

Chemical Analysis Report

TLH-ROC-2022-11-02-02

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

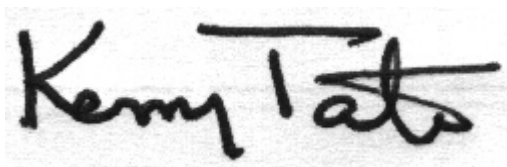
Event Description: **SCI Kits**
Request ID: **RQ-2022-05-02-72**
Customer: **TLH-ROC**
Project ID: **SMP**

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: 29-NOV-2022 11:34

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the 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: Boggy Creek @ SR22

Collection Date/Time: 11/02/2022 12:50

Field ID: G3TLHR0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367048	DEP SOP: NU-094-1	Color (true)	80		PCU	P421920	
	EPA 180.1 Rev. 2.0	Turbidity	2.8	A	NTU	P421854	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P422461	
		Sulfate	2.9		mg SO4/L	P422465	
	SM 2320 B-2011	Total Alkalinity	5.8		mg CaCO3/L	P422006	
	SM 2540 C-2015	TDS	47		mg/L	P422532	
	SM 2540 D-2015	TSS	5	I	mg/L	P422507	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P422784	
2367049	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P422274	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P422287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P422061	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P422109	
	SM 5310 B-2011	Organic Carbon	7.1		mg C/L	P422360	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P421920

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421854

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422274

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422061

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422109

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

Reference Method: SM 2320 B-2011
Batch ID: P422006

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P422532

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P422507

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422360

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P421920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.9		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421854

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422274

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422109

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

Reference Method: SM 2320 B-2011
Batch ID: P422006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.0		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P422532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.7		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P422507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.8		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366626	Chloride	99.1		P	90 - 110
2366743	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366626	Sulfate	100		P	90 - 110
2366743	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367082	Ammonia-N	95.8	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367049	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366771	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366951	Total-P	103	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370361	Fluoride	99.9	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367070	Organic Carbon	98.1	98.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P421920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367145	Color (true)	1.79	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367048	Turbidity	2.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366626	Chloride	0.154	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366626	Sulfate	0.227	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367082	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367049	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366771	NO2NO3-N	0.196	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366951	Total-P	2.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P422006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366166	Total Alkalinity	0.668	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P422532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366364	TDS	1.02	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370361	Fluoride	0.516	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367070	Organic Carbon	0.595	Spike	P	0 - 20

* 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: A115725

Included Lab Sample IDs: 2367048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.0	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A115749

Included Lab Sample IDs: 2367048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115774

Included Lab Sample IDs: 2367048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.8	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115805

Included Lab Sample IDs: 2367049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115897

Included Lab Sample IDs: 2367049

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115898

Included Lab Sample IDs: 2367049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.8	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A115939

Included Lab Sample IDs: 2367048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.5	97.6	P/P	90 - 110
Sulfate	98.6	98.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115948

Included Lab Sample IDs: 2367049

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115968

Included Lab Sample IDs: 2367049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116138

Included Lab Sample IDs: 2367048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	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	MS
DEP SOP: NU-094-1	Color (true)	97.9			1.79	
EPA 180.1 Rev. 2.0	Turbidity	99.2			2.13	
EPA 300.0 Rev. 2.1	Chloride	102	99.1	101	0.154	
	Sulfate	104	100	108	0.227	
EPA 350.1 Rev. 2.0	Ammonia-N	94.8	95.8	95.8		0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	107	105		1.64
EPA 353.2 Rev. 2.0	NO2NO3-N	107	101			0.196
EPA 365.1 Rev. 2.0	Total-P	104	103	100		2.39
SM 2320 B-2011	Total Alkalinity	98.0			0.668	
SM 2540 C-2015	TDS	96.7			1.02	
SM 2540 D-2015	TSS	94.8				
SM 4500-F- C-2011	Fluoride	100	99.9	101		0.516
SM 5310 B-2011	Organic Carbon	98.4	98.1	98.7		0.595

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2367048
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2367048
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2367048
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2367048
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2367049
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2367049
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2367049
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2367049
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2367048
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2367048
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2367048
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2367048
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2367049

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	11/02/2022			11/03/2022 14:55	Anna M. Plaviak	2367048
EPA 180.1 Rev. 2.0	11/02/2022			11/03/2022 13:42	Chandler E Cox	2367048
EPA 300.0 Rev. 2.1	11/02/2022			11/16/2022 02:48	Anna M. Plaviak	2367048
EPA 350.1 Rev. 2.0	11/02/2022			11/14/2022 12:44	Ping Hua	2367049
EPA 351.2 Rev. 2.0	11/02/2022	11/15/2022 12:41	Samantha L Bates	11/16/2022 17:48	Samantha L Bates	2367049
EPA 353.2 Rev. 2.0	11/02/2022			11/08/2022 10:28	Beverly Y. Sanders	2367049
EPA 365.1 Rev. 2.0	11/02/2022	11/09/2022 13:55	Simonne.V. Calhoun	11/14/2022 13:37	James L Waggerby	2367049
SM 2320 B-2011	11/02/2022			11/05/2022 19:55	Dale L. Simmons	2367048
SM 2540 C-2015	11/02/2022			11/07/2022 15:45	Yijie Li	2367048
SM 2540 D-2015	11/02/2022			11/07/2022 15:45	Yijie Li	2367048
SM 4500-F- C-2011	11/02/2022			11/23/2022 08:01	Dale L. Simmons	2367048
SM 5310 B-2011	11/02/2022			11/15/2022 22:09	Khloe J Berg	2367049