

Chemical Analysis Report

TLH-ROC-2020-11-04-01

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

Event Description: **Run 7**
Request ID: **RQ-2020-10-19-52**
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: 25-NOV-2020 09:19

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" and a long horizontal stroke at the end.

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: Weaver Warrior @ Old Rd Track

Collection Date/Time: 11/04/2020 10:45

Field ID: G1TLHR0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206419	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P389828	
	EPA 300.0 Rev. 2.1	Chloride	6.6	A	mg Cl/L	P390001	
		Sulfate	0.20	UA	mg SO4/L	P390003	
		Color (true)	320		PCU	P389823	
	SM 2320 B-2011	Total Alkalinity	44		mg CaCO3/L	P389921	
	SM 2540 C-2011	TDS	131		mg/L	P390170	
	SM 2540 D-2011	TSS	2	I	mg/L	P390147	
	SM 4500 F-C-2011	Fluoride	0.052	I	mg F/L	P390099	
2206420	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P389893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P389864	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P389861	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P389875	
	SM 5310 B-2011	Organic Carbon	30		mg C/L	P389907	
2206421	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P389766	

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.

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: P389828

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390001

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390003

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389864

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389861

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389875

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389766

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

Reference Method: SM 2120 B-2011
Batch ID: P389823

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P389921

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

Reference Method: SM 2540 C-2011
Batch ID: P390170

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P390147

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389907

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: P390001

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390003

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389861

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389875

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389766

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

Reference Method: SM 2120 B-2011
Batch ID: P389823

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P389921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206419	Chloride	97.9		P	90 - 110
2206641	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206419	Sulfate	98.7		P	90 - 110
2206641	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206386	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206392	Kjeldahl Nitrogen	107	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206385	NO2NO3-N	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206420	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206388	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206538	Fluoride	97.6	98.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206165	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206795	Turbidity	2.53	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206419	Chloride	0.0652	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206386	Ammonia-N	0.613	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206392	Kjeldahl Nitrogen	2.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206385	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206420	Total-P	0.193	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206388	O-Phosphate-P	0.297	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P389823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206459	Color (true)	0.720	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P389921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206519	Total Alkalinity	0.478	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P390170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206981	TDS	4.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206538	Fluoride	0.984	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206165	Organic Carbon	0.0990	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: A101961

Included Lab Sample IDs: 2206421

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

Reference Method: SM 2120 B-2011

Run ID: A101998

Included Lab Sample IDs: 2206419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	105	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102000

Included Lab Sample IDs: 2206419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102010

Included Lab Sample IDs: 2206420

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102027

Included Lab Sample IDs: 2206420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102035

Included Lab Sample IDs: 2206420

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102039

Included Lab Sample IDs: 2206420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.6	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102049

Included Lab Sample IDs: 2206419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102057

Included Lab Sample IDs: 2206420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102065

Included Lab Sample IDs: 2206419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	98.4	P/P	90 - 110
Sulfate	102	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102147

Included Lab Sample IDs: 2206419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	96.5	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					2.53	
EPA 300.0 Rev. 2.1	Chloride	99.3	97.9	99.3		0.0652	
	Sulfate	100	98.7	99.8			
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	104			0.613
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	107	110			2.16
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	97.5	95.8				0.0
EPA 365.1 Rev. 2.0	Total-P	103	104	104			0.193
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	101	101			0.297
SM 2120 B-2011	Color (true)	103				0.720	
SM 2320 B-2011	Total Alkalinity	99.9				0.478	
SM 2540 C-2011	TDS					4.95	
SM 4500 F-C-2011	Fluoride	94.4	97.6	98.8			0.984
SM 5310 B-2011	Organic Carbon	101	103	103			0.0990

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2206419
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2206419
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2206419
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2206420
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2206420
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2206420
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2206420
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2206421
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2206419
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2206419
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2206419
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2206419
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2206419
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2206420

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	11/04/2020			11/05/2020 15:01	Yen Ta	2206419
EPA 300.0 Rev. 2.1	11/04/2020			11/10/2020 14:32	Lipi Saha	2206419
EPA 350.1 Rev. 2.0	11/04/2020			11/07/2020 12:19	Ping Hua	2206420
EPA 351.2 Rev. 2.0	11/04/2020	11/06/2020 12:50	David Boose	11/09/2020 13:12	Elliott Rodriguez	2206420
EPA 353.2 Rev. 2.0	11/04/2020			11/06/2020 10:37	Beverly Y. Sanders	2206420
EPA 365.1 Rev. 2.0	11/04/2020	11/06/2020 13:18	Yen Ta	11/09/2020 08:58	Benjamin T. Nordmann	2206420
EPA 365.1 Rev. 2.0 dissolved	11/04/2020			11/04/2020 18:13	Ping Hua	2206421
SM 2120 B-2011	11/04/2020			11/05/2020 15:53	Benjamin T. Nordmann	2206419
SM 2320 B-2011	11/04/2020			11/07/2020 03:26	Dale L. Simmons	2206419
SM 2540 C-2011	11/04/2020			11/09/2020 13:51	Yijie Li	2206419
SM 2540 D-2011	11/04/2020			11/09/2020 13:51	Yijie Li	2206419
SM 4500 F-C-2011	11/04/2020			11/13/2020 18:11	Dale L. Simmons	2206419
SM 5310 B-2011	11/04/2020			11/06/2020 19:53	Touraj Touran	2206420