

Chemical Analysis Report

SO-DIST-2022-12-22-03

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

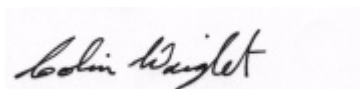
Event Description: **2022 SMP : Arbuckle +SCI?**
Request ID: **RQ-2022-12-05-36**
Customer: **SO-DIST**
Project ID: **SMP**

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

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Certified by: Colin Wright, Program Administrator

Date Certified: 12-JAN-2023 09:00

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light blue 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: ArbuckleCreekNearBranch

Collection Date/Time: 12/21/2022 11:10

Field ID: G4SD0210

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377389	DEP SOP: NU-094-1	Color (true)	200		PCU	P423915	
	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P423921	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P424207	
		Sulfate	16		mg SO4/L	P424210	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P424085	
	SM 2540 C-2015	TDS	112		mg/L	P424228	
	SM 2540 D-2015	TSS	3	I	mg/L	P424118	
	SM 4500-F- C-2011	Fluoride	0.046	I	mg F/L	P424392	
2377390	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P424345	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P424063	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.097		mg N/L	P424287	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P424178	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P424183	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of analytical difficulties.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P423915

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423921

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424207

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424345

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424063

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424287

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424178

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

Reference Method: SM 2320 B-2011
Batch ID: P424085

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P424228

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P424118

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P424392

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P424183

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: P423915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423921

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424207

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424063

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: P424287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424178

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

Reference Method: SM 2320 B-2011
Batch ID: P424085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.1		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P424228

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

Reference Method: SM 2540 D-2015
Batch ID: P424118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	92.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P424392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424183

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377368	Chloride	96.2		P	90 - 110
2377545	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377368	Sulfate	100		P	90 - 110
2377545	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376869	Ammonia-N	97.4	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377458	Kjeldahl Nitrogen	96.2	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377332	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377176	Total-P	103	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P424392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377380	Fluoride	96.4	97.0	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377719	Organic Carbon	94.8	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P423915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377379	Color (true)	2.86	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377200	Turbidity	1.42	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377368	Chloride	0.0634	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377368	Sulfate	0.487	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376869	Ammonia-N	1.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377458	Kjeldahl Nitrogen	5.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377332	NO2NO3-N	0.881	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377176	Total-P	1.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P424085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376772	Total Alkalinity	1.32	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P424228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377180	TDS	8.42	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P424392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377380	Fluoride	0.500	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P424183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377719	Organic Carbon	0.0633	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A116641

Included Lab Sample IDs: 2377389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.4	96.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116644

Included Lab Sample IDs: 2377389

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

Reference Method: SM 2320 B-2011

Run ID: A116713

Included Lab Sample IDs: 2377389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.2	97.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116716

Included Lab Sample IDs: 2377389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.4	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A116757

Included Lab Sample IDs: 2377390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116781

Included Lab Sample IDs: 2377390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116801

Included Lab Sample IDs: 2377390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116803

Included Lab Sample IDs: 2377390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116825

Included Lab Sample IDs: 2377390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	99.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116836

Included Lab Sample IDs: 2377389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.1	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	
					LCS	MS
DEP SOP: NU-094-1	Color (true)	98.7			2.86	
EPA 180.1 Rev. 2.0	Turbidity	101			1.42	
EPA 300.0 Rev. 2.1	Chloride	97.3	96.2	97.8	0.0634	
	Sulfate	98.2	100	99.1	0.487	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	97.4	99.8		1.61
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	96.2	105		5.18
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	103		0.881
EPA 365.1 Rev. 2.0	Total-P	104	103	104		1.12
SM 2320 B-2011	Total Alkalinity	98.1			1.32	
SM 2540 C-2015	TDS	95.4			8.42	
SM 2540 D-2015	TSS	92.3				
SM 4500-F- C-2011	Fluoride	95.9	96.4	97.0		0.500
SM 5310 B-2011	Organic Carbon	97.6	94.8	94.8		0.0633

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2377389
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2377389
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2377389
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2377389
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2377390
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2377390
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2377390
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2377390
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2377389
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2377389
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2377389
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2377389
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2377390

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	12/22/2022			12/22/2022 16:01	Alexis Price	2377389
EPA 180.1 Rev. 2.0	12/22/2022			12/22/2022 14:08	Khloe J Berg	2377389
EPA 300.0 Rev. 2.1	12/22/2022			01/06/2023 05:25	Anna M. Plaviak	2377389
EPA 350.1 Rev. 2.0	12/22/2022			01/10/2023 10:49	Ping Hua	2377390
EPA 351.2 Rev. 2.0	12/22/2022	01/04/2023 10:00	Simonne.V. Calhoun	01/06/2023 15:20	Samantha L Bates	2377390
EPA 353.2 Rev. 2.0	12/22/2022			01/09/2023 11:01	Beverly Y. Sanders	2377390
EPA 365.1 Rev. 2.0	12/22/2022	01/06/2023 13:35	Adam P Silver	01/09/2023 09:18	James L Waggerby	2377390
SM 2320 B-2011	12/22/2022			01/03/2023 23:35	Adam P Silver	2377389
SM 2540 C-2015	12/22/2022			12/22/2022 16:12	Yijie Li	2377389
SM 2540 D-2015	12/22/2022			12/22/2022 16:12	Yijie Li	2377389
SM 4500-F- C-2011	12/22/2022			01/10/2023 18:04	Dale L. Simmons	2377389
SM 5310 B-2011	12/22/2022			01/05/2023 23:28	Khloe J Berg	2377390