Chemical Analysis Report

CEN-DIST-2021-09-14-02

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

Event Description: **Three Forks**
Request ID: **RQ-2021-09-13-28**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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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: SJR upstream of Lake Hellen Blazes **Collection Date/Time: 09/13/2021 11:45**

Field ID: G3CE0018 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275742	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P403711	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P403798	
		Sulfate	20		mg SO4/L	P403803	
	SM 2120 B-2011	Color (true)	200		PCU	P403713	
	SM 2320 B-2011	Total Alkalinity	102		mg CaCO3/L	P403815	
	SM 2540 C-2011	TDS	360		mg/L	P404173	
	SM 2540 D-2011	TSS	2	I	mg/L	P404001	
	SM 4500 F-C-2011	Fluoride	0.26		mg F/L	P403816	
2275743	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P403920	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P403931	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403757	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P403838	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P404048	
2275744	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P403707	

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: P403711

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403798

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403803

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403931

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403757

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403838

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

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

Reference Method: SM 2120 B-2011
Batch ID: P403713

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P403815

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

Reference Method: SM 2540 C-2011
Batch ID: P404173

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404001

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403816

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404048

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: P403798

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403803

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

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: P403931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403757

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403838

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

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

Reference Method: SM 2120 B-2011
Batch ID: P403713

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P403815

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: P403816

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P404048

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: P403798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275508	Chloride	98.6		P	90 - 110
2275583	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275508	Sulfate	98.6		P	90 - 110
2275583	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275892	Ammonia-N	96.6	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275893	Kjeldahl Nitrogen	102	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275690	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275892	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275752	O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P403816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275592	Fluoride	98.6	97.5	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275817	Organic Carbon	98.8	99.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275715	Turbidity	0.336	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275508	Chloride	0.478	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275508	Sulfate	4.12	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275892	Ammonia-N	0.395	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275893	Kjeldahl Nitrogen	4.90	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275690	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275892	Total-P	0.283	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275752	O-Phosphate-P	0.960	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P403713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275660	Color (true)	2.20	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P403815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275592	Total Alkalinity	1.38	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P404173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275585	TDS	1.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P403816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275592	Fluoride	0.967	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275817	Organic Carbon	0.208	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: A107781
Included Lab Sample IDs: 2275744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A107782
Included Lab Sample IDs: 2275742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A107783
Included Lab Sample IDs: 2275742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A107789
Included Lab Sample IDs: 2275742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A107801
Included Lab Sample IDs: 2275743

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

Reference Method: SM 2320 B-2011
Run ID: A107822
Included Lab Sample IDs: 2275742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A107822
Included Lab Sample IDs: 2275742

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: A107863
Included Lab Sample IDs: 2275743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107885
Included Lab Sample IDs: 2275743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107906
Included Lab Sample IDs: 2275743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A107931
Included Lab Sample IDs: 2275743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.4	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					0.336	
EPA 300.0 Rev. 2.1	Chloride	98.4	98.6	97.2		0.478	
	Sulfate	98.0	98.6	99.1		4.12	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	96.6	97.0			0.395
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.6	102	108			4.90
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	104	106	106			0.283
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	99.1	100			0.960
SM 2120 B-2011	Color (true)	99.6				2.20	
SM 2320 B-2011	Total Alkalinity	101				1.38	
SM 2540 C-2011	TDS					1.80	
SM 4500 F-C-2011	Fluoride	99.6	98.6	97.5			0.967
SM 5310 B-2011	Organic Carbon	97.6	98.8	99.2			0.208

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2275742
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2275742
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2275742
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2275743
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2275743
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2275743
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2275743
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2275744
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2275742
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2275742
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2275742
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2275742
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2275742
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2275743

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	09/14/2021			09/14/2021 16:38	Sarah A Nixon	2275742
EPA 300.0 Rev. 2.1	09/14/2021			09/15/2021 16:40	Roberta Tatti	2275742
EPA 350.1 Rev. 2.0	09/14/2021			09/20/2021 11:46	Ping Hua	2275743
EPA 351.2 Rev. 2.0	09/14/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 11:22	Alexandra J Mattheus	2275743
EPA 353.2 Rev. 2.0	09/14/2021			09/15/2021 10:33	Beverly Y. Sanders	2275743
EPA 365.1 Rev. 2.0	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/17/2021 13:14	Virginia P. Brown	2275743
EPA 365.1 Rev. 2.0 dissolved	09/14/2021			09/14/2021 15:52	Blanca Fach	2275744
SM 2120 B-2011	09/14/2021			09/14/2021 17:50	Sarah A Nixon	2275742
SM 2320 B-2011	09/14/2021			09/15/2021 18:04	Dale L. Simmons	2275742
SM 2540 C-2011	09/14/2021			09/16/2021 15:25	Yijie Li	2275742
SM 2540 D-2011	09/14/2021			09/16/2021 15:25	Yijie Li	2275742
SM 4500 F-C-2011	09/14/2021			09/15/2021 18:04	Dale L. Simmons	2275742
SM 5310 B-2011	09/14/2021			09/18/2021 05:59	Touraj Touran	2275743