

Chemical Analysis Report

TLH-ROC-2019-02-27-02

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

Event Description: **Run 3**
Request ID: **RQ-2018-12-31-30**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 19-MAR-2019 11:31



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: Bailey Mill Creek @ Wilson Rd

Collection Date/Time: 02/27/2019 10:00

Field ID: G1TLHR0081

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2065767	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P359638	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P360202	
		Sulfate	0.20	U	mg SO4/L	P360207	
	SM 2120 B	Color (true)	140		PCU	P359670	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P360160	
	SM 2540 C-97	TDS	70		mg/L	P360083	
	SM 2540 D-97	TSS	5	I	mg/L	P359987	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P360163	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P359944	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P359797	
2065768	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P359824	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P360130	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P359952	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.038		mg P/L	P359647	
	dissolved						

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359638

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360202

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360207

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359944

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359797

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359824

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360130

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359647

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

Reference Method: SM 2120 B
Batch ID: P359670

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P360160

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

Reference Method: SM 2540 C-97
Batch ID: P360083

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359987

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P360163

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359952

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: P360202

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360207

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359797

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: P359824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360130

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.5		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P359670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P360160

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P360163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065633	Chloride	102		P	90 - 110
2065714	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065633	Sulfate	102		P	90 - 110
2065714	Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065856	Ammonia-N	97.8	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065750	NO2NO3-N	98.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065786	Total-P	104	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065769	O-Phosphate-P	95.0	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P360163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065779	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065710	Organic Carbon	93.4	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065754	Turbidity	15.2	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065714	Chloride	0.568	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065714	Sulfate	0.906	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065856	Ammonia-N	2.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065710	Kjeldahl Nitrogen	1.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065750	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065786	Total-P	4.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065769	O-Phosphate-P	1.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P360160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065779	Total Alkalinity	0.576	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P360083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065749	TDS	4.71	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P360163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065779	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P359952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065710	Organic Carbon	1.59	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: A89702

Included Lab Sample IDs: 2065767

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89704

Included Lab Sample IDs: 2065769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.0	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A89714

Included Lab Sample IDs: 2065767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89771

Included Lab Sample IDs: 2065768

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89772

Included Lab Sample IDs: 2065768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89814

Included Lab Sample IDs: 2065768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89824

Included Lab Sample IDs: 2065768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.8	90.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89885

Included Lab Sample IDs: 2065767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Sulfate	102	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A89907
Included Lab Sample IDs: 2065767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A89907
Included Lab Sample IDs: 2065767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89989
Included Lab Sample IDs: 2065768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	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					15.2	
EPA 300.0 Rev. 2.1	Chloride	103	99.8	102		0.568	
	Sulfate	103	99.4	102		0.906	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	97.8	94.5			2.10
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102					1.58
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	98.5	97.5			1.02
EPA 365.1 Rev. 2.0	Total-P	99.0	104	99.2			4.88
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	95.0	96.7			1.27
SM 2120 B	Color (true)	102					
SM 2320 B-97	Total Alkalinity	102				0.576	
SM 2540 C-97	TDS					4.71	
SM 4500 F-C-97	Fluoride	94.8	101	101			0.0
SM 5310 B-00	Organic Carbon	94.1	93.4	96.2			1.59

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2065767
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2065767
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2065767
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2065768
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2065768
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2065768
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2065768
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2065769
SM 2120 B / E31780	True Color measured at 450 nm	2065767
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2065767
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2065767
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2065767
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2065767
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2065768

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	02/27/2019			02/27/2019 17:05	Adrian Shelby	2065767
EPA 300.0 Rev. 2.1	02/27/2019			03/09/2019 04:57	Lipi Saha	2065767
EPA 350.1 Rev. 2.0	02/27/2019			03/05/2019 14:12	Ping Hua	2065768
EPA 351.2 Rev. 2.0	02/27/2019	03/01/2019 14:15	Adrian Shelby	03/04/2019 13:45	Joseph Suarez	2065768
EPA 353.2 Rev. 2.0	02/27/2019			03/04/2019 10:24	Beverly Y. Sanders	2065768
EPA 365.1 Rev. 2.0	02/27/2019	03/08/2019 12:35	Sima Feizi	03/13/2019 15:24	Rosalyn Ballman	2065768
EPA 365.1 Rev. 2.0 dissolved	02/27/2019			02/27/2019 17:46	Jhamieka S. Greenwood	2065769
SM 2120 B	02/27/2019			02/27/2019 16:54	Chelsea Hernandez	2065767
SM 2320 B-97	02/27/2019			03/08/2019 00:35	Dale L. Simmons	2065767
SM 2540 C-97	02/27/2019			03/01/2019 15:19	Yijie Li	2065767
SM 2540 D-97	02/27/2019			03/01/2019 15:19	Yijie Li	2065767
SM 4500 F-C-97	02/27/2019			03/08/2019 00:35	Dale L. Simmons	2065767
SM 5310 B-00	02/27/2019			03/05/2019 07:50	Chelsea Hernandez	2065768