Chemical Analysis Report

TLH-ROC-2019-08-27-01

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

Event Description: **Run 9**
Request ID: **RQ-2019-06-24-36**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 12-SEP-2019 16:12

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: SUGAR CREEK @ SUWANNEE RIVER **Collection Date/Time: 08/27/2019 11:20**

Field ID: G1TLHR0047 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115024	EPA 180.1 Rev. 2.0	Turbidity	3.2	A	NTU	P369775	
	EPA 300.0 Rev. 2.1	Chloride	8.6	A	mg Cl/L	P370213	
		Sulfate	8.5	A	mg SO4/L	P370216	
	SM 2120 B	Color (true)	62		PCU	P369851	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P370026	
	SM 2540 C-97	TDS	110	A	mg/L	P370381	
	SM 2540 D-97	TSS	2	IA	mg/L	P370247	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P370030	
2115025	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P370156	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P369913	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.72		mg N/L	P369997	
	EPA 365.1 Rev. 2.0	Total-P	0.86		mg P/L	P370071	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P370223	
2115026	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.79		mg P/L	P369843	

Ref. Method and Comment:
SM 2540 D-97: 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: P369775

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369997

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370071

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369843

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

Reference Method: SM 2120 B
Batch ID: P369851

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P370026

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

Reference Method: SM 2540 C-97
Batch ID: P370381

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370247

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370223

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: P370213

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369997

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369843

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

Reference Method: SM 2120 B
Batch ID: P369851

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370223

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115024	Chloride	101		P	90 - 110
2115145	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115024	Sulfate	99.9		P	90 - 110
2115145	Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114867	Ammonia-N	97.4	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115025	Kjeldahl Nitrogen	100	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115073	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114868	Total-P	94.8	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115074	O-Phosphate-P	95.8	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115036	Fluoride	99.3	98.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114895	Organic Carbon	98.9	98.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Turbidity	2.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Chloride	0.0963	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Sulfate	0.120	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114867	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115025	Kjeldahl Nitrogen	4.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115073	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114868	Total-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115074	O-Phosphate-P	0.832	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P369851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115115	Color (true)	6.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115036	Total Alkalinity	0.144	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	TDS	2.71	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115036	Fluoride	0.477	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114895	Organic Carbon	0.221	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A93821
Included Lab Sample IDs: 2115024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A93839
Included Lab Sample IDs: 2115026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A93842
Included Lab Sample IDs: 2115024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A93923
Included Lab Sample IDs: 2115025

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A93925
Included Lab Sample IDs: 2115025

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

Reference Method: SM 2320 B-97
Run ID: A93928
Included Lab Sample IDs: 2115024

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

Reference Method: SM 4500 F-C-97
Run ID: A93928
Included Lab Sample IDs: 2115024

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A93970
Included Lab Sample IDs: 2115025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93986
Included Lab Sample IDs: 2115025

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A94012
Included Lab Sample IDs: 2115024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A94014
Included Lab Sample IDs: 2115025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	109	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					2.78	
EPA 300.0 Rev. 2.1	Chloride	99.6	101	99.5		0.0963	
	Sulfate	100	99.9	97.2		0.120	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	97.4	98.7			1.11
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	94.6			4.52
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	104			0.482
EPA 365.1 Rev. 2.0	Total-P	94.9	94.8	97.0			2.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	95.8	96.6			0.832
SM 2120 B	Color (true)	101				6.22	
SM 2320 B-97	Total Alkalinity	104				0.144	
SM 2540 C-97	TDS					2.71	
SM 4500 F-C-97	Fluoride	97.6	99.3	98.6			0.477
SM 5310 B-00	Organic Carbon	103	98.9	98.5			0.221

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2115024
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2115024
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2115024
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2115025
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2115025
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2115025
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2115025
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2115026
SM 2120 B / E31780	True Color measured at 450 nm	2115024
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2115024
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2115024
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2115024
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2115024
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2115025

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	08/27/2019			08/27/2019 16:17	Rosalyn Ballman	2115024
EPA 300.0 Rev. 2.1	08/27/2019			09/04/2019 16:33	Jhamieka S. Greenwood	2115024
EPA 350.1 Rev. 2.0	08/27/2019			09/04/2019 13:25	Ping Hua	2115025
EPA 351.2 Rev. 2.0	08/27/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 11:49	Joseph Suarez	2115025
EPA 353.2 Rev. 2.0	08/27/2019			08/30/2019 12:01	Beverly Y. Sanders	2115025
EPA 365.1 Rev. 2.0	08/27/2019	09/03/2019 13:30	Lipi Saha	09/04/2019 10:08	Lipi Saha	2115025
EPA 365.1 Rev. 2.0 dissolved	08/27/2019			08/28/2019 15:38	Jhamieka S. Greenwood	2115026
SM 2120 B	08/27/2019			08/28/2019 16:18	Madeline Funaro	2115024
SM 2320 B-97	08/27/2019			08/30/2019 15:07	Dale L. Simmons	2115024
SM 2540 C-97	08/27/2019			08/30/2019 15:41	Yijie Li	2115024
SM 2540 D-97	08/27/2019			08/30/2019 15:41	Yijie Li	2115024
SM 4500 F-C-97	08/27/2019			08/30/2019 15:07	Dale L. Simmons	2115024
SM 5310 B-00	08/27/2019			09/04/2019 22:51	Madeline Funaro	2115025