

Chemical Analysis Report

SO-DIST-2021-07-13-01

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-2021-07-12-47**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 02-AUG-2021 10:45



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: 07/12/2021 10:40

Field ID: G4SD0210

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2261437	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P400904	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P401053	
		Sulfate	17		mg SO4/L	P401056	
	SM 2120 B-2011	Color (true)	450		PCU	P400893	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P401021	RPD
	SM 2540 C-2011	TDS	176		mg/L	P401316	
	SM 2540 D-2011	TSS	12		mg/L	P401121	
	SM 4500 F-C-2011	Fluoride	0.068	I	mg F/L	P401024	
2261438	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P401415	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P401177	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P400939	
	EPA 365.1 Rev. 2.0	Total-P	0.52		mg P/L	P400931	
	SM 5310 B-2011	Organic Carbon	38		mg C/L	P401309	
2261439	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P400865	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: 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: P400904

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401053

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401056

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401415

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401177

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400939

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400931

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400865

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

Reference Method: SM 2120 B-2011
Batch ID: P400893

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P401021

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

Reference Method: SM 2540 C-2011
Batch ID: P401316

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401121

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401024

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P401309

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: P401053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P401056

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P401415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P401177

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P400939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	94.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P400931

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P400865

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: SM 2120 B-2011
 Batch ID: P400893

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.8		P	85 - 115

Reference Method: SM 2320 B-2011
 Batch ID: P401021

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P401024

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P401309

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261296	Chloride	97.9		P	90 - 110
2261366	Chloride	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261296	Sulfate	101		P	90 - 110
2261366	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261369	Ammonia-N	99.2	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261394	Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261408	NO2NO3-N	92.0	92.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261464	O-Phosphate-P	91.5	92.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260932	Fluoride	95.7	98.0	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P401309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261556	Organic Carbon	97.6	98.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261406	Turbidity	0.786	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261366	Chloride	1.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261366	Sulfate	2.16	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261369	Ammonia-N	0.458	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261394	Kjeldahl Nitrogen	1.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261408	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261459	Total-P	0.946	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261464	O-Phosphate-P	1.41	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P400893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261462	Color (true)	1.99	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P401021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260932	Total Alkalinity	5.51	Sample	F	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P401316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261458	TDS	6.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P401024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260932	Fluoride	1.90	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P401309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261556	Organic Carbon	0.479	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: A106583

Included Lab Sample IDs: 2261439

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	99.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106591

Included Lab Sample IDs: 2261437

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

Reference Method: SM 2120 B-2011

Run ID: A106593

Included Lab Sample IDs: 2261437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106600

Included Lab Sample IDs: 2261437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106607

Included Lab Sample IDs: 2261438

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.0	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106618

Included Lab Sample IDs: 2261438

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

Reference Method: SM 2320 B-2011

Run ID: A106641

Included Lab Sample IDs: 2261437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106641

Included Lab Sample IDs: 2261437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106716

Included Lab Sample IDs: 2261438

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	94.9	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A106744

Included Lab Sample IDs: 2261438

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106772

Included Lab Sample IDs: 2261438

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.6	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					0.786	
EPA 300.0 Rev. 2.1	Chloride	95.7	94.7	97.9		1.34	
	Sulfate	102	98.0	101		2.16	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	99.2	98.6			0.458
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107	104			1.86
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	94.0	92.0	92.0			0.0
EPA 365.1 Rev. 2.0	Total-P	105					0.946
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	91.5	92.8			1.41
SM 2120 B-2011	Color (true)	98.8				1.99	
SM 2320 B-2011	Total Alkalinity	103				5.51	
SM 2540 C-2011	TDS					6.17	
SM 4500 F-C-2011	Fluoride	100	95.7	98.0			1.90
SM 5310 B-2011	Organic Carbon	96.3	97.6	98.2			0.479

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2261437
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2261437
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2261437
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2261438
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2261438
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2261438
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2261438
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2261439
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2261437
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2261437
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2261437
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2261437
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2261437
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2261438

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	07/13/2021			07/13/2021 16:23	Sarah A Nixon	2261437
EPA 300.0 Rev. 2.1	07/13/2021			07/16/2021 06:17	Lipi Saha	2261437
EPA 350.1 Rev. 2.0	07/13/2021			07/22/2021 13:42	Roberta Tatti	2261438
EPA 351.2 Rev. 2.0	07/13/2021	07/19/2021 15:15	Benjamin T. Nordmann	07/20/2021 18:51	Letuzia M De Oliveira	2261438
EPA 353.2 Rev. 2.0	07/13/2021			07/14/2021 10:24	Beverly Y. Sanders	2261438
EPA 365.1 Rev. 2.0	07/13/2021	07/14/2021 13:05	Simonne.V. Calhoun	07/14/2021 16:28	Shengyu Ding	2261438
EPA 365.1 Rev. 2.0 dissolved	07/13/2021			07/13/2021 15:14	Ping Hua	2261439
SM 2120 B-2011	07/13/2021			07/13/2021 18:11	Sarah A Nixon	2261437
SM 2320 B-2011	07/13/2021			07/15/2021 08:06	Dale L. Simmons	2261437
SM 2540 C-2011	07/13/2021			07/14/2021 14:33	Yijie Li	2261437
SM 2540 D-2011	07/13/2021			07/14/2021 14:02	Yijie Li	2261437
SM 4500 F-C-2011	07/13/2021			07/15/2021 08:06	Dale L. Simmons	2261437
SM 5310 B-2011	07/13/2021			07/20/2021 20:12	Touraj Touran	2261438