

Chemical Analysis Report

CEN-DIST-2022-06-28-01

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

Event Description: **Big Creeks and Double Spring**

Request ID: **RQ-2022-06-27-17**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

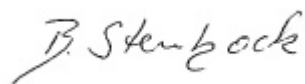
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Date Certified: 19-JUL-2022 13:31



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: Double Run Spring Run DS of Double Run Rd Collection Date/Time: 06/27/2022 10:35

Field ID: G1CE0122

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2337487	DEP SOP: NU-094-1	Color (true)	20		PCU	P415910	
	EPA 180.1 Rev. 2.0	Turbidity	0.60	I	NTU	P415900	
	EPA 300.0 Rev. 2.1	Chloride	10	A	mg Cl/L	P416148	
		Sulfate	17	A	mg SO4/L	P416151	
	SM 2320 B-2011	Total Alkalinity	56	A	mg CaCO3/L	P416073	
	SM 2540 C-2011	TDS	122	A	mg/L	P416077	
	SM 2540 D-2011	TSS	3	IA	mg/L	P416035	
	SM 4500-F- C-2011	Fluoride	0.056	I	mg F/L	P416338	
2337488	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P415993	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P416109	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.6		mg N/L	P416406	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P416392	
	SM 5310 B-2011	Organic Carbon	3.2		mg C/L	P416028	

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: DEP SOP: NU-094-1
Batch ID: P415910

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415900

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416148

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416151

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415993

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416109

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416406

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416392

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

Reference Method: SM 2320 B-2011
Batch ID: P416073

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P416077

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P416035

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P416338

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P416028

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P415910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415900

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416148

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415993

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416406

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416392

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

Reference Method: SM 2320 B-2011
Batch ID: P416073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P416338

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337487	Chloride	98.8		P	90 - 110
2337511	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337487	Sulfate	93.5		P	90 - 110
2337511	Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337399	Ammonia-N	99.4	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337329	Kjeldahl Nitrogen	97.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337512	NO2NO3-N	108	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2339929	Total-P	95.4	94.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P416338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337539	Fluoride	102	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337500	Organic Carbon	99.4	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P415910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337498	Color (true)	5.28	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337497	Turbidity	3.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337487	Chloride	0.167	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337487	Sulfate	0.0716	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337399	Ammonia-N	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337329	Kjeldahl Nitrogen	2.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337512	NO2NO3-N	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339929	Total-P	0.389	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P416073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337487	Total Alkalinity	1.11	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P416077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337487	TDS	0.823	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P416338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337539	Fluoride	0.480	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P416028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337500	Organic Carbon	0.192	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113141

Included Lab Sample IDs: 2337487

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

Reference Method: DEP SOP: NU-094-1

Run ID: A113145

Included Lab Sample IDs: 2337487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.3	100	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A113156

Included Lab Sample IDs: 2337487

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113171

Included Lab Sample IDs: 2337488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113196

Included Lab Sample IDs: 2337488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A113225

Included Lab Sample IDs: 2337487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113333

Included Lab Sample IDs: 2337488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113368

Included Lab Sample IDs: 2337487

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113410

Included Lab Sample IDs: 2337488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	109	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113490

Included Lab Sample IDs: 2337488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.8	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		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	98.2				5.28	
EPA 180.1 Rev. 2.0	Turbidity	97.3				3.38	
EPA 300.0 Rev. 2.1	Chloride	99.5	98.8	99.5		0.167	
	Sulfate	99.4	93.5	96.6		0.0716	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	99.4	102			1.48
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	97.6	101			2.25
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	110	108	110			1.38
EPA 365.1 Rev. 2.0	Total-P	102	95.4	94.9			0.389
SM 2320 B-2011	Total Alkalinity	100				1.11	
SM 2540 C-2011	TDS					0.823	
SM 4500-F- C-2011	Fluoride	103	102	101			0.480
SM 5310 B-2011	Organic Carbon	95.6	99.4	99.6			0.192

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2337487
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2337487
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2337487
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2337487
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2337488
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2337488
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2337488
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2337488
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2337487
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2337487
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2337487
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2337487
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2337488

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	06/28/2022			06/28/2022 15:10	Samantha L Bates	2337487
EPA 180.1 Rev. 2.0	06/28/2022			06/28/2022 13:39	Anna M. Plaviak	2337487
EPA 300.0 Rev. 2.1	06/28/2022			07/01/2022 19:14	Anna M. Plaviak	2337487
EPA 350.1 Rev. 2.0	06/28/2022			06/29/2022 16:06	Judith K. Clark	2337488
EPA 351.2 Rev. 2.0	06/28/2022	07/05/2022 14:05	Simonne.V. Calhoun	07/07/2022 11:53	Alexandra J Mattheus	2337488
EPA 353.2 Rev. 2.0	06/28/2022			07/08/2022 17:47	Touraj Touran	2337488
EPA 365.1 Rev. 2.0	06/28/2022	07/13/2022 09:52	Adam P Silver	07/13/2022 17:13	James L Waggerby	2337488
SM 2320 B-2011	06/28/2022			06/29/2022 20:45	Dale L. Simmons	2337487
SM 2540 C-2011	06/28/2022			06/29/2022 14:00	Ping Hua	2337487
SM 2540 D-2011	06/28/2022			06/29/2022 14:00	Ping Hua	2337487
SM 4500-F- C-2011	06/28/2022			07/08/2022 01:05	Dale L. Simmons	2337487
SM 5310 B-2011	06/28/2022			06/29/2022 19:27	Khloe J Berg	2337488