Chemical Analysis Report

TLH-ROC-2019-01-31-01

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

Event Description: **Run 10**
Request ID: **RQ-2019-01-21-13**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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Tallahassee, FL 32399
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Certified by: Colin Wright, Program Administrator

Date Certified: 15-FEB-2019 15:23

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: EAGLE NEST BAYOU @ MOUTH **Collection Date/Time: 01/31/2019 13:20**

Field ID: G3TLHR0041 Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058856	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P358140	
	EPA 300.0	Bromide	5.9		mg Br/L	P358982	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P358652	
	SM 2540 D-97	TSS	11		mg/L	P358292	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P358656	
2058857	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P358209	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P358276	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P358177	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P358298	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P358329	
2058858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P358232	

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: P358140

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P358982

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358209

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358276

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358177

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358298

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358232

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

Reference Method: SM 2320 B-97
Batch ID: P358652

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

Reference Method: SM 2540 D-97
Batch ID: P358292

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358329

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P358982

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358276

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: P358177

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358298

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358232

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

Reference Method: SM 2320 B-97
Batch ID: P358652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358329

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P358982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058620	Bromide	96.0		P	90 - 110
2061372	Bromide	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058025	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058083	Kjeldahl Nitrogen	104	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058857	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358298

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058559	Total-P	95.9	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058858	O-Phosphate-P	90.7	92.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058695	Fluoride	99.0	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058610	Organic Carbon	98.4	98.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058694	Turbidity	10.9	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P358982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058620	Bromide	0.790	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058025	Ammonia-N	0.689	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058083	Kjeldahl Nitrogen	4.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058857	NO2NO3-N	0.265	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058559	Total-P	0.381	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058858	O-Phosphate-P	1.45	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P358652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058695	Total Alkalinity	0.0584	Sample	P	0 - 1.6

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058695	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058610	Organic Carbon	0.196	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: A89128
Included Lab Sample IDs: 2058856

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89137
Included Lab Sample IDs: 2058857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89146
Included Lab Sample IDs: 2058857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A89153
Included Lab Sample IDs: 2058858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89186
Included Lab Sample IDs: 2058857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A89193
Included Lab Sample IDs: 2058857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89209
Included Lab Sample IDs: 2058857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A89314
Included Lab Sample IDs: 2058856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A89314
Included Lab Sample IDs: 2058856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	100	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A89435
Included Lab Sample IDs: 2058856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.5	99.0	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					10.9	
EPA 300.0	Bromide	100	96.0	96.0		0.790	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	104	105			0.689
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	109			4.25
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	100			0.265
EPA 365.1 Rev. 2.0	Total-P	104	95.9	96.3			0.381
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	90.7	92.1			1.45
SM 2320 B-97	Total Alkalinity	103				0.0584	
SM 4500 F-C-97	Fluoride	96.8	99.0	98.2			0.480
SM 5310 B-00	Organic Carbon	98.8	98.4	98.1			0.196

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2058856
EPA 300.0 / E31780	Bromide in aqueous matrices	2058856
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2058857
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2058857
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2058857
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2058857
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2058858
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2058856
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2058856
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2058856
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2058857

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	01/31/2019			01/31/2019 16:32	Adrian Shelby	2058856
EPA 300.0	01/31/2019			02/14/2019 16:46	Lipi Saha	2058856
EPA 350.1 Rev. 2.0	01/31/2019			02/01/2019 14:22	Ping Hua	2058857
EPA 351.2 Rev. 2.0	01/31/2019	02/04/2019 12:25	Adrian Shelby	02/05/2019 09:58	Joseph Suarez	2058857
EPA 353.2 Rev. 2.0	01/31/2019			02/01/2019 11:57	Beverly Y. Sanders	2058857
EPA 365.1 Rev. 2.0	01/31/2019	02/04/2019 13:15	Sima Feizi	02/05/2019 17:41	Rosalyn Ballman	2058857
EPA 365.1 Rev. 2.0 dissolved	01/31/2019			02/01/2019 18:49	Jhamieka S. Greenwood	2058858
SM 2320 B-97	01/31/2019			02/09/2019 16:39	Dale L. Simmons	2058856
SM 2540 D-97	01/31/2019			02/01/2019 16:00	Mariam Hanna	2058856
SM 4500 F-C-97	01/31/2019			02/09/2019 16:39	Dale L. Simmons	2058856
SM 5310 B-00	01/31/2019			02/05/2019 07:33	Julia Storbeck	2058857