

Chemical Analysis Report

SW-DIST-2023-09-07-03

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

Event Description: **Run 14**
Request ID: **RQ-2023-06-19-11**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 29-SEP-2023 10:58



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: WOLF BRANCH AT 19TH AVE NE

Collection Date/Time: 09/06/2023 12:10

Field ID: G1SW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2435310	DEP SOP: NU-094-1	Color (true)	260		PCU	P434692	
	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P434698	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P435109	
		Sulfate	68		mg SO4/L	P434988	
	SM 2320 B-2011	Total Alkalinity	54		mg CaCO3/L	P435040	
	SM 2540 C-2015	TDS	260		mg/L	P435122	
	SM 2540 D-2015	TSS	7	I	mg/L	P435046	
	SM 4500-F- C-2011	Fluoride	0.21		mg F/L	P435050	
2435311	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P434843	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P435445	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P435252	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P434772	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P435117	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P434692

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434698

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434988

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435109

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434843

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435445

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435252

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434772

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

Reference Method: SM 2320 B-2011
Batch ID: P435040

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: P435122

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P435046

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P435050

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P435117

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: P434692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434698

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434988

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435109

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434843

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435445

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: P435252

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434772

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

Reference Method: SM 2320 B-2011
Batch ID: P435040

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P435122

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

Reference Method: SM 2540 D-2015
Batch ID: P435046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	98.9		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P435050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P435117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435440	Sulfate	101		P	90 - 110
2435638	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435440	Chloride	97.5		P	90 - 110
2435638	Chloride	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435181	Ammonia-N	96.0	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435910	Kjeldahl Nitrogen	100	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435311	NO2NO3-N	92.0	93.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435403	Total-P	106	105	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P435050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435952	Fluoride	99.7	98.6	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P435117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435421	Organic Carbon	94.6	95.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P434692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434874	Color (true)	2.69	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435182	Turbidity	3.96	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435440	Chloride	0.0128	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435181	Ammonia-N	0.798	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435910	Kjeldahl Nitrogen	2.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435311	NO2NO3-N	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435403	Total-P	0.973	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P435040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435952	Total Alkalinity	0.718	Sample	P	0 - 3.9

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P435122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434183	TDS	1.94	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P435050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435952	Fluoride	1.00	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P435117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435421	Organic Carbon	0.678	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: A121411
Included Lab Sample IDs: 2435310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A121415
Included Lab Sample IDs: 2435310

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A121468
Included Lab Sample IDs: 2435311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121471
Included Lab Sample IDs: 2435311

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A121485
Included Lab Sample IDs: 2435310

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

Reference Method: SM 2320 B-2011
Run ID: A121553
Included Lab Sample IDs: 2435310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	94.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A121553
Included Lab Sample IDs: 2435310

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A121585
Included Lab Sample IDs: 2435310

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A121588

Included Lab Sample IDs: 2435311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A121654

Included Lab Sample IDs: 2435311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121786

Included Lab Sample IDs: 2435311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	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)	103			2.69	
EPA 180.1 Rev. 2.0	Turbidity	105			3.96	
EPA 300.0 Rev. 2.1	Chloride	99.5	97.5	94.9	0.0128	
	Sulfate	101	101	102		
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	96.0	94.8		0.798
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	100	104		2.00
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	92.0	93.0		1.08
EPA 365.1 Rev. 2.0	Total-P	105	106	105		0.973
SM 2320 B-2011	Total Alkalinity	99.7			0.718	
SM 2540 C-2015	TDS	99.4			1.94	
SM 2540 D-2015	TSS	98.9				
SM 4500-F- C-2011	Fluoride	99.3	99.7	98.6		1.00
SM 5310 B-2011	Organic Carbon	95.4	94.6	95.4		0.678

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2435310
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2435310
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2435310
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2435310
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2435311
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2435311
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2435311
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2435311
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2435310
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2435310
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2435310
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2435310
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2435311

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	09/07/2023			09/07/2023 15:04	Samantha L Bates	2435310
EPA 180.1 Rev. 2.0	09/07/2023			09/07/2023 13:35	Chandler E Cox	2435310
EPA 300.0 Rev. 2.1	09/07/2023			09/13/2023 13:32	James L Waggeberby	2435310
	09/07/2023			09/15/2023 18:33	James L Waggeberby	2435310
EPA 350.1 Rev. 2.0	09/07/2023			09/11/2023 13:27	Ping Hua	2435311
EPA 351.2 Rev. 2.0	09/07/2023	09/25/2023 15:30	Simonne.V. Calhoun	09/27/2023 12:20	Samantha L Bates	2435311
EPA 353.2 Rev. 2.0	09/07/2023			09/18/2023 15:37	Anna M. Plaviak	2435311
EPA 365.1 Rev. 2.0	09/07/2023	09/11/2023 16:54	Adam P Silver	09/12/2023 12:54	James L Waggeberby	2435311
SM 2320 B-2011	09/07/2023			09/14/2023 03:23	Chandler E Cox	2435310
SM 2540 C-2015	09/07/2023			09/11/2023 15:46	Yijie Li	2435310
SM 2540 D-2015	09/07/2023			09/11/2023 15:46	Yijie Li	2435310
SM 4500-F- C-2011	09/07/2023			09/14/2023 03:23	Chandler E Cox	2435310
SM 5310 B-2011	09/07/2023			09/15/2023 18:08	Elise M. Gillis	2435311