

Chemical Analysis Report

CEN-DIST-2022-07-13-01

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

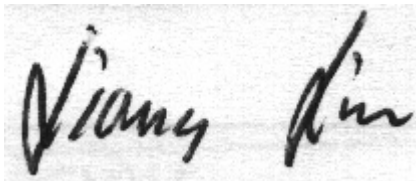
Event Description: **3 Forks Marsh**
Request ID: **RQ-2022-07-11-48**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-AUG-2022 10:40

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: 3-Forks at 725m upstream of Bulldozer Canal Collection Date/Time: 07/12/2022 10:25

Field ID: G3CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340963	DEP SOP: NU-094-1	Color (true)	120		PCU	P416604	
	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P416611	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P416961	
		Sulfate	31		mg SO4/L	P416965	
	SM 2320 B-2011	Total Alkalinity	100		mg CaCO3/L	P416839	
	SM 2540 C-2011	TDS	448		mg/L	P417072	
	SM 2540 D-2011	TSS	14		mg/L	P416977	
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P417550	
2340964	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P416934	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P416775	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P416768	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P416804	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P416759	

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: P416604

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416611

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416961

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416965

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416934

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416775

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416768

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416804

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

Reference Method: SM 2320 B-2011
Batch ID: P416839

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: P417072

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P416977

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417550

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P416759

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: P416604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.9		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416961

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416965

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416934

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416775

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416804

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

Reference Method: SM 2320 B-2011
Batch ID: P416839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P417550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340783	Chloride	101		P	90 - 110
2340818	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340783	Sulfate	100		P	90 - 110
2340818	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340964	Ammonia-N	97.4	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340689	Kjeldahl Nitrogen	99.9	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340896	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341013	Total-P	105	106	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340697	Fluoride	94.7	96.4	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341155	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P416604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341071	Color (true)	1.28	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340813	Turbidity	4.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340783	Chloride	0.338	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340783	Sulfate	0.00716	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340964	Ammonia-N	0.130	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340689	Kjeldahl Nitrogen	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340896	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341013	Total-P	0.375	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P416839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340697	Total Alkalinity	1.00	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P417072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340818	TDS	6.09	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340697	Fluoride	1.50	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P416759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341155	Organic Carbon	0.483	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A113478
Included Lab Sample IDs: 2340963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A113480
Included Lab Sample IDs: 2340963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: SM 5310 B-2011
Run ID: A113546
Included Lab Sample IDs: 2340964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A113558
Included Lab Sample IDs: 2340964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A113576
Included Lab Sample IDs: 2340963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113606
Included Lab Sample IDs: 2340964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113621
Included Lab Sample IDs: 2340964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113630
Included Lab Sample IDs: 2340964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.9	96.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A113634

Included Lab Sample IDs: 2340963

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

Reference Method: SM 4500-F- C-2011

Run ID: A113869

Included Lab Sample IDs: 2340963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	102	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)	96.9				1.28	
EPA 180.1 Rev. 2.0	Turbidity	94.7				4.13	
EPA 300.0 Rev. 2.1	Chloride	101	101	104		0.338	
	Sulfate	101	100	98.3		0.0071	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	97.4	97.6			0.130
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1	99.9	101			1.01
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.5	99.0			0.504
EPA 365.1 Rev. 2.0	Total-P	101	105	106			0.375
SM 2320 B-2011	Total Alkalinity	99.5				1.00	
SM 2540 C-2011	TDS					6.09	
SM 4500-F- C-2011	Fluoride	99.0	94.7	96.4			1.50
SM 5310 B-2011	Organic Carbon	98.2	102	103			0.483

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2340963
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2340963
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2340963
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2340963
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2340964
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2340964
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2340964
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2340964
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2340963
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2340963
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2340963
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2340963
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2340964

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	07/13/2022			07/13/2022 15:08	Anna M. Plaviak	2340963
EPA 180.1 Rev. 2.0	07/13/2022			07/13/2022 15:09	Khloe J Berg	2340963
EPA 300.0 Rev. 2.1	07/13/2022			07/20/2022 09:50	Anna M. Plaviak	2340963
EPA 350.1 Rev. 2.0	07/13/2022			07/20/2022 15:44	Ping Hua	2340964
EPA 351.2 Rev. 2.0	07/13/2022	07/19/2022 11:12	Samantha L Bates	07/20/2022 16:11	Alexandra J Mattheus	2340964
EPA 353.2 Rev. 2.0	07/13/2022			07/18/2022 09:44	Beverly Y. Sanders	2340964
EPA 365.1 Rev. 2.0	07/13/2022	07/19/2022 16:00	Adam P Silver	07/20/2022 10:00	James L Waggerby	2340964
SM 2320 B-2011	07/13/2022			07/15/2022 08:43	Dale L. Simmons	2340963
SM 2540 C-2011	07/13/2022			07/18/2022 15:45	Yijie Li	2340963
SM 2540 D-2011	07/13/2022			07/18/2022 15:45	Yijie Li	2340963
SM 4500-F- C-2011	07/13/2022			08/02/2022 22:20	Dale L. Simmons	2340963
SM 5310 B-2011	07/13/2022			07/15/2022 18:08	Khloe J Berg	2340964