

Chemical Analysis Report

SO-DIST-2021-05-26-01

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

Event Description: **2021 SMP : Way Up There**
Request ID: **RQ-2021-05-24-14**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 16-JUN-2021 09:39



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: ArbuckleCreekNearBranch

Collection Date/Time: 05/25/2021 11:45

Field ID: G4SD0210

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2250322	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P398859	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P399281	
		Sulfate	35		mg SO4/L	P399282	
	SM 2120 B-2011	Color (true)	70		PCU	P398863	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P398969	
	SM 2540 C-2011	TDS	133	A	mg/L	P399200	
	SM 2540 D-2011	TSS	11	A	mg/L	P399003	
	SM 4500 F-C-2011	Fluoride	0.073	I	mg F/L	P398972	
2250323	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P399306	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P398949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P398886	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P398973	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P399095	
2250324	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P398849	

Ref. Method and Comment:

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: EPA 180.1 Rev. 2.0
Batch ID: P398859

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399281

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399282

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399306

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398949

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398886

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398973

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398849

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B-2011
Batch ID: P398863

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P398969

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

Reference Method: SM 2540 C-2011
Batch ID: P399200

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P399003

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P399095

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399281

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399282

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399306

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398886

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: P398973

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398849

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P398863

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P398969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P399095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250034	Chloride	99.3		P	90 - 110
2250272	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250034	Sulfate	98.9		P	90 - 110
2250272	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250023	Ammonia-N	98.8	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250274	NO2NO3-N	97.5	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250275	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250025	O-Phosphate-P	96.4	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250461	Fluoride	97.7	98.4	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P399095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250058	Organic Carbon	100	99.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P398859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250272	Turbidity	2.60	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250034	Chloride	0.684	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250034	Sulfate	0.789	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250023	Ammonia-N	0.292	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249990	Kjeldahl Nitrogen	0.159	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250274	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250275	Total-P	0.473	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250025	O-Phosphate-P	0.220	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P398863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250272	Color (true)	0.423	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P398969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250461	Total Alkalinity	0.440	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P399200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250322	TDS	3.01	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P399003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250322	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250461	Fluoride	0.502	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P399095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250058	Organic Carbon	0.389	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A105691

Included Lab Sample IDs: 2250324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A105696

Included Lab Sample IDs: 2250322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A105697

Included Lab Sample IDs: 2250322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	99.5	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105711

Included Lab Sample IDs: 2250323

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: A105756

Included Lab Sample IDs: 2250322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A105756

Included Lab Sample IDs: 2250322

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105778

Included Lab Sample IDs: 2250323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105794

Included Lab Sample IDs: 2250323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	90.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A105818

Included Lab Sample IDs: 2250323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	97.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A105904

Included Lab Sample IDs: 2250322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	99.3	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105920

Included Lab Sample IDs: 2250323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	97.6	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	
EPA 180.1 Rev. 2.0	Turbidity					2.60	
EPA 300.0 Rev. 2.1	Chloride	99.2	99.3	98.5		0.684	
	Sulfate	100	98.9	96.2		0.789	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	98.8	98.4			0.292
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0					0.159
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	97.5	96.5			1.03
EPA 365.1 Rev. 2.0	Total-P	103	104	105			0.473
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	96.4	96.7			0.220
SM 2120 B-2011	Color (true)	100				0.423	
SM 2320 B-2011	Total Alkalinity	98.5				0.440	
SM 2540 C-2011	TDS					3.01	
SM 2540 D-2011	TSS					7.41	
SM 4500 F-C-2011	Fluoride	98.4	97.7	98.4			0.502
SM 5310 B-2011	Organic Carbon	95.8	100	99.8			0.389

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2250322
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2250322
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2250322
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2250323
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2250323
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2250323
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2250323
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2250324
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2250322
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2250322
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2250322
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2250322
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2250322
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2250323

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	05/26/2021			05/26/2021 15:34	Yen Ta	2250322
EPA 300.0 Rev. 2.1	05/26/2021			06/05/2021 04:28	Lipi Saha	2250322
EPA 350.1 Rev. 2.0	05/26/2021			06/07/2021 13:28	Ping Hua	2250323
EPA 351.2 Rev. 2.0	05/26/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 14:37	Virginia P. Brown	2250323
EPA 353.2 Rev. 2.0	05/26/2021			05/27/2021 09:21	Beverly Y. Sanders	2250323
EPA 365.1 Rev. 2.0	05/26/2021	05/28/2021 13:30	Yen Ta	05/28/2021 16:14	Shengyu Ding	2250323
EPA 365.1 Rev. 2.0 dissolved	05/26/2021			05/26/2021 15:16	Ping Hua	2250324
SM 2120 B-2011	05/26/2021			05/26/2021 16:02	Sarah A Nixon	2250322
SM 2320 B-2011	05/26/2021			05/28/2021 06:57	Dale L. Simmons	2250322
SM 2540 C-2011	05/26/2021			05/27/2021 14:42	Yijie Li	2250322
SM 2540 D-2011	05/26/2021			05/27/2021 14:42	Yijie Li	2250322
SM 4500 F-C-2011	05/26/2021			05/28/2021 06:57	Dale L. Simmons	2250322
SM 5310 B-2011	05/26/2021			06/02/2021 00:37	Madeline Gruver	2250323