

Chemical Analysis Report

SO-DIST-2020-09-11-01

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

Event Description: **Caloosa Creeks**
Request ID: **RQ-2020-09-07-51**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 01-OCT-2020 09:11

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 "T" and a long horizontal stroke at the end.

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: Robert's Canal @SR80

Collection Date/Time: 09/10/2020 12:20

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2195660	SM 2120 B-2011	Color (true)	320		PCU	P387286	
	SM 2320 B-2011	Total Alkalinity	90		mg CaCO3/L	P387363	
	SM 2540 D-2011	TSS	7	I	mg/L	P387633	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P387365	
2195662	SM 5310 B-2011 dissolved	Organic Carbon	28		mg C/L	P387425	
2195664	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P387305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P387461	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P387339	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P387806	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P387425	
2195666	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P387282	

Ref. Method and Comment:

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

Sample Location: Orange River

Collection Date/Time: 09/10/2020 13:10

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2195661	SM 2120 B-2011	Color (true)	66	A	PCU	P387286	
	SM 2320 B-2011	Total Alkalinity	213		mg CaCO3/L	P387363	
	SM 2540 D-2011	TSS	4	I	mg/L	P387633	
	SM 4500 F-C-2011	Fluoride	0.15		mg F/L	P387365	
2195663	SM 5310 B-2011 dissolved	Organic Carbon	11		mg C/L	P387425	
2195665	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P387305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P387461	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P387339	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P387806	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P387425	
2195667	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P387282	

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 350.1 Rev. 2.0
Batch ID: P387305

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387461

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387339

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387806

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387282

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

Reference Method: SM 2120 B-2011
Batch ID: P387286

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P387363

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

Reference Method: SM 2540 D-2011
Batch ID: P387633

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P387365

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: P387425

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P387425

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: P387305

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387461

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: P387339

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: P387806

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: P387282

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

Reference Method: SM 2120 B-2011
Batch ID: P387286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P387363

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

Reference Method: SM 4500 F-C-2011
Batch ID: P387365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P387425

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P387425

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195518	Ammonia-N	96.9	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195578	Kjeldahl Nitrogen	92.9	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195530	NO2NO3-N	96.2	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195530	Total-P	103	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195513	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P387365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195676	Fluoride	101	99.9	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P387425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195512	Organic Carbon	101	105	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P387425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195512	Organic Carbon	101	105	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195518	Ammonia-N	0.357	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195578	Kjeldahl Nitrogen	3.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195530	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195530	Total-P	2.55	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195513	O-Phosphate-P	0.295	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P387286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195661	Color (true)	1.65	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P387363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195676	Total Alkalinity	0.703	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P387365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195676	Fluoride	0.967	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P387425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195512	Organic Carbon	3.46	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P387425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195512	Organic Carbon	3.46	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: A100940

Included Lab Sample IDs: 2195666, 2195667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	97.5	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A100942

Included Lab Sample IDs: 2195660, 2195661

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.8	99.3	P/P	90 - 115
Color (true)	99.9	100	P/P	90 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100947

Included Lab Sample IDs: 2195664, 2195665

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100959

Included Lab Sample IDs: 2195664, 2195665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A100975

Included Lab Sample IDs: 2195660, 2195661

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100975

Included Lab Sample IDs: 2195660, 2195661

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A101004

Included Lab Sample IDs: 2195664, 2195665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	101	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A101004

Included Lab Sample IDs: 2195662, 2195663

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101057

Included Lab Sample IDs: 2195664, 2195665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.1	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101206

Included Lab Sample IDs: 2195664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101251

Included Lab Sample IDs: 2195665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.0	96.0	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 350.1 Rev. 2.0	Ammonia-N	96.1	96.9	96.5			0.357
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	92.9	96.4			3.14
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	96.2	97.0			0.501
EPA 365.1 Rev. 2.0	Total-P	107	103	108			2.55
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	102	102			0.295
SM 2120 B-2011	Color (true)	95.4				1.65	
SM 2320 B-2011	Total Alkalinity	101				0.703	
SM 4500 F-C-2011	Fluoride	102	101	99.9			0.967
SM 5310 B-2011	Organic Carbon	99.0	101	105			3.46
SM 5310 B-2011 dissolved	Organic Carbon	99.0	101	105			3.46

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2195664, 2195665
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2195664, 2195665
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2195664, 2195665
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2195664, 2195665
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2195666, 2195667
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2195660, 2195661
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2195660, 2195661
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2195660, 2195661
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2195660, 2195661
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2195664, 2195665
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2195662, 2195663

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	09/11/2020			09/13/2020 13:49	Ping Hua	2195664
	09/11/2020			09/13/2020 13:50	Ping Hua	2195665
EPA 351.2 Rev. 2.0	09/11/2020	09/16/2020 12:40	David Boose	09/17/2020 11:54	Virginia P. Brown	2195664
	09/11/2020	09/16/2020 12:40	David Boose	09/17/2020 11:55	Virginia P. Brown	2195665
EPA 353.2 Rev. 2.0	09/11/2020			09/14/2020 11:25	Beverly Y. Sanders	2195664
	09/11/2020			09/14/2020 11:26	Beverly Y. Sanders	2195665
EPA 365.1 Rev. 2.0	09/11/2020	09/24/2020 11:57	Yen Ta	09/25/2020 15:39	Benjamin T. Nordmann	2195664
	09/11/2020	09/24/2020 11:57	Yen Ta	09/29/2020 11:26	Lipi Saha	2195665
EPA 365.1 Rev. 2.0 dissolved	09/11/2020			09/11/2020 15:44	Samantha Davila	2195666
	09/11/2020			09/11/2020 15:45	Samantha Davila	2195667
SM 2120 B-2011	09/11/2020			09/11/2020 15:56	Madeline Gruver	2195661
	09/11/2020			09/11/2020 16:31	Madeline Gruver	2195660
SM 2320 B-2011	09/11/2020			09/14/2020 21:06	Dale L. Simmons	2195660
	09/11/2020			09/14/2020 21:19	Dale L. Simmons	2195661
SM 2540 D-2011	09/11/2020			09/16/2020 15:09	Yijie Li	2195660, 2195661
SM 4500 F-C-2011	09/11/2020			09/14/2020 21:06	Dale L. Simmons	2195660
	09/11/2020			09/14/2020 21:19	Dale L. Simmons	2195661
SM 5310 B-2011	09/11/2020			09/15/2020 18:51	David Boose	2195664
	09/11/2020			09/15/2020 19:03	David Boose	2195665
SM 5310 B-2011 dissolved	09/11/2020			09/15/2020 15:11	David Boose	2195662
	09/11/2020			09/15/2020 15:23	David Boose	2195663