

Chemical Analysis Report

TLH-ROC-2019-09-11-02

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

Event Description: **Run 5**
Request ID: **RQ-2019-07-08-50**
Customer: **TLH-ROC**
Project ID: **SMP**

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Date Certified: 02-OCT-2019 11:43



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: CAMP BRANCH @ US90

Collection Date/Time: 09/11/2019 12:10

Field ID: G3TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118268	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P370499	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P370812	
		Sulfate	1.2		mg SO4/L	P370815	
	SM 2120 B	Color (true)	56		PCU	P370532	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P371031	
	SM 2540 C-97	TDS	141		mg/L	P371183	
	SM 2540 D-97	TSS	2	I	mg/L	P371157	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P371509	
2118269	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P370765	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P370725	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.097		mg N/L	P370633	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P370645	
	SM 5310 B-00	Organic Carbon	8.5		mg C/L	P370754	
2118270	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P370501	

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: P370499

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370812

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370815

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370765

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370725

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370633

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370645

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370501

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

Reference Method: SM 2120 B
Batch ID: P370532

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P371031

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

Reference Method: SM 2540 C-97
Batch ID: P371183

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P371157

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P371509

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370754

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: P370812

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P370815

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P370765

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: P370725

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: P370633

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P370645

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P370501

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

Reference Method: SM 2120 B
 Batch ID: P370532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
 Batch ID: P371031

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: P371509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118065	Chloride	103	104	P/P	90 - 110
2118275	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118065	Sulfate	103	105	P/P	90 - 110
2118275	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118269	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118269	Kjeldahl Nitrogen	98.0	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118232	NO2NO3-N	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118202	Total-P	98.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117965	O-Phosphate-P	96.4	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P371509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119156	Fluoride	97.0	97.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118256	Organic Carbon	103	104	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118255	Turbidity	6.45	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118065	Chloride	0.959	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118065	Sulfate	1.67	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118269	Ammonia-N	0.463	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118269	Kjeldahl Nitrogen	5.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118232	NO2NO3-N	0.234	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118202	Total-P	2.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117965	O-Phosphate-P	0.489	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P370532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118254	Color (true)	1.20	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P371031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119156	Total Alkalinity	1.59	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P371183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118278	TDS	6.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P371509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119156	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P370754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118256	Organic Carbon	0.378	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: A94136

Included Lab Sample IDs: 2118268

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94137

Included Lab Sample IDs: 2118270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A94152

Included Lab Sample IDs: 2118268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94159

Included Lab Sample IDs: 2118268

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94193

Included Lab Sample IDs: 2118269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94245

Included Lab Sample IDs: 2118269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94255

Included Lab Sample IDs: 2118269

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94258

Included Lab Sample IDs: 2118269

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94277

Included Lab Sample IDs: 2118269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A94353

Included Lab Sample IDs: 2118268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94568

Included Lab Sample IDs: 2118268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					6.45	
EPA 300.0 Rev. 2.1	Chloride	102	103	104	101		0.959
	Sulfate	103	103	105	102		1.67
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	100			0.463
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.0	106			5.53
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	98.2				0.234
EPA 365.1 Rev. 2.0	Total-P	99.6	98.3	101			2.16
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	96.4	96.9			0.489
SM 2120 B	Color (true)	100				1.20	
SM 2320 B-97	Total Alkalinity	104				1.59	
SM 2540 C-97	TDS					6.13	
SM 4500 F-C-97	Fluoride	95.7	97.0	97.0			0.0
SM 5310 B-00	Organic Carbon	102	103	104			0.378

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2118268
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2118268
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2118268
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2118269
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2118269
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2118269
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2118269
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2118270
SM 2120 B / E31780	True Color measured at 450 nm	2118268
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2118268
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2118268
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2118268
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2118268
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2118269

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	09/11/2019			09/11/2019 16:13	Samantha Davila	2118268
EPA 300.0 Rev. 2.1	09/11/2019			09/14/2019 09:48	Jhamieka S. Greenwood	2118268
EPA 350.1 Rev. 2.0	09/11/2019			09/16/2019 12:47	Ping Hua	2118269
EPA 351.2 Rev. 2.0	09/11/2019	09/16/2019 14:05	Sima Feizi	09/17/2019 13:35	Julia Storbeck	2118269
EPA 353.2 Rev. 2.0	09/11/2019			09/13/2019 09:16	Beverly Y. Sanders	2118269
EPA 365.1 Rev. 2.0	09/11/2019	09/13/2019 13:45	Lipi Saha	09/16/2019 13:04	Rosalyn Ballman	2118269
EPA 365.1 Rev. 2.0 dissolved	09/11/2019			09/11/2019 16:25	Jhamieka S. Greenwood	2118270
SM 2120 B	09/11/2019			09/11/2019 17:51	Madeline Funaro	2118268
SM 2320 B-97	09/11/2019			09/18/2019 05:53	Dale L. Simmons	2118268
SM 2540 C-97	09/11/2019			09/17/2019 14:10	Yijie Li	2118268
SM 2540 D-97	09/11/2019			09/17/2019 14:10	Yijie Li	2118268
SM 4500 F-C-97	09/11/2019			09/25/2019 18:17	Dale L. Simmons	2118268
SM 5310 B-00	09/11/2019			09/16/2019 16:37	Madeline Funaro	2118269