

Chemical Analysis Report

SO-DIST-2022-07-06-01

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

Event Description: **2022 SMP: Istokpoga**

Request ID: **RQ-2022-07-04-23**

Customer: **SO-DIST**

Project ID: **SMP**

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Date Certified: 21-JUL-2022 09:32



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: Hickory Hammock

Collection Date/Time: 07/05/2022 09:50

Field ID: G4SD0205

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2338875	DEP SOP: NU-094-1	Color (true)	280		PCU	P416237	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P416234	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P416558	
		Sulfate	1.9		mg SO4/L	P416563	
	SM 2320 B-2011	Total Alkalinity	41		mg CaCO3/L	P416387	
	SM 2540 C-2011	TDS	183	A	mg/L	P416545	
	SM 2540 D-2011	TSS	5	IA	mg/L	P416548	
	SM 4500-F- C-2011	Fluoride	0.29		mg F/L	P416404	
2338876	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P416349	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P416242	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P416483	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P416335	
	SM 5310 B-2011	Organic Carbon	36		mg C/L	P416318	

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: P416237

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416234

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416558

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416563

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416349

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416242

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416483

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

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

Reference Method: SM 2320 B-2011
Batch ID: P416387

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: P416545

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P416548

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P416404

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P416318

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: P416237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416558

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416483

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

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

Reference Method: SM 2320 B-2011
Batch ID: P416387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P416404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338500	Chloride	97.2		P	90 - 110
2338854	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338500	Sulfate	95.4		P	90 - 110
2338854	Sulfate	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338860	Ammonia-N	94.8	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338860	NO2NO3-N	92.8	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337975	Total-P	104	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P416404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2339553	Fluoride	104	103	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338938	Organic Carbon	97.2	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P416237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339166	Color (true)	0.602	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338937	Turbidity	3.29	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338500	Chloride	0.309	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338500	Sulfate	0.291	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338860	Ammonia-N	0.946	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339192	Kjeldahl Nitrogen	2.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338860	NO2NO3-N	2.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337975	Total-P	0.244	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P416387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339553	Total Alkalinity	0.0629	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P416545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338875	TDS	5.46	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P416404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339553	Fluoride	0.480	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P416318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338938	Organic Carbon	1.31	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: A113313
Included Lab Sample IDs: 2338875

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

Reference Method: DEP SOP: NU-094-1
Run ID: A113316
Included Lab Sample IDs: 2338875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	98.9	P/P	85 - 115

Reference Method: SM 5310 B-2011
Run ID: A113363
Included Lab Sample IDs: 2338876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113377
Included Lab Sample IDs: 2338876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A113406
Included Lab Sample IDs: 2338875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	98.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A113406
Included Lab Sample IDs: 2338875

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A113433
Included Lab Sample IDs: 2338876

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113435
Included Lab Sample IDs: 2338876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113444

Included Lab Sample IDs: 2338876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A113462

Included Lab Sample IDs: 2338875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.3	97.3	P/P	90 - 110
Sulfate	97.0	97.0	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	
DEP SOP: NU-094-1	Color (true)	99.2			0.602	
EPA 180.1 Rev. 2.0	Turbidity	95.6			3.29	
EPA 300.0 Rev. 2.1	Chloride	98.1	97.2	97.6	0.309	
	Sulfate	97.3	95.4	95.7	0.291	
EPA 350.1 Rev. 2.0	Ammonia-N	94.2	94.8	95.8		0.946
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107				2.01
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	92.8	95.8		2.68
EPA 365.1 Rev. 2.0	Total-P	103	104	104		0.244
SM 2320 B-2011	Total Alkalinity	101			0.0629	
SM 2540 C-2011	TDS				5.46	
SM 4500-F- C-2011	Fluoride	102	104	103		0.480
SM 5310 B-2011	Organic Carbon	97.1	97.2	99.2		1.31

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2338875
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2338875
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2338875
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2338875
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2338876
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2338876
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2338876
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2338876
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2338875
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2338875
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2338875
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2338875
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2338876

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	07/06/2022			07/06/2022 17:51	Samantha L Bates	2338875
EPA 180.1 Rev. 2.0	07/06/2022			07/06/2022 14:03	Anna M. Plaviak	2338875
EPA 300.0 Rev. 2.1	07/06/2022			07/12/2022 05:47	Anna M. Plaviak	2338875
EPA 350.1 Rev. 2.0	07/06/2022			07/08/2022 12:44	Ping Hua	2338876
EPA 351.2 Rev. 2.0	07/06/2022	07/11/2022 09:11	Samantha L Bates	07/12/2022 15:16	Alexandra J Mattheus	2338876
EPA 353.2 Rev. 2.0	07/06/2022			07/12/2022 11:28	Judith K. Clark	2338876
EPA 365.1 Rev. 2.0	07/06/2022	07/08/2022 17:39	Adam P Silver	07/11/2022 17:15	James L Waggerby	2338876
SM 2320 B-2011	07/06/2022			07/09/2022 08:55	Dale L. Simmons	2338875
SM 2540 C-2011	07/06/2022			07/08/2022 15:22	Yijie Li	2338875
SM 2540 D-2011	07/06/2022			07/08/2022 15:22	Yijie Li	2338875
SM 4500-F- C-2011	07/06/2022			07/09/2022 08:55	Dale L. Simmons	2338875
SM 5310 B-2011	07/06/2022			07/07/2022 23:15	Khloe J Berg	2338876