Chemical Analysis Report

TLH-ROC-2021-10-06-01

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-2021-09-27-05**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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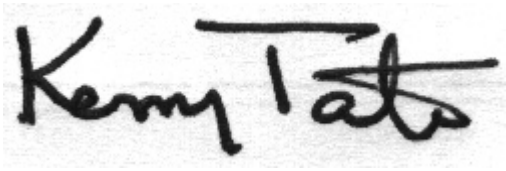
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 29-OCT-2021 10:45



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 ENCOC FCOLI **Collection Date/Time: 10/06/2021 12:15**

Field ID: G1TLHR0116 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2281248	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P404813	
	SM 2320 B-2011	Total Alkalinity	82		mg CaCO3/L	P405084	
	SM 2540 D-2011	TSS	7	I A	mg/L	P405248	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P405086	
2281249	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P405072	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P405321	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.50		mg N/L	P404980	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P404916	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P404846	
2281250	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.084		mg P/L	P404712	

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: P404813

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405072

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404980

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404916

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404712

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

Reference Method: SM 2320 B-2011
Batch ID: P405084

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

Reference Method: SM 2540 D-2011
Batch ID: P405248

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405086

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: P404846

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404980

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: P404916

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404712

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

Reference Method: SM 2320 B-2011
Batch ID: P405084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P405086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P404846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2281363	Ammonia-N	96.6	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282622	Kjeldahl Nitrogen	89.9	98.0	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282452	NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279418	Total-P	106	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2281477	O-Phosphate-P	96.5	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P405086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282203	Fluoride	102	103	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280430	Organic Carbon	94.0	92.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281248	Turbidity	2.82	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281363	Ammonia-N	0.638	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282622	Kjeldahl Nitrogen	4.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282452	NO2NO3-N	0.601	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279418	Total-P	2.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281477	O-Phosphate-P	0.461	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P405084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282203	Total Alkalinity	0.952	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P405086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282203	Fluoride	0.953	Spike	P	0 - 2.1

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P404846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280430	Organic Carbon	0.870	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: A108196
Included Lab Sample IDs: 2281250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A108242
Included Lab Sample IDs: 2281248

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 5310 B-2011
Run ID: A108262
Included Lab Sample IDs: 2281249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108304
Included Lab Sample IDs: 2281249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108305
Included Lab Sample IDs: 2281249

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A108343
Included Lab Sample IDs: 2281249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A108344
Included Lab Sample IDs: 2281248

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.6	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A108344
Included Lab Sample IDs: 2281248

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108465
Included Lab Sample IDs: 2281249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.5	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					2.82	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	96.6	97.4			0.638
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	89.9	98.0			4.58
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	99.0			0.601
EPA 365.1 Rev. 2.0	Total-P	101	106	103			2.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	96.5	96.0			0.461
SM 2320 B-2011	Total Alkalinity	97.7				0.952	
SM 4500 F-C-2011	Fluoride	102	102	103			0.953
SM 5310 B-2011	Organic Carbon	95.4	94.0	92.6			0.870

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2281248
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2281249
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2281249
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2281249
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2281249
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2281250
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2281248
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2281248
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2281248
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2281249

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	10/06/2021			10/07/2021 16:30	Khloe J Berg	2281248
EPA 350.1 Rev. 2.0	10/06/2021			10/14/2021 12:33	Ping Hua	2281249
EPA 351.2 Rev. 2.0	10/06/2021	10/20/2021 12:20	Benjamin T. Nordmann	10/21/2021 10:53	Alexandra J Mattheus	2281249
EPA 353.2 Rev. 2.0	10/06/2021			10/13/2021 11:19	Beverly Y. Sanders	2281249
EPA 365.1 Rev. 2.0	10/06/2021	10/12/2021 18:10	Simonne.V. Calhoun	10/13/2021 10:38	Lipi Saha	2281249
EPA 365.1 Rev. 2.0 dissolved	10/06/2021			10/07/2021 11:16	James L Waggerby	2281250
SM 2320 B-2011	10/06/2021			10/14/2021 05:11	Sarah A Nixon	2281248
SM 2540 D-2011	10/06/2021			10/11/2021 15:05	Yijie Li	2281248
SM 4500 F-C-2011	10/06/2021			10/14/2021 05:11	Sarah A Nixon	2281248
SM 5310 B-2011	10/06/2021			10/09/2021 05:11	Khloe J Berg	2281249