

Chemical Analysis Report

NW-DIST-2023-10-18-02

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

Event Description: **Rest Area Run**
Request ID: **RQ-2023-10-16-22**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 07-NOV-2023 13:24

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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: Rest Area Run Below Beaver Pond Creek

Collection Date/Time: 10/17/2023 09:10

Field ID: G5NW0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2445748	DEP SOP: NU-094-1	Color (true)	25		PCU	P436704	
	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P436707	
	EPA 300.0 Rev. 2.1	Chloride	7.8		mg Cl/L	P437372	
		Sulfate	3.0		mg SO4/L	P437376	
	SM 2320 B-2011	Total Alkalinity	5.4		mg CaCO3/L	P436862	
	SM 2540 C-2015	TDS	29		mg/L	P437083	
	SM 2540 D-2015	TSS	2	I	mg/L	P437022	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P436864	
2445749	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P436872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P436729	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P436907	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P436723	
	SM 5310 B-2011	Organic Carbon	2.7		mg C/L	P436903	

Ref. Method and Comment:

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: P436704

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436707

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437372

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437376

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436872

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436729

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436907

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436723

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

Reference Method: SM 2320 B-2011
Batch ID: P436862

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: P437083

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P437022

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P436864

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P436903

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: P436704

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436707

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437372

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437376

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436872

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436729

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: P436907

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436723

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

Reference Method: SM 2320 B-2011
Batch ID: P436862

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P437083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	105		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P437022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.4		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P436864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P436903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445707	Chloride	104		P	90 - 110
2445946	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445707	Sulfate	104		P	90 - 110
2445946	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445704	Ammonia-N	101	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445708	Kjeldahl Nitrogen	108	113	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445708	NO2NO3-N	92.4	93.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445749	Total-P	104	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P436864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445705	Fluoride	100	99.8	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P436903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445610	Organic Carbon	97.2	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P436704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445709	Color (true)	8.42	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445878	Turbidity	1.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445707	Chloride	0.201	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445707	Sulfate	0.400	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445704	Ammonia-N	1.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445708	Kjeldahl Nitrogen	3.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445708	NO2NO3-N	0.385	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445749	Total-P	2.38	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P436862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445705	Total Alkalinity	1.99	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P437083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445878	TDS	1.58	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P436864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445705	Fluoride	0.480	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P436903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445610	Organic Carbon	1.74	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: A122223

Included Lab Sample IDs: 2445748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A122224

Included Lab Sample IDs: 2445748

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

Reference Method: SM 2320 B-2011

Run ID: A122285

Included Lab Sample IDs: 2445748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.9	97.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A122285

Included Lab Sample IDs: 2445748

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122287

Included Lab Sample IDs: 2445749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122291

Included Lab Sample IDs: 2445749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122292

Included Lab Sample IDs: 2445749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122299

Included Lab Sample IDs: 2445749

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

Quality Assurance Report

Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A122308

Included Lab Sample IDs: 2445749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	96.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A122479

Included Lab Sample IDs: 2445748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Sulfate	100	99.9	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)	102			8.42	
EPA 180.1 Rev. 2.0	Turbidity	105			1.78	
EPA 300.0 Rev. 2.1	Chloride	103	104	104	0.201	
	Sulfate	102	104	103	0.400	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	98.6		1.54
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	108	113		3.36
EPA 353.2 Rev. 2.0	NO2NO3-N	96.0	92.4	93.0		0.385
EPA 365.1 Rev. 2.0	Total-P	102	104	102		2.38
SM 2320 B-2011	Total Alkalinity	97.1			1.99	
SM 2540 C-2015	TDS	105			1.58	
SM 2540 D-2015	TSS	94.4				
SM 4500-F- C-2011	Fluoride	99.6	100	99.8		0.480
SM 5310 B-2011	Organic Carbon	95.3	97.2	99.6		1.74

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2445748
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2445748
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2445748
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2445748
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2445749
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2445749
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2445749
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2445749
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2445748
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2445748
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2445748
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2445748
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2445749

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	10/18/2023			10/18/2023 15:07	Chandler E Cox	2445748
EPA 180.1 Rev. 2.0	10/18/2023			10/18/2023 14:11	Samantha L Bates	2445748
EPA 300.0 Rev. 2.1	10/18/2023			11/02/2023 01:30	James L Waggeberby	2445748
EPA 350.1 Rev. 2.0	10/18/2023			10/23/2023 12:27	Ping Hua	2445749
EPA 351.2 Rev. 2.0	10/18/2023	10/19/2023 15:24	Samantha L Bates	10/23/2023 11:24	Samantha L Bates	2445749
EPA 353.2 Rev. 2.0	10/18/2023			10/20/2023 15:50	Fadila Guebre	2445749
EPA 365.1 Rev. 2.0	10/18/2023	10/19/2023 12:30	Simonne.V. Calhoun	10/23/2023 12:59	Chandler E Cox	2445749
SM 2320 B-2011	10/18/2023			10/20/2023 22:55	Chandler E Cox	2445748
SM 2540 C-2015	10/18/2023			10/20/2023 16:03	Yijie Li	2445748
SM 2540 D-2015	10/18/2023			10/20/2023 16:03	Yijie Li	2445748
SM 4500-F- C-2011	10/18/2023			10/20/2023 22:55	Chandler E Cox	2445748
SM 5310 B-2011	10/18/2023			10/23/2023 18:36	Elise M. Gillis	2445749