Chemical Analysis Report

TLH-ROC-2021-12-08-01

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-2021-01-04-23**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 04-JAN-2022 14:20

B. Steinbock

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: Telford Spring **Collection Date/Time: 12/08/2021 10:45**

Field ID: G1TLHR0141 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2294214	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P407227	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P407363	
		Sulfate	42		mg SO4/L	P407366	
	SM 2120 B-2011	Color (true)	3.0	I	PCU	P407231	
	SM 2320 B-2011	Total Alkalinity	202		mg CaCO3/L	P407452	
	SM 2540 C-2011	TDS	282		mg/L	P407672	
	SM 2540 D-2011	TSS	4	I	mg/L	P407694	
	SM 4500 F-C-2011	Fluoride	0.21		mg F/L	P407453	
2294215	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P407715	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P407875	
	EPA 353.2 Rev. 2.0	NO2NO3-N	4.2		mg N/L	P407374	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P407340	
	SM 5310 B-2011	Organic Carbon	1.0		mg C/L	P407894	
2294216	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P407218	

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: P407227

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407363

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407366

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407715

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407374

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407340

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407218

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

Reference Method: SM 2120 B-2011
Batch ID: P407231

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P407452

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

Reference Method: SM 2540 C-2011
Batch ID: P407672

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407694

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P407894

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: P407363

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407366

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407715

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407340

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407218

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

Reference Method: SM 2120 B-2011
Batch ID: P407231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P407452

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P407894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293857	Chloride	102		P	90 - 110
2294046	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293857	Sulfate	97.3		P	90 - 110
2294046	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294064	Ammonia-N	99.8	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294502	Kjeldahl Nitrogen	97.4	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294305	NO2NO3-N	99.2	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294098	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294065	O-Phosphate-P	100	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294582	Fluoride	100	100	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P407894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294456	Organic Carbon	99.4		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294214	Turbidity	11.3	Sample	P	0 - 15

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293857	Chloride	0.221	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293857	Sulfate	0.678	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294064	Ammonia-N	0.316	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294502	Kjeldahl Nitrogen	3.03	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294305	NO2NO3-N	0.462	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294098	Total-P	0.783	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294065	O-Phosphate-P	1.41	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P407231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294127	Color (true)	5.32	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P407452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294582	Total Alkalinity	1.39	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P407672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294076	TDS	1.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294582	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294456	Organic Carbon	0.716	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: A109256
Included Lab Sample IDs: 2294214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	105	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A109275
Included Lab Sample IDs: 2294216

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: A109277
Included Lab Sample IDs: 2294214

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

Reference Method: SM 2120 B-2011
Run ID: A109278
Included Lab Sample IDs: 2294214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A109348
Included Lab Sample IDs: 2294215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A109384
Included Lab Sample IDs: 2294214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A109384
Included Lab Sample IDs: 2294214

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A109471
Included Lab Sample IDs: 2294215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	106	105	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A109493
Included Lab Sample IDs: 2294215

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

Reference Method: SM 5310 B-2011
Run ID: A109567
Included Lab Sample IDs: 2294215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A109613
Included Lab Sample IDs: 2294215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	92.0	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					11.3 RSD	
EPA 300.0 Rev. 2.1	Chloride	104	102	105		0.221	
	Sulfate	98.4	97.3	99.0		0.678	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	99.8	99.4			0.316
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	97.4	101			3.03
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.2	99.6			0.462
EPA 365.1 Rev. 2.0	Total-P	106	108	109			0.783
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	100	98.7			1.41
SM 2120 B-2011	Color (true)	104				5.32	
SM 2320 B-2011	Total Alkalinity	101				1.39	
SM 2540 C-2011	TDS					1.45	
SM 4500 F-C-2011	Fluoride	101	100	100			0.0
SM 5310 B-2011	Organic Carbon	98.4	99.4				0.716

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2294214
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2294214
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2294214
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2294215
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2294215
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2294215
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2294215
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2294216
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2294214
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2294214
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2294214
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2294214
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2294214
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2294215

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	12/08/2021			12/08/2021 16:09	Khloe J Berg	2294214
EPA 300.0 Rev. 2.1	12/08/2021			12/10/2021 23:08	Roberta Tatti	2294214
EPA 350.1 Rev. 2.0	12/08/2021			12/20/2021 13:19	Ping Hua	2294215
EPA 351.2 Rev. 2.0	12/08/2021	12/28/2021 02:23	Samantha L Bates	12/29/2021 16:05	Alexandra J Mattheus	2294215
EPA 353.2 Rev. 2.0	12/08/2021			12/13/2021 11:48	Beverly Y. Sanders	2294215
EPA 365.1 Rev. 2.0	12/08/2021	12/14/2021 10:43	Simonne.V. Calhoun	12/17/2021 16:04	Shengyu Ding	2294215
EPA 365.1 Rev. 2.0 dissolved	12/08/2021			12/08/2021 15:12	James L Waggerby	2294216
SM 2120 B-2011	12/08/2021			12/08/2021 16:43	Samantha L Bates	2294214
SM 2320 B-2011	12/08/2021			12/14/2021 09:37	Sarah A Nixon	2294214
SM 2540 C-2011	12/08/2021			12/10/2021 15:28	Yijie Li	2294214
SM 2540 D-2011	12/08/2021			12/10/2021 15:28	Yijie Li	2294214
SM 4500 F-C-2011	12/08/2021			12/14/2021 09:37	Sarah A Nixon	2294214
SM 5310 B-2011	12/08/2021			12/25/2021 23:30	Touraj Touran	2294215