

Chemical Analysis Report

SO-DIST-2022-03-23-02

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

Event Description: **2022 SMP : Ten Thousand Island**
Request ID: **RQ-2022-03-21-39**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: William Mullen

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 11-APR-2022 10:48

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 first name.

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: ENRE10 Lopez River

Collection Date/Time: 03/22/2022 11:20

Field ID: G5SD0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2314029	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P411500	
	SM 2320 B-2011	Total Alkalinity	168		mg CaCO3/L	P411655	
	SM 2540 D-2011	TSS	6	IA	mg/L	P411690	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P411661	
2314030	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P411701	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P411767	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P411626	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P411681	
	SM 5310 B-2011	Organic Carbon	5.2		mg C/L	P411596	

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: P411500

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411701

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411767

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411626

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411681

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

Reference Method: SM 2320 B-2011
Batch ID: P411655

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

Reference Method: SM 2540 D-2011
Batch ID: P411690

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P411661

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P411596

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: P411500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411701

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411767

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411626

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411681

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

Reference Method: SM 2320 B-2011
Batch ID: P411655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.9		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P411661

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P411596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313106	Ammonia-N	98.0	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313485	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313649	NO2NO3-N	99.0	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314635	Total-P	95.6	95.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P411661

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314006	Fluoride	97.5	97.5	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P411596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313198	Organic Carbon	93.4	95.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314006	Turbidity	5.04	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313106	Ammonia-N	0.528	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313485	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313649	NO2NO3-N	0.490	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314635	Total-P	0.486	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P411655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314006	Total Alkalinity	0.778	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P411661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314006	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P411596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313198	Organic Carbon	1.43	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: A111119

Included Lab Sample IDs: 2314029

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

Reference Method: SM 5310 B-2011

Run ID: A111155

Included Lab Sample IDs: 2314030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.0	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A111167

Included Lab Sample IDs: 2314030

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

Reference Method: SM 2320 B-2011

Run ID: A111184

Included Lab Sample IDs: 2314029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.0	97.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A111184

Included Lab Sample IDs: 2314029

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A111210

Included Lab Sample IDs: 2314030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111251

Included Lab Sample IDs: 2314030

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111296

Included Lab Sample IDs: 2314030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	96.0	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	96.7				5.04	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.0	98.8			0.528
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	106			1.64
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.0	99.4			0.490
EPA 365.1 Rev. 2.0	Total-P	104	95.6	95.2			0.486
SM 2320 B-2011	Total Alkalinity	96.9				0.778	
SM 4500 F-C-2011	Fluoride	97.9	97.5	97.5			0.0
SM 5310 B-2011	Organic Carbon	97.2	93.4	95.1			1.43

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2314029
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2314030
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2314030
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2314030
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2314030
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2314029
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2314029
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2314029
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2314030

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	03/23/2022			03/23/2022 12:25	Anna M. Plaviak	2314029
EPA 350.1 Rev. 2.0	03/23/2022			03/29/2022 10:52	Ping Hua	2314030
EPA 351.2 Rev. 2.0	03/23/2022	03/31/2022 11:24	Samantha L Bates	04/04/2022 13:53	Alexandra J Mattheus	2314030
EPA 353.2 Rev. 2.0	03/23/2022			03/25/2022 14:22	Nathaniel J Jones	2314030
EPA 365.1 Rev. 2.0	03/23/2022	03/29/2022 16:02	Simonne.V. Calhoun	03/31/2022 12:08	James L Waggerby	2314030
SM 2320 B-2011	03/23/2022			03/25/2022 23:37	Dale L. Simmons	2314029
SM 2540 D-2011	03/23/2022			03/25/2022 16:08	Yijie Li	2314029
SM 4500 F-C-2011	03/23/2022			03/25/2022 22:52	Dale L. Simmons	2314029
SM 5310 B-2011	03/23/2022			03/25/2022 03:44	Khloe J Berg	2314030