

Chemical Analysis Report

SE-DIST-2024-03-01-03

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

Event Description: **SMP - Central Highlands Canoe**
Request ID: **RQ-2024-01-29-20**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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2199 South Rock Road
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Certified by: Marek Topolski, Environmental Administrator

Date Certified: 20-MAR-2024 11:29

A handwritten signature in black ink, appearing to read "Marek Topolski", with a stylized flourish at the end.

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: LAKE CREWS NORTHERN SECTION

Collection Date/Time: 02/29/2024 10:15

Field ID: G4SE0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2472666	DEP SOP: NU-094-1	Color (true)	72	AJ	PCU	P442227	CCV
	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P442219	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P442688	
		Sulfate	2.3		mg SO4/L	P442691	
	SM 2320 B-2011	Total Alkalinity	5.8	J	mg CaCO3/L	P442767	LCS
	SM 2540 C-2015	TDS	60		mg/L	P442810	
	SM 2540 D-2015	TSS	8	I	mg/L	P442612	
	SM 4500-F- C-2011	Fluoride	0.048	I	mg F/L	P442484	
2472667	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P442393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P442294	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P442442	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P442367	
	SM 5310 B-2014	Organic Carbon	16		mg C/L	P442419	

Ref. Method and Comment:
 DEP SOP: NU-094-1: Refer to the Lab Analysis Report for an explanation of QC Codes.
 SM 2320 B-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.
 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: P442227

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442219

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442688

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442691

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442393

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442294

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442442

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442367

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

Reference Method: SM 2320 B-2011
Batch ID: P442767

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: P442810

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P442612

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P442484

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P442419

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: P442227

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442219

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442688

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442691

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442294

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442442

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442367

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

Reference Method: SM 2320 B-2011
Batch ID: P442767

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P442810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	92.8		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P442612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	106		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P442484

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

Reference Method: SM 5310 B-2014
Batch ID: P442419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472768	Chloride	98.4		P	90 - 110
2472908	Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472768	Sulfate	96.8		P	90 - 110
2472908	Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472636	Ammonia-N	94.4	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472523	Kjeldahl Nitrogen	97.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472596	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472636	Total-P	102	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P442484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472768	Fluoride	103	104	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P442419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472636	Organic Carbon	97.5	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P442227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472666	Color (true)	0.509	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472546	Turbidity	3.27	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472768	Chloride	1.99	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472768	Sulfate	1.58	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472636	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472523	Kjeldahl Nitrogen	1.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472596	NO2NO3-N	0.560	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472636	Total-P	0.583	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P442767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2474614	Total Alkalinity	3.08	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P442810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472522	TDS	2.56	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P442484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472768	Fluoride	0.979	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P442419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472636	Organic Carbon	2.97	Spike	P	0 - 15

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A124503
Included Lab Sample IDs: 2472666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1
Run ID: A124506
Included Lab Sample IDs: 2472666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	111*	100	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A124575
Included Lab Sample IDs: 2472667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A124577
Included Lab Sample IDs: 2472667

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

Reference Method: SM 5310 B-2014
Run ID: A124592
Included Lab Sample IDs: 2472667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	112	97.8	P/P	70 - 130

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A124597
Included Lab Sample IDs: 2472667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124608
Included Lab Sample IDs: 2472667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A124624
Included Lab Sample IDs: 2472666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	106	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A124710
Included Lab Sample IDs: 2472666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	97.2	P/P	90 - 110
Sulfate	99.7	97.0	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A124739
Included Lab Sample IDs: 2472666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	97.4	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)	98.8			0.509	
EPA 180.1 Rev. 2.0	Turbidity	102			3.27	
EPA 300.0 Rev. 2.1	Chloride	98.7	98.4	97.3	1.99	
	Sulfate	98.5	96.8	96.4	1.58	
EPA 350.1 Rev. 2.0	Ammonia-N	95.8	94.4	95.4		1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	97.6	100		1.67
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.0	100		0.560
EPA 365.1 Rev. 2.0	Total-P	99.2	102	101		0.583
SM 2320 B-2011	Total Alkalinity	105			3.08	
SM 2540 C-2015	TDS	92.8			2.56	
SM 2540 D-2015	TSS	106				
SM 4500-F- C-2011	Fluoride	103	103	104		0.979
SM 5310 B-2014	Organic Carbon	98.0	97.5	101		2.97

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2472666
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2472666
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2472666
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2472666
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2472667
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2472667
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2472667
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2472667
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2472666
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2472666
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2472666
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2472666
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2472667

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	03/01/2024			03/01/2024 14:28	Jessica K Wilks	2472666
EPA 180.1 Rev. 2.0	03/01/2024			03/01/2024 13:38	Khloe J Berg	2472666
EPA 300.0 Rev. 2.1	03/01/2024			03/12/2024 06:31	James L Waggeberby	2472666
EPA 350.1 Rev. 2.0	03/01/2024			03/06/2024 15:12	Kenneth H Lee	2472667
EPA 351.2 Rev. 2.0	03/01/2024	03/05/2024 10:01	Samantha L Bates	03/06/2024 14:01	Samantha L Bates	2472667
EPA 353.2 Rev. 2.0	03/01/2024			03/06/2024 15:04	Fadila Guebre	2472667
EPA 365.1 Rev. 2.0	03/01/2024	03/06/2024 14:05	Josephine W Gitau	03/07/2024 15:14	Elise M. Gillis	2472667
SM 2320 B-2011	03/01/2024			03/13/2024 19:00	Dale L. Simmons	2472666
SM 2540 C-2015	03/01/2024			03/06/2024 14:09	Yijie Li	2472666
SM 2540 D-2015	03/01/2024			03/06/2024 16:09	Yijie Li	2472666
SM 4500-F- C-2011	03/01/2024			03/07/2024 05:59	Dale L. Simmons	2472666
SM 5310 B-2014	03/01/2024			03/06/2024 15:39	Khloe J Berg	2472667