Chemical Analysis Report

SE-DIST-2024-02-27-02

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

Event Description: **SMP - Highlands Boat**
Request ID: **RQ-2024-01-15-21**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
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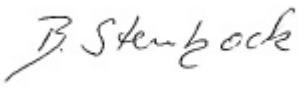
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 13-MAR-2024 15:38



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 LOTELA NEAR CENTER **Collection Date/Time: 02/26/2024 12:00**

Field ID: G4SE0172 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2471982	DEP SOP: NU-094-1	Color (true)	5.3	I	PCU	P442014	
	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P442018	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P442398	
		Sulfate	19		mg SO4/L	P442401	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P442362	
	SM 2540 C-2015	TDS	101		mg/L	P442433	
	SM 2540 D-2015	TSS	8	I	mg/L	P442559	
	SM 4500-F- C-2011	Fluoride	0.077	I	mg F/L	P442365	
2471983	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P442153	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P442064	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P442171	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P442140	
	SM 5310 B-2014	Organic Carbon	4.9		mg C/L	P442253	

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: P442014

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442018

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442398

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442401

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442153

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442064

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442171

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442140

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

Reference Method: SM 2320 B-2011
Batch ID: P442362

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: P442433

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P442559

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P442253

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: P442014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442018

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442398

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442401

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442153

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: P442064

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: P442171

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: P442140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P442362

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	92 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P442433

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	99.2		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P442559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.8		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P442253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2471960	Chloride	100		P	90 - 110
2472137	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2471960	Sulfate	97.8		P	90 - 110
2472137	Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2471961	Ammonia-N	99.2	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2471983	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2471933	NO2NO3-N	96.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472021	Total-P	99.7	98.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472055	Fluoride	101	102	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P442253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2471927	Organic Carbon	99.2	102	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P442014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471960	Color (true)	15.7	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471992	Turbidity	14.5	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471960	Chloride	0.475	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471960	Sulfate	1.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471961	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471983	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471933	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472021	Total-P	1.41	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P442362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472055	Total Alkalinity	0.303	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P442433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471837	TDS	7.49	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472055	Fluoride	0.480	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P442253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2471927	Organic Carbon	2.05	Spike	P	0 - 15

* 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: A124418
Included Lab Sample IDs: 2471982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A124420
Included Lab Sample IDs: 2471982

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A124474
Included Lab Sample IDs: 2471983

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A124483
Included Lab Sample IDs: 2471983

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A124501
Included Lab Sample IDs: 2471983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124508
Included Lab Sample IDs: 2471983

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

Reference Method: SM 5310 B-2014
Run ID: A124514
Included Lab Sample IDs: 2471983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	99.9	P/P	85 - 115

Reference Method: SM 2320 B-2011
Run ID: A124561
Included Lab Sample IDs: 2471982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.5	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A124561
Included Lab Sample IDs: 2471982

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A124581
Included Lab Sample IDs: 2471982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	98.2	P/P	90 - 110
Sulfate	99.2	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		
					LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	99.1				15.7	
EPA 180.1 Rev. 2.0	Turbidity	103				14.5	
EPA 300.0 Rev. 2.1	Chloride	101	100	98.9		0.475	
	Sulfate	100	97.8	95.9		1.14	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	99.2	99.2			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105	102			1.94
EPA 353.2 Rev. 2.0	NO2NO3-N	102	96.5	97.0			0.454
EPA 365.1 Rev. 2.0	Total-P	95.6	99.7	98.3			1.41
SM 2320 B-2011	Total Alkalinity	102				0.303	
SM 2540 C-2015	TDS	99.2				7.49	
SM 2540 D-2015	TSS	96.8					
SM 4500-F- C-2011	Fluoride	102	101	102			0.480
SM 5310 B-2014	Organic Carbon	97.9	99.2	102			2.05

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2471982
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2471982
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2471982
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2471982
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2471983
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2471983
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2471983
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2471983
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2471982
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2471982
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2471982
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2471982
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2471983

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	02/27/2024			02/27/2024 14:34	Jessica K Wilks	2471982
EPA 180.1 Rev. 2.0	02/27/2024			02/27/2024 15:09	Dipa Joshi	2471982
EPA 300.0 Rev. 2.1	02/27/2024			03/05/2024 02:54	James L Waggerby	2471982
EPA 350.1 Rev. 2.0	02/27/2024			02/29/2024 12:59	Kenneth H Lee	2471983
EPA 351.2 Rev. 2.0	02/27/2024	02/29/2024 12:10	Ping Hua	03/01/2024 11:34	Robyn Blevins	2471983
EPA 353.2 Rev. 2.0	02/27/2024			02/29/2024 13:55	Fadila Guebre	2471983
EPA 365.1 Rev. 2.0	02/27/2024	02/29/2024 14:14	Josephine W Gitau	03/01/2024 12:49	Elise M. Gillis	2471983
SM 2320 B-2011	02/27/2024			03/06/2024 06:00	Adam P Silver	2471982
SM 2540 C-2015	02/27/2024			03/01/2024 16:04	Yijie Li	2471982
SM 2540 D-2015	02/27/2024			03/01/2024 16:04	Yijie Li	2471982
SM 4500-F- C-2011	02/27/2024			03/06/2024 06:00	Adam P Silver	2471982
SM 5310 B-2014	02/27/2024			03/01/2024 03:33	Khloe J Berg	2471983