

Chemical Analysis Report

SO-DIST-2024-02-02-02

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

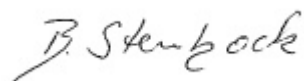
Event Description: **2024 SMP: Continuous Retrieval**
Request ID: **RQ-2024-01-15-20**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: Nicole Reistad

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

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 21-FEB-2024 13:52



NON-CONFORMANCE REPORT INCLUDED

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.

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

Non-Conformance Report

NCR ID: 10303

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SO-DIST-2024-02-02-02			
NCR Type: SHIPPING/RECEIVING		NCR Category: Samples arrived late	
Observation: Samples arrived late, samples received within the acceptable temperature range.			
Resolution: Samples will be qualified as appropriate. Biology and Chemistry supervisors were notified by email.			

Authorized by/Date: Kyle Klug 2/9/2024

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P440858

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P440878

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441170

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441174

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441068

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440954

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441081

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441293

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

Reference Method: SM 2320 B-2011
Batch ID: P441087

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: P441396

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P441395

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P441091

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P441056

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: P440858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P440878

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441170

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441174

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441293

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

Reference Method: SM 2320 B-2011
Batch ID: P441087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.0		P	92 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P441396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.6		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P441395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	108		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P441091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P441056

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465824	Chloride	98.8		P	90 - 110
2465859	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465824	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464496	Ammonia-N	98.6	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464641	Kjeldahl Nitrogen	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2466191	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2466196	Total-P	96.5	96.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P441091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464492	Fluoride	96.1	95.4	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P441056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465325	Organic Carbon	92.7	93.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P440858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465748	Color (true)	3.91	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P440878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465696	Turbidity	9.31	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465824	Chloride	0.0387	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465824	Sulfate	0.327	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464496	Ammonia-N	3.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464641	Kjeldahl Nitrogen	1.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2466191	NO2NO3-N	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2466196	Total-P	0.348	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P441087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464492	Total Alkalinity	0.187	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P441396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465277	TDS	1.29	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P441091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464492	Fluoride	0.467	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P441056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465325	Organic Carbon	0.428	Spike	P	0 - 15

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: 124038
Included Lab Sample IDs: 2465796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A123972
Included Lab Sample IDs: 2465795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A123979
Included Lab Sample IDs: 2465795

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A124027
Included Lab Sample IDs: 2465795

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

Reference Method: SM 5310 B-2014
Run ID: A124039
Included Lab Sample IDs: 2465796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	118	97.4	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A124045
Included Lab Sample IDs: 2465796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A124050
Included Lab Sample IDs: 2465796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A124053
Included Lab Sample IDs: 2465795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.7	97.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A124053
Included Lab Sample IDs: 2465795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	94.6	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124141
Included Lab Sample IDs: 2465796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	103	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)	98.2			3.91	
EPA 180.1 Rev. 2.0	Turbidity	104			9.31	
EPA 300.0 Rev. 2.1	Chloride	103	98.8	104	0.0387	
	Sulfate	102	101		0.327	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	98.6	102		3.16
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1	100	102		1.50
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	100	102		1.49
EPA 365.1 Rev. 2.0	Total-P	103	96.5	96.1		0.348
SM 2320 B-2011	Total Alkalinity	98.0			0.187	
SM 2540 C-2015	TDS	97.6			1.29	
SM 2540 D-2015	TSS	108				
SM 4500-F- C-2011	Fluoride	94.3	96.1	95.4		0.467
SM 5310 B-2014	Organic Carbon	97.2	92.7	93.1		0.428

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2465795
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2465795
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2465795
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2465795
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2465796
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2465796
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2465796
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2465796
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2465795
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2465795
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2465795
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2465795
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2465796

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	02/02/2024			02/02/2024 11:47	Anna M. Plaviak	2465795
EPA 180.1 Rev. 2.0	02/02/2024			02/02/2024 13:27	Dipa Joshi	2465795
EPA 300.0 Rev. 2.1	02/02/2024			02/08/2024 06:18	James L Waggerby	2465795
EPA 350.1 Rev. 2.0	02/02/2024			02/07/2024 12:39	Khloe J Berg	2465796
EPA 351.2 Rev. 2.0	02/02/2024	02/06/2024 11:55	Samantha L Bates	02/07/2024 10:59	Samantha L Bates	2465796
EPA 353.2 Rev. 2.0	02/02/2024			02/07/2024 13:35	Fadila Guebre	2465796
EPA 365.1 Rev. 2.0	02/02/2024	02/12/2024 15:33	Adam P Silver	02/13/2024 17:06	James L Waggerby	2465796
SM 2320 B-2011	02/02/2024			02/07/2024 05:33	Dale L. Simmons	2465795
SM 2540 C-2015	02/02/2024			02/06/2024 14:44	Yijie Li	2465795
SM 2540 D-2015	02/02/2024			02/06/2024 14:44	Yijie Li	2465795
SM 4500-F- C-2011	02/02/2024			02/07/2024 01:56	Dale L. Simmons	2465795
SM 5310 B-2014	02/02/2024			02/07/2024 02:43	Khloe J Berg	2465796