Chemical Analysis Report

TLH-ROC-2020-10-27-01

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

Event Description: **Run 8a**
Request ID: **RQ-2020-10-26-44**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Tallahassee, FL 32399
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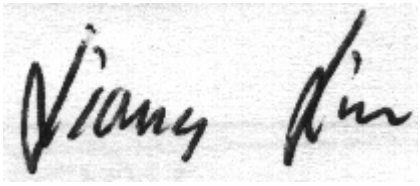
Date Certified: 18-NOV-2020 13:02



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 **Collection Date/Time: 10/27/2020 12:20**

Field ID: G3TLHR0001 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2205048	EPA 180.1 Rev. 2.0	Turbidity	6.1	A	NTU	P389410	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P389804	
		Sulfate	0.63		mg SO4/L	P389807	
	SM 2120 B-2011	Color (true)	190		PCU	P389412	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P389620	
	SM 2540 C-2011	TDS	17	I	mg/L	P389855	
	SM 2540 D-2011	TSS	3	I	mg/L	P389870	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389624	
2205049	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P389581	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P389501	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P389486	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P389932	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P389521	
2205050	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389360	

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: P389410

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389804

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389807

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389581

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389501

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389486

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389932

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389360

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

Reference Method: SM 2120 B-2011
Batch ID: P389412

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P389620

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

Reference Method: SM 2540 C-2011
Batch ID: P389855

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389870

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389624

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389521

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: P389804

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389807

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389581

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: P389501

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389486

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: P389932

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389360

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

Reference Method: SM 2120 B-2011
Batch ID: P389412

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

Reference Method: SM 2320 B-2011
Batch ID: P389620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P389624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389521

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: P389804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204853	Chloride	99.6		P	90 - 110
2205048	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204853	Sulfate	99.4		P	90 - 110
2205048	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389581

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205067	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205068	Kjeldahl Nitrogen	107	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205065	NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205049	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204976	O-Phosphate-P	99.5	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204843	Fluoride	102	102	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205065	Organic Carbon	103	104	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205048	Turbidity	2.46	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204853	Chloride	0.605	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204853	Sulfate	0.810	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205067	Ammonia-N	0.814	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205068	Kjeldahl Nitrogen	0.774	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205065	NO2NO3-N	0.378	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205049	Total-P	0.256	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204976	O-Phosphate-P	0.177	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P389412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205064	Color (true)	3.13	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204843	Total Alkalinity	0.970	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P389855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204802	TDS	2.47	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P389624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204843	Fluoride	0.509	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205065	Organic Carbon	0.394	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: A101806
Included Lab Sample IDs: 2205050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A101824
Included Lab Sample IDs: 2205048

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

Reference Method: SM 2120 B-2011
Run ID: A101825
Included Lab Sample IDs: 2205048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A101857
Included Lab Sample IDs: 2205049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A101872
Included Lab Sample IDs: 2205049

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A101882
Included Lab Sample IDs: 2205049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A101890
Included Lab Sample IDs: 2205049

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

Reference Method: SM 2320 B-2011
Run ID: A101910
Included Lab Sample IDs: 2205048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	95.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A101910
Included Lab Sample IDs: 2205048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A101949
Included Lab Sample IDs: 2205048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	99.4	P/P	90 - 110
Sulfate	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102136
Included Lab Sample IDs: 2205049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.46	
EPA 300.0 Rev. 2.1	Chloride	100	99.6	101		0.605	
	Sulfate	99.5	100	99.4		0.810	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	102			0.814
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	109			0.774
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	97.0				0.378
EPA 365.1 Rev. 2.0	Total-P	105	104	104			0.256
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	99.5	99.7			0.177
SM 2120 B-2011	Color (true)	103				3.13	
SM 2320 B-2011	Total Alkalinity	98.8				0.970	
SM 2540 C-2011	TDS					2.47	
SM 4500 F-C-2011	Fluoride	101	102	102			0.509
SM 5310 B-2011	Organic Carbon	101	103	104			0.394

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2205048
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2205048
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2205048
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2205049
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2205049
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2205049
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2205049
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2205050
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2205048
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2205048
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2205048
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2205048
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2205048
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2205049

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	10/27/2020			10/28/2020 15:54	Yen Ta	2205048
EPA 300.0 Rev. 2.1	10/27/2020			11/04/2020 21:45	Lipi Saha	2205048
EPA 350.1 Rev. 2.0	10/27/2020			10/31/2020 16:17	Ping Hua	2205049
EPA 351.2 Rev. 2.0	10/27/2020	10/29/2020 13:48	David Boose	10/30/2020 14:10	Elliott Rodriguez	2205049
EPA 353.2 Rev. 2.0	10/27/2020			10/29/2020 12:05	Beverly Y. Sanders	2205049
EPA 365.1 Rev. 2.0	10/27/2020	11/09/2020 12:24	Yen Ta	11/13/2020 13:27	Shengyu Wang	2205049
EPA 365.1 Rev. 2.0 dissolved	10/27/2020			10/27/2020 16:42	Blanca Fach	2205050
SM 2120 B-2011	10/27/2020			10/28/2020 16:44	Benjamin T. Nordmann	2205048
SM 2320 B-2011	10/27/2020			10/31/2020 06:33	Samantha Davila	2205048
SM 2540 C-2011	10/27/2020			10/29/2020 15:08	Yijie Li	2205048
SM 2540 D-2011	10/27/2020			10/29/2020 15:08	Yijie Li	2205048
SM 4500 F-C-2011	10/27/2020			10/31/2020 06:33	Samantha Davila	2205048
SM 5310 B-2011	10/27/2020			10/29/2020 19:14	Madeline Gruver	2205049