

Chemical Analysis Report

CEN-DIST-2022-03-17-02

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

Event Description: **Run 14**
Request ID: **RQ-2022-03-14-31**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 04-APR-2022 09:22

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: Bird Lake Ditches 1.2mi W of 95

Collection Date/Time: 03/16/2022 11:24

Field ID: G3CE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2313097	DEP SOP: NU-094-1	Color (true)**	140		PCU	P411440	
	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P411246	
	EPA 300.0 Rev. 2.1	Chloride	910		mg Cl/L	P411369	
		Sulfate	180		mg SO4/L	P411371	
	SM 2320 B-2011	Total Alkalinity	127		mg CaCO3/L	P411445	
	SM 2540 C-2011	TDS	1.89E+03		mg/L	P411634	
	SM 2540 D-2011	TSS	3	I	mg/L	P411430	
	SM 4500 F-C-2011	Fluoride	0.095	I	mg F/L	P411454	
2313098	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P411488	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P411529	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P411335	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P411458	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P411402	

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.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P411440

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411246

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411369

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411371

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411488

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411529

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411335

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411458

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

Reference Method: SM 2320 B-2011
Batch ID: P411445

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: P411634

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P411430

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P411454

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P411402

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: P411440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.8		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411369

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411371

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411529

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411335

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411458

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

Reference Method: SM 2320 B-2011
Batch ID: P411445

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P411454

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

Reference Method: SM 5310 B-2011
Batch ID: P411402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313153	Chloride	100		P	90 - 110
2313263	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313153	Sulfate	99.8		P	90 - 110
2313263	Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313089	Ammonia-N	96.8	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313045	NO2NO3-N	99.4	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313158	Total-P	106	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P411454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313039	Fluoride	99.3	99.3	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P411402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312784	Organic Carbon	95.4	94.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P411440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313153	Color (true)	0.453	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313103	Turbidity	16.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313153	Chloride	0.134	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313153	Sulfate	0.689	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313089	Ammonia-N	2.42	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313098	Kjeldahl Nitrogen	4.76	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313045	NO2NO3-N	0.355	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313158	Total-P	5.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P411445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313039	Total Alkalinity	1.78	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P411634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313115	TDS	0.563	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P411454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313039	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P411402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312784	Organic Carbon	0.938	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: A111005

Included Lab Sample IDs: 2313097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A111053

Included Lab Sample IDs: 2313098

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A111070

Included Lab Sample IDs: 2313097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	100	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A111082

Included Lab Sample IDs: 2313098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	97.9	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A111097

Included Lab Sample IDs: 2313097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	100	P/P	85 - 115

Reference Method: SM 2320 B-2011

Run ID: A111098

Included Lab Sample IDs: 2313097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A111098

Included Lab Sample IDs: 2313097

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A111108

Included Lab Sample IDs: 2313098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111157

Included Lab Sample IDs: 2313098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111196

Included Lab Sample IDs: 2313098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	97.5	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
DEP SOP: NU-094-1	Color (true)	98.8			0.453	
EPA 180.1 Rev. 2.0	Turbidity	96.9			16.7	
EPA 300.0 Rev. 2.1	Chloride	100	100	99.5	0.134	
	Sulfate	101	99.8	99.6	0.689	
EPA 350.1 Rev. 2.0	Ammonia-N	95.8	96.8	100		2.42
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102				4.76
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.4	98.9		0.355
EPA 365.1 Rev. 2.0	Total-P	103	106	101		5.12
SM 2320 B-2011	Total Alkalinity	97.4			1.78	
SM 2540 C-2011	TDS				0.563	
SM 4500 F-C-2011	Fluoride	101	99.3	99.3		0.0
SM 5310 B-2011	Organic Carbon	93.9	95.4	94.3		0.938

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2313097
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2313097
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2313097
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2313097
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2313098
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2313098
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2313098
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2313098
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2313097
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2313097
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2313097
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2313097
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2313098

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	03/17/2022			03/17/2022 16:40	Anna M. Plaviak	2313097
EPA 180.1 Rev. 2.0	03/17/2022			03/17/2022 15:24	Khloe J Berg	2313097
EPA 300.0 Rev. 2.1	03/17/2022			03/22/2022 00:17	James L Waggeberby	2313097
EPA 350.1 Rev. 2.0	03/17/2022			03/23/2022 12:05	Judith K. Clark	2313098
EPA 351.2 Rev. 2.0	03/17/2022	03/25/2022 10:06	Samantha L Bates	03/28/2022 13:38	Alexandra J Mattheus	2313098
EPA 353.2 Rev. 2.0	03/17/2022			03/21/2022 09:37	Beverly Y. Sanders	2313098
EPA 365.1 Rev. 2.0	03/17/2022	03/23/2022 17:20	Simonne.V. Calhoun	03/25/2022 12:06	Sarah A Nixon	2313098
SM 2320 B-2011	03/17/2022			03/22/2022 18:25	Dale L. Simmons	2313097
SM 2540 C-2011	03/17/2022			03/18/2022 16:00	Simonne.V. Calhoun	2313097
SM 2540 D-2011	03/17/2022			03/18/2022 16:00	Simonne.V. Calhoun	2313097
SM 4500 F-C-2011	03/17/2022			03/22/2022 18:25	Dale L. Simmons	2313097
SM 5310 B-2011	03/17/2022			03/22/2022 03:16	Touraj Touran	2313098