

Chemical Analysis Report

TLH-ROC-2020-10-15-02

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

Event Description: **Run 2**
Request ID: **RQ-2020-10-05-64**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 05-NOV-2020 10:56

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first few letters.

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: Direct Runoff Gulf @ Mouth

Collection Date/Time: 10/15/2020 10:50

Field ID: G1TLHR0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202756	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P388816	
	EPA 300.0 Rev. 2.1	Bromide	5.8		mg Br/L	P389482	
	SM 2320 B-2011	Total Alkalinity	105		mg CaCO3/L	P389112	
	SM 2540 D-2011	TSS	18		mg/L	P388974	
	SM 4500 F-C-2011	Fluoride	0.23		mg F/L	P389117	
2202757	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P388847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P389043	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.62		mg N/L	P389071	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P388935	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P388947	
2202758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.084		mg P/L	P388746	

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: P388816

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389482

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388847

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389043

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389071

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388746

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

Reference Method: SM 2320 B-2011
Batch ID: P389112

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

Reference Method: SM 2540 D-2011
Batch ID: P388974

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P388947

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: P389482

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388847

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: P389043

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389071

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: P388935

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388746

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

Reference Method: SM 2320 B-2011
Batch ID: P389112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P388947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202265	Bromide	101	106	P/P	90 - 110
2202645	Bromide	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202529	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202272	Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202273	NO2NO3-N	95.8	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202801	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202274	O-Phosphate-P	99.5	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202774	Fluoride	99.1	103	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P388947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202404	Organic Carbon	97.1	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P388816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202746	Turbidity	2.65	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P389482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202265	Bromide	3.22	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P388847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202529	Ammonia-N	0.447	Spike	P	0 - 15

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202272	Kjeldahl Nitrogen	2.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202273	NO2NO3-N	0.497	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P388935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202801	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P388746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202274	O-Phosphate-P	0.605	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P389112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202774	Total Alkalinity	0.527	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202774	Fluoride	0.928	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P388947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202404	Organic Carbon	1.29	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: A101545

Included Lab Sample IDs: 2202758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101567

Included Lab Sample IDs: 2202756

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101575

Included Lab Sample IDs: 2202757

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

Reference Method: SM 5310 B-2011

Run ID: A101631

Included Lab Sample IDs: 2202757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101675

Included Lab Sample IDs: 2202757

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101680

Included Lab Sample IDs: 2202757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A101694

Included Lab Sample IDs: 2202756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101694

Included Lab Sample IDs: 2202756

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101732

Included Lab Sample IDs: 2202757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	106	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101855

Included Lab Sample IDs: 2202756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	97.1	97.8	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					2.65	
EPA 300.0 Rev. 2.1	Bromide	106	101	106	102		3.22
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	102			0.447
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	109	107			2.19
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	95.8	96.2			0.497
EPA 365.1 Rev. 2.0	Total-P	106	101	103			1.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	99.5	98.9			0.605
SM 2320 B-2011	Total Alkalinity	99.7				0.527	
SM 4500 F-C-2011	Fluoride	98.3	99.1	103			0.928
SM 5310 B-2011	Organic Carbon	95.8	97.1	98.8			1.29

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2202756
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2202756
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2202757
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2202757
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2202757
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2202757
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2202758
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2202756
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2202756
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2202756
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2202757

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	10/15/2020			10/16/2020 15:33	Yen Ta	2202756
EPA 300.0 Rev. 2.1	10/15/2020			10/29/2020 03:39	Lipi Saha	2202756
EPA 350.1 Rev. 2.0	10/15/2020			10/18/2020 12:52	Ping Hua	2202757
EPA 351.2 Rev. 2.0	10/15/2020	10/21/2020 13:53	David Boose	10/23/2020 15:30	Elliott Rodriguez	2202757
EPA 353.2 Rev. 2.0	10/15/2020			10/22/2020 09:06	Beverly Y. Sanders	2202757
EPA 365.1 Rev. 2.0	10/15/2020	10/20/2020 12:45	Yen Ta	10/22/2020 11:03	Lipi Saha	2202757
EPA 365.1 Rev. 2.0 dissolved	10/15/2020			10/15/2020 16:16	Virginia P. Brown	2202758
SM 2320 B-2011	10/15/2020			10/22/2020 07:44	Samantha Davila	2202756
SM 2540 D-2011	10/15/2020			10/16/2020 20:07	Madeline Gruver	2202756
SM 4500 F-C-2011	10/15/2020			10/22/2020 07:44	Samantha Davila	2202756
SM 5310 B-2011	10/15/2020			10/20/2020 04:19	Lauren Lees	2202757