Chemical Analysis Report

NE-DIST-2021-04-02-01

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

Event Description: **Peters and bull creek**
Request ID: **RQ-2021-04-05-35**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
Suite 100
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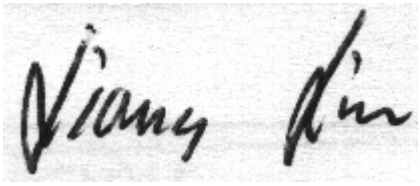
Certified by: Liang Lin, Environmental Administrator

Date Certified: 22-APR-2021 10:03



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: Peters Creek @ Rosemary Hill Rd. **Collection Date/Time: 04/01/2021 12:00**

Field ID: 20030571 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2235783	EPA 180.1 Rev. 2.0	Turbidity	7.7	A	NTU	P395898	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P396138	
		Sulfate	3.4		mg SO4/L	P396139	
	SM 2120 B-2011	Color (true)	89		PCU	P395894	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P396088	
	SM 2540 C-2011	TDS	58		mg/L	P396393	
	SM 2540 D-2011	TSS	5	I	mg/L	P396399	
	SM 4500 F-C-2011	Fluoride	0.040	I	mg F/L	P396093	
2235784	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P396734	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P396474	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P396155	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P396031	
	SM 5310 B-2011	Organic Carbon	7.8		mg C/L	P396299	
2235785	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P395885	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low 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: P395898

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396138

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396139

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396734

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396474

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396155

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396031

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395885

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

Reference Method: SM 2120 B-2011
Batch ID: P395894

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P396088

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

Reference Method: SM 2540 C-2011
Batch ID: P396393

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P396399

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396093

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P396299

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: P396138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396139

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: P396734

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: P396474

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: P396155

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396031

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	101		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P395894

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

Reference Method: SM 2320 B-2011
Batch ID: P396088

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P396093

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P396299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235723	Chloride	95.9		P	90 - 110
2235783	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235783	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235784	Ammonia-N	97.2	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235784	Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235798	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235652	O-Phosphate-P	100	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P396093

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235797	Fluoride	98.9	98.9	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P396299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235784	Organic Carbon	94.9	93.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235783	Turbidity	5.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235723	Chloride	0.406	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235723	Sulfate	0.314	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235784	Ammonia-N	0.500	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235784	Kjeldahl Nitrogen	2.63	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235798	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235730	Total-P	2.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235652	O-Phosphate-P	0.272	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P395894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235759	Color (true)	1.98	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P396088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235797	Total Alkalinity	0.625	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P396393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235726	TDS	5.15	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P396093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235797	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P396299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235784	Organic Carbon	1.13	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: A104459
Included Lab Sample IDs: 2235785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.5	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A104460
Included Lab Sample IDs: 2235783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A104462
Included Lab Sample IDs: 2235783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A104495
Included Lab Sample IDs: 2235783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.9	98.2	P/P	90 - 110
Sulfate	96.2	96.3	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A104549
Included Lab Sample IDs: 2235783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A104549
Included Lab Sample IDs: 2235783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A104554
Included Lab Sample IDs: 2235784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A104572
Included Lab Sample IDs: 2235784

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A104628
Included Lab Sample IDs: 2235784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A104718
Included Lab Sample IDs: 2235784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A104797
Included Lab Sample IDs: 2235784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.1	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					5.55	
EPA 300.0 Rev. 2.1	Chloride	98.8	95.9	99.2		0.406	
	Sulfate	96.6	98.0			0.314	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	97.2	97.8			0.500
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	104	101			2.63
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.5	99.0			0.504
EPA 365.1 Rev. 2.0	Total-P	101					2.21
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	100	99.9			0.272
SM 2120 B-2011	Color (true)	101				1.98	
SM 2320 B-2011	Total Alkalinity	101				0.625	
SM 2540 C-2011	TDS					5.15	
SM 4500 F-C-2011	Fluoride	98.8	98.9	98.9			0.0
SM 5310 B-2011	Organic Carbon	96.2	94.9	93.4			1.13

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2235783
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2235783
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2235783
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2235784
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2235784
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2235784
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2235784
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2235785
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2235783
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2235783
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2235783
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2235783
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2235783
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2235784

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	04/02/2021			04/02/2021 14:50	Yen Ta	2235783
EPA 300.0 Rev. 2.1	04/02/2021			04/07/2021 13:00	Lipi Saha	2235783
EPA 350.1 Rev. 2.0	04/02/2021			04/17/2021 14:23	Ping Hua	2235784
EPA 351.2 Rev. 2.0	04/02/2021	04/13/2021 13:30	Yen Ta	04/14/2021 10:39	Virginia P. Brown	2235784
EPA 353.2 Rev. 2.0	04/02/2021			04/08/2021 11:06	Beverly Y. Sanders	2235784
EPA 365.1 Rev. 2.0	04/02/2021	04/06/2021 20:10	Madeline Gruver	04/07/2021 13:42	Shengyu Ding	2235784
EPA 365.1 Rev. 2.0 dissolved	04/02/2021			04/02/2021 15:10	Patrick M. Roche	2235785
SM 2120 B-2011	04/02/2021			04/02/2021 15:55	Benjamin T. Nordmann	2235783
SM 2320 B-2011	04/02/2021			04/07/2021 09:02	Dale L. Simmons	2235783
SM 2540 C-2011	04/02/2021			04/06/2021 15:21	Yijie Li	2235783
SM 2540 D-2011	04/02/2021			04/06/2021 15:05	Yijie Li	2235783
SM 4500 F-C-2011	04/02/2021			04/07/2021 09:02	Dale L. Simmons	2235783
SM 5310 B-2011	04/02/2021			04/07/2021 20:15	Touraj Touran	2235784