

Chemical Analysis Report

TLH-ROC-2022-11-09-01

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

Event Description: **Run 17**
Request ID: **RQ-2022-07-25-18**
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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 01-DEC-2022 12:50

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: Telford Spring

Collection Date/Time: 11/09/2022 10:15

Field ID: G1TLHR0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2368966	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P422181	
	EPA 180.1 Rev. 2.0	Turbidity	0.25	I	NTU	P422179	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P422828	
		Sulfate	49		mg SO4/L	P422832	
	SM 2320 B-2011	Total Alkalinity	188	A	mg CaCO3/L	P422794	
	SM 2540 C-2015	TDS	261		mg/L	P422674	
	SM 2540 D-2015	TSS	2	U	mg/L	P422562	RPD
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P422643	
2368967	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P422914	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	I	mg N/L	P422449	
	EPA 353.2 Rev. 2.0	NO2NO3-N	4.4		mg N/L	P422482	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P422386	
	SM 5310 B-2011	Organic Carbon	0.64	I	mg C/L	P422755	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: 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: P422181

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422179

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422828

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422832

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422449

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422482

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422386

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

Reference Method: SM 2320 B-2011
Batch ID: P422794

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: P422674

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P422562

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422755

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: P422181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.7		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422179

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

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: P422449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422482

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422386

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

Reference Method: SM 2320 B-2011
Batch ID: P422794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P422674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.7		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P422562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.1		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368824	Chloride	94.1		P	90 - 110
2368985	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368824	Sulfate	95.6		P	90 - 110
2368985	Sulfate	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368967	Ammonia-N	95.2	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368514	Kjeldahl Nitrogen	99.2	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368983	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368983	Total-P	101	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368966	Fluoride	102	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368941	Organic Carbon	96.4	96.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P422181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368889	Color (true)	0.0885	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368869	Turbidity	16.1	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368824	Chloride	0.210	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368967	Ammonia-N	3.93	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368514	Kjeldahl Nitrogen	1.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368983	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368983	Total-P	0.536	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P422794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368966	Total Alkalinity	0.733	Sample	P	0 - 3.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P422674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368619	TDS	5.91	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P422562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368619	TSS	10.9	Sample	F	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368966	Fluoride	0.972	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368941	Organic Carbon	0.167	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: A115843

Included Lab Sample IDs: 2368966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A115844

Included Lab Sample IDs: 2368966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115956

Included Lab Sample IDs: 2368967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116030

Included Lab Sample IDs: 2368967

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

Reference Method: SM 4500-F- C-2011

Run ID: A116057

Included Lab Sample IDs: 2368966

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116108

Included Lab Sample IDs: 2368966

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

Reference Method: SM 5310 B-2011

Run ID: A116128

Included Lab Sample IDs: 2368967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	99.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A116145

Included Lab Sample IDs: 2368966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.5	95.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116154

Included Lab Sample IDs: 2368967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.5	91.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116189

Included Lab Sample IDs: 2368967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.6	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)	97.7			0.0885	
EPA 180.1 Rev. 2.0	Turbidity	99.6			16.1	
EPA 300.0 Rev. 2.1	Chloride	96.3	94.1	96.9	0.210	
	Sulfate	93.8	95.6	95.3		
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	95.2	99.2		3.93
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.5	99.2	98.0		1.12
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	106		0.0
EPA 365.1 Rev. 2.0	Total-P	102	101	101		0.536
SM 2320 B-2011	Total Alkalinity	95.5			0.733	
SM 2540 C-2015	TDS	97.7			5.91	
SM 2540 D-2015	TSS	93.1			10.9	
SM 4500-F- C-2011	Fluoride	99.9	102	100		0.972
SM 5310 B-2011	Organic Carbon	97.0	96.4	96.7		0.167

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2368966
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2368966
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2368966
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2368966
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2368967
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2368967
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2368967
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2368967
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2368966
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2368966
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2368966
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2368966
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2368967

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	11/09/2022			11/09/2022 16:31	Samantha L Bates	2368966
EPA 180.1 Rev. 2.0	11/09/2022			11/09/2022 15:11	Chandler E Cox	2368966
EPA 300.0 Rev. 2.1	11/09/2022			11/22/2022 19:25	James L Waggeberby	2368966
EPA 350.1 Rev. 2.0	11/09/2022			11/29/2022 11:25	Ping Hua	2368967
EPA 351.2 Rev. 2.0	11/09/2022	11/17/2022 10:34	Samantha L Bates	11/28/2022 14:04	Judith K. Clark	2368967
EPA 353.2 Rev. 2.0	11/09/2022			11/16/2022 12:46	Beverly Y. Sanders	2368967
EPA 365.1 Rev. 2.0	11/09/2022	11/16/2022 13:00	Simonne.V. Calhoun	11/18/2022 13:40	Simonne.V. Calhoun	2368967
SM 2320 B-2011	11/09/2022			11/21/2022 20:08	Dale L. Simmons	2368966
SM 2540 C-2015	11/09/2022			11/14/2022 15:59	Yijie Li	2368966
SM 2540 D-2015	11/09/2022			11/14/2022 15:59	Yijie Li	2368966
SM 4500-F- C-2011	11/09/2022			11/19/2022 10:16	Dale L. Simmons	2368966
SM 5310 B-2011	11/09/2022			11/22/2022 04:52	Khloe J Berg	2368967