

Chemical Analysis Report

TLH-ROC-2021-01-25-01

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

Event Description: **Run 1**
Request ID: **RQ-2021-01-04-24**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 16-FEB-2021 10:37



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: 01/25/2021 11:30

Field ID: G1TLHR0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2221112	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P392997	
	EPA 300.0 Rev. 2.1	Bromide	6.7		mg Br/L	P393038	
	SM 2320 B-2011	Total Alkalinity	75		mg CaCO3/L	P393051	
	SM 2540 D-2011	TSS	6	I	mg/L	P393360	
	SM 4500 F-C-2011	Fluoride	0.22		mg F/L	P393054	
2221113	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P393459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P393124	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.47		mg N/L	P392961	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P393151	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P393049	
2221114	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P392945	

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: P392997

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393038

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393151

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392945

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

Reference Method: SM 2320 B-2011
Batch ID: P393051

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

Reference Method: SM 2540 D-2011
Batch ID: P393360

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P393054

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393049

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: P393038

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

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: P393151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392945

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

Reference Method: SM 2320 B-2011
Batch ID: P393051

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.0		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P393054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P393049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221122	Bromide	98.8	98.5	P/P	90 - 110
2221195	Bromide	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P393459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220828	Ammonia-N	98.9	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P393124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220723	Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P392961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220722	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P393151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220828	Total-P	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P392945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221133	O-Phosphate-P	97.7	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Batch ID: P393054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221369	Fluoride	101	101	P/P	94 - 107

Reference Method: SM 5310 B-2011

Batch ID: P393049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221160	Organic Carbon	97.8	97.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P392997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221536	Turbidity	2.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221122	Bromide	0.286	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220828	Ammonia-N	3.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220723	Kjeldahl Nitrogen	1.87	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220722	NO2NO3-N	0.645	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220828	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221133	O-Phosphate-P	0.383	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P393051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221369	Total Alkalinity	0.979	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P393054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221369	Fluoride	0.451	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P393049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221160	Organic Carbon	0.100	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: A103257

Included Lab Sample IDs: 2221114

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103259

Included Lab Sample IDs: 2221113

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103266

Included Lab Sample IDs: 2221112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.8	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103269

Included Lab Sample IDs: 2221112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 5310 B-2011

Run ID: A103283

Included Lab Sample IDs: 2221113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	96.7	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A103284

Included Lab Sample IDs: 2221112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.6	93.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103284

Included Lab Sample IDs: 2221112

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103346

Included Lab Sample IDs: 2221113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103347

Included Lab Sample IDs: 2221113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103455

Included Lab Sample IDs: 2221113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	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					2.52	
EPA 300.0 Rev. 2.1	Bromide	101	98.8	98.5	99.1		0.286
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.9	103			3.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	106	104			1.87
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	99.5	100			0.645
EPA 365.1 Rev. 2.0	Total-P	108	106	104			1.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	97.7	97.3			0.383
SM 2320 B-2011	Total Alkalinity	96.0				0.979	
SM 4500 F-C-2011	Fluoride	100	101	101			0.451
SM 5310 B-2011	Organic Carbon	96.4	97.8	97.9			0.100

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2221112
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2221112
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2221113
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2221113
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2221113
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2221113
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2221114
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2221112
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2221112
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2221112
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2221113

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	01/25/2021			01/26/2021 16:32	Yen Ta	2221112
EPA 300.0 Rev. 2.1	01/25/2021			01/28/2021 02:58	Lipi Saha	2221112
EPA 350.1 Rev. 2.0	01/25/2021			02/07/2021 10:00	Ping Hua	2221113
EPA 351.2 Rev. 2.0	01/25/2021	01/29/2021 12:30	Yen Ta	02/01/2021 15:01	Julia Storbeck	2221113
EPA 353.2 Rev. 2.0	01/25/2021			01/27/2021 10:28	Beverly Y. Sanders	2221113
EPA 365.1 Rev. 2.0	01/25/2021	01/29/2021 17:05	Shengyu Wang	02/01/2021 15:29	Shengyu Wang	2221113
EPA 365.1 Rev. 2.0 dissolved	01/25/2021			01/26/2021 15:49	Blanca Fach	2221114
SM 2320 B-2011	01/25/2021			01/27/2021 22:44	Dale L. Simmons	2221112
SM 2540 D-2011	01/25/2021			01/29/2021 15:32	Yijie Li	2221112
SM 4500 F-C-2011	01/25/2021			01/27/2021 22:44	Dale L. Simmons	2221112
SM 5310 B-2011	01/25/2021			01/27/2021 05:43	Touraj Touran	2221113