

Chemical Analysis Report

TLH-ROC-2022-05-18-01

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

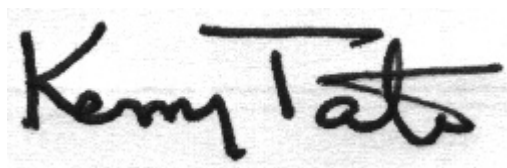
Event Description: **Run 14**
Request ID: **RQ-2022-04-25-42**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-JUN-2022 13:20

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 "T" in "Tate".

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: Sandy Creek Upstream Boat Ramp

Collection Date/Time: 05/18/2022 10:45

Field ID: G3TLHR0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2328183	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P414038	
	SM 2320 B-2011	Total Alkalinity	13		mg CaCO3/L	P414260	
	SM 2540 D-2011	TSS	5	I	mg/L	P414455	
	SM 4500-F- C-2011	Fluoride	0.086	I	mg F/L	P414266	
2328184	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P414449	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P414285	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P414351	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P414402	MS
	SM 5310 B-2011	Organic Carbon	4.4		mg C/L	P414372	

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: P414038

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414449

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414285

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414351

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414402

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

Reference Method: SM 2320 B-2011
Batch ID: P414260

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

Reference Method: SM 2540 D-2011
Batch ID: P414455

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P414266

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P414372

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414038

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414449

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414351

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: P414402

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

Reference Method: SM 2320 B-2011
Batch ID: P414260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P414266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2328633	Ammonia-N	91.8	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2327733	Kjeldahl Nitrogen	92.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2328357	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2328683	Total-P	90.0	89.4	P/F	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P414266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2327557	Fluoride	97.0	97.6	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2327896	Organic Carbon	93.7	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2328162	Turbidity	9.36	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2328633	Ammonia-N	2.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2327733	Kjeldahl Nitrogen	5.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2328357	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2328683	Total-P	0.708	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P414260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2327557	Total Alkalinity	0.201	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P414266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2327557	Fluoride	0.530	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P414372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2327896	Organic Carbon	0.692	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A112229

Included Lab Sample IDs: 2328183

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

Reference Method: SM 2320 B-2011

Run ID: A112346

Included Lab Sample IDs: 2328183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	98.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A112346

Included Lab Sample IDs: 2328183

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A112394

Included Lab Sample IDs: 2328184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A112400

Included Lab Sample IDs: 2328184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	95.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112440

Included Lab Sample IDs: 2328184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112467

Included Lab Sample IDs: 2328184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112559

Included Lab Sample IDs: 2328184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	100	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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 SMP	MS
					LCS	
EPA 180.1 Rev. 2.0	Turbidity	97.3			9.36	
EPA 350.1 Rev. 2.0	Ammonia-N	96.0	91.8	94.8		2.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.6	92.3	101		5.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	103	102		0.487
EPA 365.1 Rev. 2.0	Total-P	99.9	90.0	89.4		0.708
SM 2320 B-2011	Total Alkalinity	98.4			0.201	
SM 4500-F- C-2011	Fluoride	96.5	97.0	97.6		0.530
SM 5310 B-2011	Organic Carbon	94.4	93.7	94.4		0.692

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2328183
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2328184
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2328184
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2328184
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2328184
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2328183
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2328183
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2328183
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2328184

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	05/18/2022			05/18/2022 15:27	Khloe J Berg	2328183
EPA 350.1 Rev. 2.0	05/18/2022			05/26/2022 13:07	Ping Hua	2328184
EPA 351.2 Rev. 2.0	05/18/2022	05/25/2022 12:30	Samantha L Bates	06/01/2022 14:01	Alexandra J Mattheus	2328184
EPA 353.2 Rev. 2.0	05/18/2022			05/25/2022 11:47	Beverly Y. Sanders	2328184
EPA 365.1 Rev. 2.0	05/18/2022	05/26/2022 15:35	Simonne.V. Calhoun	05/27/2022 14:34	James L Waggerby	2328184
SM 2320 B-2011	05/18/2022			05/21/2022 10:57	Dale L. Simmons	2328183
SM 2540 D-2011	05/18/2022			05/20/2022 16:02	Yijie Li	2328183
SM 4500-F- C-2011	05/18/2022			05/21/2022 10:57	Dale L. Simmons	2328183
SM 5310 B-2011	05/18/2022			05/24/2022 21:36	Khloe J Berg	2328184