

Chemical Analysis Report

SO-DIST-2022-04-29-01

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

Event Description: **2022 SMP : Everglades**

Request ID: **RQ-2022-03-07-36**

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
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Certified by: Colin Wright, Program Administrator

Date Certified: 24-MAY-2022 08:21

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored rectangular 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: 8067 ENRE 9 Near First Bay

Collection Date/Time: 04/28/2022 11:45

Field ID: G5SD0107

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2323259	EPA 180.1 Rev. 2.0	Turbidity	0.50	I	NTU	P413162	
	SM 2320 B-2011	Total Alkalinity	120		mg CaCO3/L	P413539	
	SM 2540 D-2011	TSS	4	I	mg/L	P413518	
	SM 4500-F- C-2011	Fluoride	1.3		mg F/L	P413546	
2323261	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P413506	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40	I	mg N/L	P413658	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P413346	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P413544	
	SM 5310 B-2011	Organic Carbon	2.9	I	mg C/L	P413888	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 8069 - ENRE5

Collection Date/Time: 04/28/2022 11:05

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2323260	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P413162	
	SM 2320 B-2011	Total Alkalinity	145		mg CaCO3/L	P413539	
	SM 2540 D-2011	TSS	4	IA	mg/L	P413519	
	SM 4500-F- C-2011	Fluoride	1.2		mg F/L	P413546	
2323262	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P413506	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P413481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P413346	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P413544	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P413888	

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: P413162

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413506

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413481

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413658

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413346

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413544

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

Reference Method: SM 2320 B-2011
Batch ID: P413539

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

Reference Method: SM 2540 D-2011
Batch ID: P413518

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P413519

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P413546

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P413888

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: P413162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413658

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: P413346

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413544

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

Reference Method: SM 2320 B-2011
Batch ID: P413539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P413546

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P413888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321423	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322780	Kjeldahl Nitrogen	100	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2323506	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2323677	NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2323337	Total-P	92.0	92.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P413546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322011	Fluoride	100	100	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P413888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2323910	Organic Carbon	95.0	96.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2323163	Turbidity	18.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321423	Ammonia-N	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322780	Kjeldahl Nitrogen	0.958	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2323506	Kjeldahl Nitrogen	0.734	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2323677	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2323337	Total-P	0.380	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P413539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322011	Total Alkalinity	0.697	Sample	P	0 - 5.2

Reference Method: SM 4500-F- C-2011
Batch ID: P413546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322011	Fluoride	0.0	Spike	P	0 - 2.1

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P413888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2323910	Organic Carbon	1.36	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: A111815

Included Lab Sample IDs: 2323259, 2323260

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: A111906

Included Lab Sample IDs: 2323261, 2323262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A111967

Included Lab Sample IDs: 2323261, 2323262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.0	96.1	P/P	90 - 110
Ammonia-N	96.1	95.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A111984

Included Lab Sample IDs: 2323259, 2323260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	94.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A111984

Included Lab Sample IDs: 2323259, 2323260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112035

Included Lab Sample IDs: 2323261, 2323262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.0	P/P	90 - 110
Total-P	99.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112104

Included Lab Sample IDs: 2323262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112112

Included Lab Sample IDs: 2323261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112112

Included Lab Sample IDs: 2323261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.7	104	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A112170

Included Lab Sample IDs: 2323261, 2323262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	97.2	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 SMP	MS
					LCS	
EPA 180.1 Rev. 2.0	Turbidity	96.1			18.0	
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	101	102		1.48
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.6	100	98.8		0.958
	Kjeldahl Nitrogen	106	103	104		0.734
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.0	98.5		0.506
EPA 365.1 Rev. 2.0	Total-P	101	92.0	92.3		0.380
SM 2320 B-2011	Total Alkalinity	98.9			0.697	
SM 4500-F- C-2011	Fluoride	98.8	100	100		0.0
SM 5310 B-2011	Organic Carbon	92.1	95.0	96.3		1.36

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2323259, 2323260
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2323261, 2323262
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2323261, 2323262
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2323261, 2323262
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2323261, 2323262
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2323259, 2323260
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2323259, 2323260
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2323259, 2323260
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2323261, 2323262

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	04/29/2022			04/29/2022 14:37	Khloe J Berg	2323259
	04/29/2022			04/29/2022 14:38	Khloe J Berg	2323260
EPA 350.1 Rev. 2.0	04/29/2022			05/06/2022 12:37	Ping Hua	2323262
	04/29/2022			05/06/2022 12:54	Ping Hua	2323261
EPA 351.2 Rev. 2.0	04/29/2022	05/11/2022 13:28	Alexandra J Mattheus	05/12/2022 13:00	Alexandra J Mattheus	2323262
	04/29/2022	05/11/2022 15:45	Samantha L Bates	05/12/2022 16:04	Alexandra J Mattheus	2323261
EPA 353.2 Rev. 2.0	04/29/2022			05/04/2022 11:37	Beverly Y. Sanders	2323261
	04/29/2022			05/04/2022 11:38	Beverly Y. Sanders	2323262
EPA 365.1 Rev. 2.0	04/29/2022	05/09/2022 14:45	Simonne.V. Calhoun	05/10/2022 15:15	James L Waggerby	2323261
	04/29/2022	05/09/2022 14:45	Simonne.V. Calhoun	05/10/2022 15:23	James L Waggerby	2323262
SM 2320 B-2011	04/29/2022			05/03/2022 11:41	Dale L. Simmons	2323259
	04/29/2022			05/03/2022 11:55	Dale L. Simmons	2323260
SM 2540 D-2011	04/29/2022			05/03/2022 14:33	Yijie Li	2323259, 2323260
SM 4500-F- C-2011	04/29/2022			05/03/2022 06:46	Dale L. Simmons	2323259
	04/29/2022			05/03/2022 06:51	Dale L. Simmons	2323260
SM 5310 B-2011	04/29/2022			05/11/2022 17:32	Judith K. Clark	2323261
	04/29/2022			05/11/2022 17:48	Judith K. Clark	2323262