

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

Reference Method: SM 2320 B-2011
Batch ID: P402802

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

Reference Method: SM 2540 D-2011
Batch ID: P403007

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P402804

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403116

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402762

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403024

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402677

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402766

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402585

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.9		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P402802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P402804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269742	Ammonia-N	97.8	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269889	Kjeldahl Nitrogen	95.9	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271142	Kjeldahl Nitrogen	99.4	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269889	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2270389	Total-P	110	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269743	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P402804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269861	Fluoride	99.8	99.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269862	Organic Carbon	96.4	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269741	Turbidity	1.38	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269742	Ammonia-N	0.716	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269889	Kjeldahl Nitrogen	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271142	Kjeldahl Nitrogen	4.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269889	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2270389	Total-P	2.58	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269743	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P402802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269861	Total Alkalinity	1.22	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P402804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269861	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269862	Organic Carbon	0.114	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: A107297

Included Lab Sample IDs: 2269878, 2269879

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107298

Included Lab Sample IDs: 2269874, 2269875

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107338

Included Lab Sample IDs: 2269876, 2269877

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107367

Included Lab Sample IDs: 2269876, 2269877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107380

Included Lab Sample IDs: 2269874, 2269875

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

Reference Method: SM 4500 F-C-2011

Run ID: A107380

Included Lab Sample IDs: 2269874, 2269875

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107435

Included Lab Sample IDs: 2269876, 2269877

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107509

Included Lab Sample IDs: 2269877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A107529

Included Lab Sample IDs: 2269876, 2269877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	98.0	P/P	90 - 110
Organic Carbon	98.0	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107619

Included Lab Sample IDs: 2269876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	98.4	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					1.38	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	97.8	97.0			0.716
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.9	98.3			1.51
	Kjeldahl Nitrogen	99.6	99.4	104			4.09
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	99.5	100			0.501
EPA 365.1 Rev. 2.0	Total-P	107	110	107			2.58
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.9	100	100			0.0
SM 2320 B-2011	Total Alkalinity	102				1.22	
SM 4500 F-C-2011	Fluoride	98.5	99.8	99.8			0.0
SM 5310 B-2011	Organic Carbon	94.3	96.4	96.6			0.114

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2269874, 2269875
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2269876, 2269877
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2269876, 2269877
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2269876, 2269877
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2269876, 2269877
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2269878, 2269879
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2269874, 2269875
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2269874, 2269875
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2269874, 2269875
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2269876, 2269877

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	08/17/2021			08/17/2021 15:11	Sarah A Nixon	2269874, 2269875
EPA 350.1 Rev. 2.0	08/17/2021			08/20/2021 13:37	Roberta Tatti	2269876
	08/17/2021			08/20/2021 13:38	Roberta Tatti	2269877
EPA 351.2 Rev. 2.0	08/17/2021	08/26/2021 18:26	Benjamin T. Nordmann	08/27/2021 13:58	Virginia P. Brown	2269877
	08/17/2021	09/01/2021 12:09	Benjamin T. Nordmann	09/02/2021 12:27	Alexandra J Mattheus	2269876
EPA 353.2 Rev. 2.0	08/17/2021			08/19/2021 10:55	Beverly Y. Sanders	2269876
	08/17/2021			08/19/2021 10:56	Beverly Y. Sanders	2269877
EPA 365.1 Rev. 2.0	08/17/2021	08/20/2021 15:10	Simonne.V. Calhoun	08/23/2021 16:25	Shengyu Ding	2269876
	08/17/2021	08/20/2021 15:10	Simonne.V. Calhoun	08/23/2021 16:26	Shengyu Ding	2269877
EPA 365.1 Rev. 2.0 dissolved	08/17/2021			08/17/2021 15:10	James L Waggeberby	2269878
	08/17/2021			08/17/2021 15:11	James L Waggeberby	2269879
SM 2320 B-2011	08/17/2021			08/19/2021 18:11	Dale L. Simmons	2269874
	08/17/2021			08/19/2021 18:26	Dale L. Simmons	2269875
SM 2540 D-2011	08/17/2021			08/18/2021 11:05	Yijie Li	2269874, 2269875
SM 4500 F-C-2011	08/17/2021			08/19/2021 18:11	Dale L. Simmons	2269874
	08/17/2021			08/19/2021 18:26	Dale L. Simmons	2269875
SM 5310 B-2011	08/17/2021			08/27/2021 23:56	Madeline Gruver	2269876
	08/17/2021			08/28/2021 00:38	Madeline Gruver	2269877