Chemical Analysis Report

TLH-ROC-2021-10-13-01

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

Event Description: **Run 10**
Request ID: **RQ-2021-01-11-47**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Tallahassee, FL 32399
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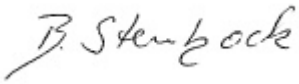
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 04-NOV-2021 14:10



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: Dead Lakes @ SR22 **Collection Date/Time: 10/13/2021 11:30**

Field ID: G2TLHR0047 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283317	EPA 180.1 Rev. 2.0	Turbidity	5.4	A	NTU	P405051	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P405158	
		Sulfate	1.3		mg SO4/L	P405161	
	SM 2120 B-2011	Color (true)	85	A	PCU	P405056	
	SM 2320 B-2011	Total Alkalinity	60		mg CaCO3/L	P405148	
	SM 2540 C-2011	TDS	93		mg/L	P405597	
	SM 2540 D-2011	TSS	3	I	mg/L	P405593	
	SM 4500 F-C-2011	Fluoride	0.039	I	mg F/L	P405154	
2283318	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P405439	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P405475	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P405314	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P405210	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P405421	
2283319	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P405079	

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: P405051

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405158

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405161

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405439

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405475

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405314

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405210

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405079

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

Reference Method: SM 2120 B-2011
Batch ID: P405056

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P405148

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

Reference Method: SM 2540 C-2011
Batch ID: P405597

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P405593

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405154

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P405421

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: P405158

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405161

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405475

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: P405314

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: P405210

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P405056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P405148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P405154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P405421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283279	Chloride	102		P	90 - 110
2283352	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283279	Sulfate	105		P	90 - 110
2283352	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283318	Ammonia-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283187	Kjeldahl Nitrogen	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283556	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283396	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283333	O-Phosphate-P	96.1	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P405154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282443	Fluoride	102	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P405421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283506	Organic Carbon	97.7	96.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P405051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283317	Turbidity	3.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283279	Chloride	0.442	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283279	Sulfate	0.610	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283318	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283187	Kjeldahl Nitrogen	1.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283556	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283396	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283333	O-Phosphate-P	0.0996	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P405056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283317	Color (true)	1.47	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P405148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282443	Total Alkalinity	4.87	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P405597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283347	TDS	1.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P405154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282443	Fluoride	0.513	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P405421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283506	Organic Carbon	0.507	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A108279
Included Lab Sample IDs: 2283317

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A108337
Included Lab Sample IDs: 2283317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A108338
Included Lab Sample IDs: 2283317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A108345
Included Lab Sample IDs: 2283319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.7	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A108368
Included Lab Sample IDs: 2283317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A108368
Included Lab Sample IDs: 2283317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108437
Included Lab Sample IDs: 2283318

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108451
Included Lab Sample IDs: 2283318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A108471
Included Lab Sample IDs: 2283318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A108476
Included Lab Sample IDs: 2283318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108513
Included Lab Sample IDs: 2283318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	97.6	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					3.70	
EPA 300.0 Rev. 2.1	Chloride	102	102	101		0.442	
	Sulfate	102	105	102		0.610	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	99.0	99.0			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	100			1.46
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	104	105	104			1.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	96.1	96.2			0.0996
SM 2120 B-2011	Color (true)	101				1.47	
SM 2320 B-2011	Total Alkalinity	102				4.87	
SM 2540 C-2011	TDS					1.06	
SM 4500 F-C-2011	Fluoride	103	102	101			0.513
SM 5310 B-2011	Organic Carbon	97.6	97.7	96.8			0.507

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2283317
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2283317
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2283317
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2283318
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2283318
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2283318
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2283318
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2283319
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2283317
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2283317
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2283317
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2283317
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2283317
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2283318

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	10/13/2021			10/14/2021 16:12	Khloe J Berg	2283317
EPA 300.0 Rev. 2.1	10/13/2021			10/16/2021 01:03	Roberta Tatti	2283317
EPA 350.1 Rev. 2.0	10/13/2021			10/21/2021 12:58	Ping Hua	2283318
EPA 351.2 Rev. 2.0	10/13/2021	10/22/2021 12:45	Benjamin T. Nordmann	10/25/2021 11:39	Alexandra J Mattheus	2283318
EPA 353.2 Rev. 2.0	10/13/2021			10/20/2021 10:45	Beverly Y. Sanders	2283318
EPA 365.1 Rev. 2.0	10/13/2021	10/19/2021 16:46	Simonne.V. Calhoun	10/20/2021 15:47	Lipi Saha	2283318
EPA 365.1 Rev. 2.0 dissolved	10/13/2021			10/14/2021 14:41	Blanca Fach	2283319
SM 2120 B-2011	10/13/2021			10/14/2021 16:28	Benjamin T. Nordmann	2283317
SM 2320 B-2011	10/13/2021			10/16/2021 17:50	Dale L. Simmons	2283317
SM 2540 C-2011	10/13/2021			10/19/2021 15:08	Yijie Li	2283317
SM 2540 D-2011	10/13/2021			10/19/2021 15:08	Yijie Li	2283317
SM 4500 F-C-2011	10/13/2021			10/16/2021 17:50	Dale L. Simmons	2283317
SM 5310 B-2011	10/13/2021			10/21/2021 06:19	Khloe J Berg	2283318