

Chemical Analysis Report

SE-DIST-2022-10-11-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

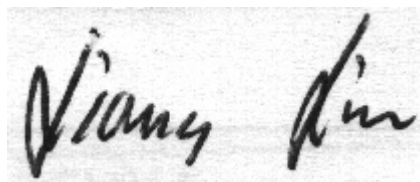
Event Description: **Tidal Lox and Danforth Creek**
Request ID: **RQ-2022-10-10-31**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-OCT-2022 11:35

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Tidal Creek To Lox

Collection Date/Time: 10/10/2022 09:20

Field ID: G2SE0027

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361645	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P420733	
	SM 2320 B-2011	Total Alkalinity	111		mg CaCO3/L	P421170	RPD
	SM 2540 D-2015	TSS	3	UA	mg/L	P421280	
	SM 4500-F- C-2011	Fluoride	0.65		mg F/L	P421173	MS
2361646	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P420799	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P420759	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P420921	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P420766	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P421114	

Ref. Method and Comment:

SM 2540 D-2015: 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: P420733

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420799

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420759

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420921

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420766

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

Reference Method: SM 2320 B-2011
Batch ID: P421170

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-2015
Batch ID: P421280

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P421173

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P421114

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420921

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: P420766

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

Reference Method: SM 2320 B-2011
Batch ID: P421170

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	94 - 106

Reference Method: SM 2540 D-2015
Batch ID: P421280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	88.1		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P421173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421114

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360745	Ammonia-N	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360462	Kjeldahl Nitrogen	94.8	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361646	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361531	Total-P	91.6	92.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P421173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362534	Fluoride	94.6	93.3	P/F	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361518	Organic Carbon	91.0	93.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361354	Turbidity	1.33	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360745	Ammonia-N	0.913	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360462	Kjeldahl Nitrogen	2.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361646	NO2NO3-N	0.856	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361531	Total-P	0.405	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P421170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362534	Total Alkalinity	4.38	Sample	F	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P421173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362534	Fluoride	1.00	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P421114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361518	Organic Carbon	1.59	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A115227

Included Lab Sample IDs: 2361645

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115253

Included Lab Sample IDs: 2361646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115281

Included Lab Sample IDs: 2361646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	93.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115285

Included Lab Sample IDs: 2361646

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115310

Included Lab Sample IDs: 2361646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115398

Included Lab Sample IDs: 2361646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115421

Included Lab Sample IDs: 2361645

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.8	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A115421

Included Lab Sample IDs: 2361645

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

Quality Assurance Report

Calibration Verification

* 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	
EPA 180.1 Rev. 2.0	Turbidity	99.8				1.33	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	99.2	100			0.913
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	94.8	97.4			2.18
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	103	102			0.856
EPA 365.1 Rev. 2.0	Total-P	101	91.6	92.0			0.405
SM 2320 B-2011	Total Alkalinity	99.6				4.38	
SM 2540 D-2015	TSS	88.1					
SM 4500-F- C-2011	Fluoride	98.1	94.6	93.3			1.00
SM 5310 B-2011	Organic Carbon	97.4	91.0	93.4			1.59

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2361645
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2361646
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2361646
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2361646
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2361646
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2361645
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2361645
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2361645
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2361646

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	10/11/2022			10/11/2022 13:56	Chandler E Cox	2361645
EPA 350.1 Rev. 2.0	10/11/2022			10/12/2022 13:39	Ping Hua	2361646
EPA 351.2 Rev. 2.0	10/11/2022	10/12/2022 12:56	Samantha L Bates	10/13/2022 11:21	Samantha L Bates	2361646
EPA 353.2 Rev. 2.0	10/11/2022			10/14/2022 09:34	Beverly Y. Sanders	2361646
EPA 365.1 Rev. 2.0	10/11/2022	10/12/2022 14:20	Simonne.V. Calhoun	10/13/2022 14:41	Simonne.V. Calhoun	2361646
SM 2320 B-2011	10/11/2022			10/20/2022 07:38	Dale L. Simmons	2361645
SM 2540 D-2015	10/11/2022			10/13/2022 16:08	Yijie Li	2361645
SM 4500-F- C-2011	10/11/2022			10/20/2022 06:30	Dale L. Simmons	2361645
SM 5310 B-2011	10/11/2022			10/19/2022 02:28	Khloe J Berg	2361646