

Chemical Analysis Report

NE-DIST-2021-07-29-02

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

Event Description: **Cross Creek bio kit**
Request ID: **RQ-2021-07-26-21**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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: 24-AUG-2021 12:16

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Cross Creek at End of Twin Lakes Rd.

Collection Date/Time: 07/28/2021 11:35

Field ID: G1NE0922

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2265856	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P401730	
	EPA 300.0 Rev. 2.1	Chloride	9.8		mg Cl/L	P402078	
		Sulfate	2.0		mg SO4/L	P402080	
	SM 2120 B-2011	Color (true)	120		PCU	P401720	
	SM 2320 B-2011	Total Alkalinity	28		mg CaCO3/L	P401791	
	SM 2540 C-2011	TDS	85		mg/L	P402221	
	SM 2540 D-2011	TSS	4	I	mg/L	P402224	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P401793	
2265857	EPA 350.1 Rev. 2.0	Ammonia-N	0.097		mg N/L	P402182	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P402635	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401733	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P401843	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P402468	
2265858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401711	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401730

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402078

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402080

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402182

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402635

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401733

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401843

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401711

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

Reference Method: SM 2120 B-2011
Batch ID: P401720

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P401791

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

Reference Method: SM 2540 C-2011
Batch ID: P402221

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P402224

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401793

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402468

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: P402078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402080

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: P402182

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: P402635

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401843

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401711

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

Reference Method: SM 2120 B-2011
Batch ID: P401720

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

Reference Method: SM 2320 B-2011
Batch ID: P401791

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: P401793

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402468

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: P402078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265759	Chloride	98.7		P	90 - 110
2265947	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265759	Sulfate	94.5		P	90 - 110
2265947	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265760	Ammonia-N	99.2	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265775	NO2NO3-N	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265840	O-Phosphate-P	99.4	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265774	Fluoride	99.6	98.9	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2266214	Organic Carbon	98.6	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265836	Turbidity	2.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265759	Chloride	0.114	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265759	Sulfate	0.795	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265760	Ammonia-N	0.149	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265865	Kjeldahl Nitrogen	2.99	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265775	NO2NO3-N	0.743	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2266066	Total-P	2.96	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265840	O-Phosphate-P	0.910	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P401720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265836	Color (true)	2.39	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P401791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265774	Total Alkalinity	0.925	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P402221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265774	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P401793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265774	Fluoride	0.460	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P402468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2266214	Organic Carbon	0.218	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: A106918

Included Lab Sample IDs: 2265858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.8	99.7	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A106921

Included Lab Sample IDs: 2265856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106926

Included Lab Sample IDs: 2265856

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106927

Included Lab Sample IDs: 2265857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	110	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106969

Included Lab Sample IDs: 2265856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106969

Included Lab Sample IDs: 2265856

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107001

Included Lab Sample IDs: 2265857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	107	106	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107025

Included Lab Sample IDs: 2265856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	100	P/P	90 - 110
Sulfate	99.2	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107121

Included Lab Sample IDs: 2265857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.7	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107246

Included Lab Sample IDs: 2265857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107354

Included Lab Sample IDs: 2265857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	104	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				2.47	
EPA 300.0 Rev. 2.1	Chloride	98.2	98.7	99.4	0.114	
	Sulfate	96.6	94.5	99.2	0.795	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.2	99.4		0.149
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106				2.99
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	108	106	107		0.743
EPA 365.1 Rev. 2.0	Total-P	109				2.96
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	99.4	98.5		0.910
SM 2120 B-2011	Color (true)	101			2.39	
SM 2320 B-2011	Total Alkalinity	101			0.925	
SM 2540 C-2011	TDS				6.74	
SM 4500 F-C-2011	Fluoride	98.5	99.6	98.9		0.460
SM 5310 B-2011	Organic Carbon	97.6	98.6	99.0		0.218

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2265856
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2265856
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2265856
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2265857
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2265857
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2265857
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2265857
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2265858
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2265856
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2265856
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2265856
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2265856
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2265856
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2265857

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	07/29/2021			07/29/2021 16:09	Blanca Fach	2265856
EPA 300.0 Rev. 2.1	07/29/2021			08/05/2021 23:19	Lipi Saha	2265856
EPA 350.1 Rev. 2.0	07/29/2021			08/09/2021 13:44	Ping Hua	2265857
EPA 351.2 Rev. 2.0	07/29/2021	08/18/2021 14:21	Benjamin T. Nordmann	08/19/2021 11:50	Virginia P. Brown	2265857
EPA 353.2 Rev. 2.0	07/29/2021			07/30/2021 09:36	Beverly Y. Sanders	2265857
EPA 365.1 Rev. 2.0	07/29/2021	08/02/2021 17:13	Simonne.V. Calhoun	08/03/2021 14:05	Lipi Saha	2265857
EPA 365.1 Rev. 2.0 dissolved	07/29/2021			07/29/2021 14:10	Lipi Saha	2265858
SM 2120 B-2011	07/29/2021			07/29/2021 16:13	Sarah A Nixon	2265856
SM 2320 B-2011	07/29/2021			07/30/2021 20:36	Dale L. Simmons	2265856
SM 2540 C-2011	07/29/2021			08/03/2021 14:36	Yijie Li	2265856
SM 2540 D-2011	07/29/2021			08/03/2021 14:36	Yijie Li	2265856
SM 4500 F-C-2011	07/29/2021			07/30/2021 20:36	Dale L. Simmons	2265856
SM 5310 B-2011	07/29/2021			08/12/2021 04:20	Madeline Gruver	2265857