Chemical Analysis Report

TLH-ROC-2022-08-31-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Run 2**
Request ID: **RQ-2022-07-11-58**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 21-SEP-2022 10:30

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: 08/31/2022 11:50**

Field ID: G1TLHR0115 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353472	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P419015	
	SM 2320 B-2011	Total Alkalinity	127		mg CaCO3/L	P419410	
	SM 2540 D-2011	TSS	3	I	mg/L	P419321	
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P419389	
2353474	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P419155	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P419099	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.76		mg N/L	P419328	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P419038	
	SM 5310 B-2011	Organic Carbon	9.4		mg C/L	P419186	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Direct Runoff Gulf ENCOC FCOLI **Collection Date/Time: 08/31/2022 12:00**

Field ID: G1TLHR0116 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353473	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P419015	
	SM 2320 B-2011	Total Alkalinity	130		mg CaCO3/L	P419410	
	SM 2540 D-2011	TSS	4	I	mg/L	P419321	
	SM 4500-F- C-2011	Fluoride	0.37		mg F/L	P419280	
2353475	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P419155	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P419099	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.53		mg N/L	P419328	
	EPA 365.1 Rev. 2.0	Total-P	0.095		mg P/L	P419038	
	SM 5310 B-2011	Organic Carbon	8.6		mg C/L	P419188	

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: P419015

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419155

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419099

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419328

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419038

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

Reference Method: SM 2320 B-2011
Batch ID: P419410

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

Reference Method: SM 2540 D-2011
Batch ID: P419321

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P419280

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P419389

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P419186

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

Reference Method: SM 5310 B-2011
Batch ID: P419188

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419155

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: P419099

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: P419328

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: P419038

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

Reference Method: SM 2320 B-2011
Batch ID: P419410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P419280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P419389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P419186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P419188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353121	Ammonia-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353861	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353610	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353260	Total-P	92.6	92.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P419280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353473	Fluoride	97.8	98.5	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P419389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353650	Fluoride	99.9	98.0	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P419186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353290	Organic Carbon	96.4	96.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P419188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353844	Organic Carbon	99.8	101	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353547	Turbidity	14.7	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353121	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353861	Kjeldahl Nitrogen	0.00665	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353610	NO2NO3-N	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353260	Total-P	0.162	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P419410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353420	Total Alkalinity	0.126	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P419280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353473	Fluoride	0.470	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P419389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353650	Fluoride	1.45	Spike	P	0 - 1.6

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P419186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353290	Organic Carbon	0.0	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P419188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353844	Organic Carbon	1.08	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A114489
Included Lab Sample IDs: 2353472, 2353473

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114548
Included Lab Sample IDs: 2353474, 2353475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A114553
Included Lab Sample IDs: 2353474, 2353475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	100	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A114570
Included Lab Sample IDs: 2353474

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

Reference Method: SM 5310 B-2011
Run ID: A114572
Included Lab Sample IDs: 2353475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	94.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A114576
Included Lab Sample IDs: 2353474, 2353475

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

Reference Method: SM 4500-F- C-2011
Run ID: A114599
Included Lab Sample IDs: 2353473

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A114620
Included Lab Sample IDs: 2353474, 2353475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A114660
Included Lab Sample IDs: 2353472

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

Reference Method: SM 2320 B-2011
Run ID: A114670
Included Lab Sample IDs: 2353472, 2353473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	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		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity	96.4				14.7	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	98.0	98.0			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	104			0.0066
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	102			1.31
EPA 365.1 Rev. 2.0	Total-P	103	92.6	92.7			0.162
SM 2320 B-2011	Total Alkalinity	101				0.126	
SM 4500-F- C-2011	Fluoride	102	97.8	98.5			0.470
	Fluoride	102	99.9	98.0			1.45
SM 5310 B-2011	Organic Carbon	96.5	96.4	96.4			0.0
	Organic Carbon	95.0	99.8	101			1.08

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2353472, 2353473
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2353474, 2353475
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2353474, 2353475
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2353474, 2353475
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2353474, 2353475
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2353472, 2353473
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2353472, 2353473
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2353472, 2353473
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2353474, 2353475

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	08/31/2022			09/01/2022 13:30	Chandler E Cox	2353472, 2353473
EPA 350.1 Rev. 2.0	08/31/2022			09/06/2022 13:41	Judith K. Clark	2353474
	08/31/2022			09/06/2022 13:43	Judith K. Clark	2353475
EPA 351.2 Rev. 2.0	08/31/2022	09/06/2022 14:30	Alexandra J Mattheus	09/07/2022 12:20	Alexandra J Mattheus	2353474
	08/31/2022	09/06/2022 14:30	Alexandra J Mattheus	09/07/2022 12:21	Alexandra J Mattheus	2353475
EPA 353.2 Rev. 2.0	08/31/2022			09/08/2022 15:32	Touraj Touran	2353474
	08/31/2022			09/08/2022 15:33	Touraj Touran	2353475
EPA 365.1 Rev. 2.0	08/31/2022	09/02/2022 10:28	Simonne.V. Calhoun	09/06/2022 12:55	James L Waggerby	2353474
	08/31/2022	09/02/2022 10:28	Simonne.V. Calhoun	09/06/2022 12:56	James L Waggerby	2353475
SM 2320 B-2011	08/31/2022			09/11/2022 21:17	Dale L. Simmons	2353472
	08/31/2022			09/11/2022 21:27	Dale L. Simmons	2353473
SM 2540 D-2011	08/31/2022			09/02/2022 16:08	Yijie Li	2353472, 2353473
SM 4500-F- C-2011	08/31/2022			09/07/2022 23:56	Adam P Silver	2353473
	08/31/2022			09/09/2022 15:06	Dale L. Simmons	2353472
SM 5310 B-2011	08/31/2022			09/06/2022 18:09	Khloe J Berg	2353475
	08/31/2022			09/07/2022 08:07	Khloe J Berg	2353474