Chemical Analysis Report

TLH-ROC-2021-12-28-01

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

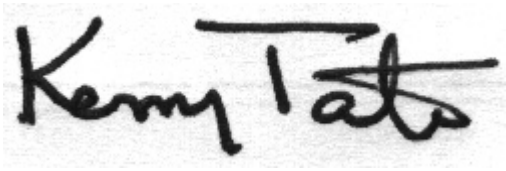
Event Description: **MondayRun - Fenholloway, Aucilla, Blank_Marine**
Request ID: **RQ-2021-11-01-36**
Customer: **TLH-ROC**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

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

Date Certified: 19-JAN-2022 10:57



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: Aucilla River @ Mouth **Collection Date/Time: 12/28/2021 09:30**

Field ID: G1TLHR0091 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2296763	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P407938	
	SM 2320 B-2011	Total Alkalinity	139		mg CaCO3/L	P408144	
	SM 2540 D-2011	TSS	2	I	mg/L	P408079	
	SM 4500 F-C-2011	Fluoride	0.37		mg F/L	P408101	
2296764	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P408252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P408103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P408049	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P408030	
	SM 5310 B-2011	Organic Carbon	6.5		mg C/L	P408368	
2296765	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P407934	

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: P407938

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408252

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408103

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408049

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408030

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407934

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

Reference Method: SM 2320 B-2011
Batch ID: P408144

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

Reference Method: SM 2540 D-2011
Batch ID: P408079

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P408101

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: P408368

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: P408252

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408103

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408049

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: P408030

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407934

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

Reference Method: SM 2320 B-2011
Batch ID: P408144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.0		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P408101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P408368

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 350.1 Rev. 2.0
Batch ID: P408252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296764	Ammonia-N	96.4	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296852	Kjeldahl Nitrogen	95.1	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296764	NO2NO3-N	99.6	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296718	Total-P	99.8	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296696	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P408101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296685	Fluoride	97.7	98.5	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P408368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297778	Organic Carbon	94.3	95.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296763	Turbidity	5.91	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296764	Ammonia-N	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296852	Kjeldahl Nitrogen	0.650	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296764	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296718	Total-P	0.201	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296696	O-Phosphate-P	1.97	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P408144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297164	Total Alkalinity	0.541	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P408101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296685	Fluoride	0.480	Spike	P	0 - 2.1

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P408368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297778	Organic Carbon	1.01	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: A109590
Included Lab Sample IDs: 2296765

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A109594
Included Lab Sample IDs: 2296763

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A109651
Included Lab Sample IDs: 2296764

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

Reference Method: SM 4500 F-C-2011
Run ID: A109677
Included Lab Sample IDs: 2296763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A109691
Included Lab Sample IDs: 2296763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.4	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A109738
Included Lab Sample IDs: 2296764

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	98.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A109798
Included Lab Sample IDs: 2296764

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A109814
Included Lab Sample IDs: 2296764

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A109846
Included Lab Sample IDs: 2296764

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	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					5.91	
EPA 350.1 Rev. 2.0	Ammonia-N	101	96.4	98.4			1.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.5	95.1	94.4			0.650
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.6	99.6			0.0
EPA 365.1 Rev. 2.0	Total-P	107	99.8	99.6			0.201
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	103			1.97
SM 2320 B-2011	Total Alkalinity	98.0				0.541	
SM 4500 F-C-2011	Fluoride	98.9	97.7	98.5			0.480
SM 5310 B-2011	Organic Carbon	95.8	94.3	95.9			1.01

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2296763
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2296764
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2296764
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2296764
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2296764
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2296765
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2296763
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2296763
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2296763
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2296764

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	12/28/2021			12/28/2021 14:51	Khloe J Berg	2296763
EPA 350.1 Rev. 2.0	12/28/2021			01/07/2022 16:12	Ping Hua	2296764
EPA 351.2 Rev. 2.0	12/28/2021	01/06/2022 11:19	Samantha L Bates	01/10/2022 13:26	Alexandra J Mattheus	2296764
EPA 353.2 Rev. 2.0	12/28/2021			01/04/2022 09:53	Beverly Y. Sanders	2296764
EPA 365.1 Rev. 2.0	12/28/2021	01/05/2022 15:30	Simonne.V. Calhoun	01/13/2022 12:49	Shengyu Ding	2296764
EPA 365.1 Rev. 2.0 dissolved	12/28/2021			12/28/2021 15:29	James L Waggerby	2296765
SM 2320 B-2011	12/28/2021			01/05/2022 20:33	Dale L. Simmons	2296763
SM 2540 D-2011	12/28/2021			12/29/2021 13:50	Blanca Fach	2296763
SM 4500 F-C-2011	12/28/2021			01/04/2022 23:54	Dale L. Simmons	2296763
SM 5310 B-2011	12/28/2021			01/11/2022 17:10	Khloe J Berg	2296764