

Chemical Analysis Report

TLH-ROC-2020-08-25-02

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

Event Description: **Run 4b**
Request ID: **RQ-2020-06-29-34**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 14-SEP-2020 17:49



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: Crooked River @ Post 46

Collection Date/Time: 08/25/2020 12:15

Field ID: G2TLHR0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2192041	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P386579	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P387059	
		Sulfate	1.6		mg SO4/L	P387064	
	SM 2120 B-2011	Color (true)	510		PCU	P386547	
	SM 2320 B-2011	Total Alkalinity	1.8	I	mg CaCO3/L	P386621	
	SM 2540 C-2011	TDS	96		mg/L	P386993	
	SM 2540 D-2011	TSS	4	I	mg/L	P386986	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P386623	
2192042	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P387015	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P386610	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P386543	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P386613	
	SM 5310 B-2011	Organic Carbon	47		mg C/L	P386595	
2192043	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P386544	

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: P386579

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387059

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387064

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387015

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386610

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386543

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386613

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386544

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

Reference Method: SM 2120 B-2011
Batch ID: P386547

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P386621

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P386993

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386986

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386595

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: P387059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P387064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P387015

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P386610

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P386543

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: P386613

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P386544

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

Reference Method: SM 2120 B-2011
 Batch ID: P386547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
 Batch ID: P386621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191971	Chloride	97.5		P	90 - 110
2192041	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191971	Sulfate	95.2		P	90 - 110
2192041	Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192024	Ammonia-N	98.6	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192000	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192000	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192024	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192058	O-Phosphate-P	102	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192055	Fluoride	95.0	96.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P386595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191946	Organic Carbon	102	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192084	Turbidity	9.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191971	Chloride	1.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191971	Sulfate	1.13	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192024	Ammonia-N	0.101	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192000	Kjeldahl Nitrogen	1.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192000	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192024	Total-P	0.628	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192058	O-Phosphate-P	2.05	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P386547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192054	Color (true)	5.49	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192055	Total Alkalinity	0.680	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191971	TDS	0.866	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192055	Fluoride	0.915	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191946	Organic Carbon	0.0720	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100651

Included Lab Sample IDs: 2192042

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 dissolved

Run ID: A100652

Included Lab Sample IDs: 2192043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.5	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A100653

Included Lab Sample IDs: 2192041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100660

Included Lab Sample IDs: 2192041

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

Reference Method: SM 5310 B-2011

Run ID: A100665

Included Lab Sample IDs: 2192042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	99.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A100675

Included Lab Sample IDs: 2192041

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

Reference Method: SM 4500 F-C-2011

Run ID: A100675

Included Lab Sample IDs: 2192041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100700

Included Lab Sample IDs: 2192042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100799

Included Lab Sample IDs: 2192042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100832

Included Lab Sample IDs: 2192042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100843

Included Lab Sample IDs: 2192041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	101	P/P	90 - 110
Sulfate	99.2	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	MS
EPA 180.1 Rev. 2.0	Turbidity				9.90	
EPA 300.0 Rev. 2.1	Chloride	97.3	97.5	97.5	1.33	
	Sulfate	96.6	95.2	95.4	1.13	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.6	98.4		0.101
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105	106		1.23
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	104	104		0.962
EPA 365.1 Rev. 2.0	Total-P	105	107	108		0.628
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	102	99.7		2.05
SM 2120 B-2011	Color (true)	100			5.49	
SM 2320 B-2011	Total Alkalinity	104			0.680	
SM 2540 C-2011	TDS				0.866	
SM 4500 F-C-2011	Fluoride	97.1	95.0	96.8		0.915
SM 5310 B-2011	Organic Carbon	100	102	101		0.0720

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2192041
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2192041
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2192041
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2192042
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2192042
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2192042
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2192042
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2192043
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2192041
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2192041
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2192041
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2192041
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2192041
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2192042

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	08/25/2020			08/26/2020 15:10	Yen Ta	2192041
EPA 300.0 Rev. 2.1	08/25/2020			09/04/2020 17:45	Julia Storbeck	2192041
EPA 350.1 Rev. 2.0	08/25/2020			09/05/2020 11:00	Ping Hua	2192042
EPA 351.2 Rev. 2.0	08/25/2020	08/27/2020 10:15	Sima Feizi	08/28/2020 10:51	Virginia P. Brown	2192042
EPA 353.2 Rev. 2.0	08/25/2020			08/26/2020 09:59	Beverly Y. Sanders	2192042
EPA 365.1 Rev. 2.0	08/25/2020	08/27/2020 11:54	Yen Ta	09/03/2020 10:49	Lipi Saha	2192042
EPA 365.1 Rev. 2.0 dissolved	08/25/2020			08/26/2020 09:57	Blanca Fach	2192043
SM 2120 B-2011	08/25/2020			08/26/2020 11:02	Benjamin T. Nordmann	2192041
SM 2320 B-2011	08/25/2020			08/26/2020 20:01	Dale L. Simmons	2192041
SM 2540 C-2011	08/25/2020			08/27/2020 15:08	Yijie Li	2192041
SM 2540 D-2011	08/25/2020			08/27/2020 15:08	Yijie Li	2192041
SM 4500 F-C-2011	08/25/2020			08/26/2020 20:01	Dale L. Simmons	2192041
SM 5310 B-2011	08/25/2020			08/26/2020 22:41	David Boose	2192042