

Chemical Analysis Report

NW-DIST-2023-03-23-02

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

Event Description: **Reschedule run**
Request ID: **RQ-2023-02-27-65**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
Pensacola, FL 32502-5794
Attn: Myranda Butler

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: 24-MAR-2023 10:04



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: Williams Creek Upstream of Hwy 98

Collection Date/Time: 02/27/2023 13:30

Field ID: G4NW0531

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2396132	DEP SOP: NU-094-1	Color (true)	55	A	PCU	P426482	
	EPA 180.1 Rev. 2.0	Turbidity	3.5	A	NTU	P426495	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P426998	
		Sulfate	24		mg SO4/L	P427001	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P426643	
	SM 2540 C-2015	TDS	300	Q	mg/L	P427304	
	SM 2540 D-2015	TSS	3	U	mg/L	P426807	
	SM 4500-F- C-2011	Fluoride	0.030	I	mg F/L	P426977	
2396133	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P426601	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	IA	mg N/L	P426769	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P426665	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P426993	
	SM 5310 B-2011	Organic Carbon	6.3		mg C/L	P426797	

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 C-2015: The sample needed to be reanalyzed because it was processed according to incorrect field conductivity. The reported result is consistent with the conductivity measured in the laboratory, 623 umhos/cm.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The sample was reanalyzed on 03/08/2023 according to the laboratory conductivity. The result was 2 IQ mg/L.

EPA 351.2 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of incorrect field conductivity.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P426482

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426495

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426998

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427001

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426601

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426769

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426665

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426993

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

Reference Method: SM 2320 B-2011
Batch ID: P426643

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: P427304

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P426807

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P426977

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P426797

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: P426482

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426495

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426998

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: P427001

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426601

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426665

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: P426993

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

Reference Method: SM 2320 B-2011
Batch ID: P426643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P427304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	106		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P426807

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P426977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P426797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390557	Chloride	96.7		P	90 - 110
2390614	Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390557	Sulfate	100		P	90 - 110
2390614	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2389735	Ammonia-N	106	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396133	Kjeldahl Nitrogen	95.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2389783	NO2NO3-N	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390030	Total-P	99.2	98.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P426977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390782	Fluoride	98.7	97.3	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P426797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391105	Organic Carbon	85.5	88.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P426482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396132	Color (true)	1.97	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396132	Turbidity	3.67	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2390557	Chloride	0.00877	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2389735	Ammonia-N	1.95	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2389783	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2390030	Total-P	0.708	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P426643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2389384	Total Alkalinity	0.633	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P427304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391578	TDS	5.68	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P426977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2390782	Fluoride	0.986	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P426797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391105	Organic Carbon	2.84	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: A117707
Included Lab Sample IDs: 2396132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A117712
Included Lab Sample IDs: 2396132

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A117760
Included Lab Sample IDs: 2396133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A117776
Included Lab Sample IDs: 2396132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.1	98.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A117833
Included Lab Sample IDs: 2396132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	96.9	P/P	90 - 110
Sulfate	101	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117843
Included Lab Sample IDs: 2396133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	105	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A117846
Included Lab Sample IDs: 2396133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	95.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A117917
Included Lab Sample IDs: 2396132

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

Quality Assurance Report

Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117939

Included Lab Sample IDs: 2396133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117974

Included Lab Sample IDs: 2396133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.5	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)	98.4			1.97	
EPA 180.1 Rev. 2.0	Turbidity	99.6			3.67	
EPA 300.0 Rev. 2.1	Chloride	98.1	96.7	95.8	0.0087	
	Sulfate	103	100	99.7		
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	106	104		1.95
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.5	95.0			
EPA 353.2 Rev. 2.0	NO2NO3-N	104	107	107		0.0
EPA 365.1 Rev. 2.0	Total-P	98.3	99.2	98.6		0.708
SM 2320 B-2011	Total Alkalinity	97.1			0.633	
SM 2540 C-2015	TDS	106			5.68	
SM 2540 D-2015	TSS	93.3				
SM 4500-F- C-2011	Fluoride	98.6	98.7	97.3		0.986
SM 5310 B-2011	Organic Carbon	92.4	85.5	88.3		2.84

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2396132
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2396132
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2396132
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2396132
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2396133
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2396133
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2396133
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2396133
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2396132
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2396132
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2396132
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2396132
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2396133

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	02/28/2023			02/28/2023 14:08	Alexis Price	2396132
EPA 180.1 Rev. 2.0	02/28/2023			02/28/2023 15:02	Khloe J Berg	2396132
EPA 300.0 Rev. 2.1	02/28/2023			03/09/2023 14:37	Judith K. Clark	2396132
EPA 350.1 Rev. 2.0	02/28/2023			03/02/2023 11:29	Khloe J Berg	2396133
EPA 351.2 Rev. 2.0	02/28/2023	03/07/2023 13:40	Simonne.V. Calhoun	03/10/2023 15:41	Samantha L Bates	2396133
EPA 353.2 Rev. 2.0	02/28/2023			03/03/2023 09:57	Beverly Y. Sanders	2396133
EPA 365.1 Rev. 2.0	02/28/2023	03/10/2023 13:50	Adam P Silver	03/14/2023 09:55	James L Waggerby	2396133
SM 2320 B-2011	02/28/2023			03/02/2023 20:21	Chandler E Cox	2396132
SM 2540 C-2015	02/28/2023			03/08/2023 14:08	Yijie Li	2396132
SM 2540 D-2015	02/28/2023			03/01/2023 16:46	Yijie Li	2396132
SM 4500-F- C-2011	02/28/2023			03/10/2023 06:10	Dale L. Simmons	2396132
SM 5310 B-2011	02/28/2023			03/07/2023 02:54	Elise M. Gillis	2396133