

Chemical Analysis Report

CEN-DIST-2023-05-02-01

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

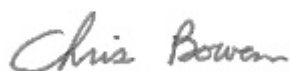
Event Description: **Run 9**
Request ID: **RQ-2023-05-01-21**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Matthew Bearden

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: Chris Bowen, Environmental Administrator

Date Certified: 19-MAY-2023 09:39



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: BIG CREEK AT LAKE NELLIE RD

Collection Date/Time: 05/01/2023 11:15

Field ID: G1CE0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2404415	DEP SOP: NU-094-1	Color (true)	480		PCU	P429269	
	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P429276	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P429563	
		Sulfate	0.52		mg SO4/L	P429566	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P429747	
	SM 2540 C-2015	TDS	123		mg/L	P429605	
	SM 2540 D-2015	TSS	4	I	mg/L	P429606	
	SM 4500-F- C-2011	Fluoride	0.056	I	mg F/L	P429695	
2404416	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P429355	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P429517	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429471	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P429310	
	SM 5310 B-2011	Organic Carbon	46		mg C/L	P429459	

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: P429269

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429276

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429563

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429566

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429355

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429517

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429471

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429310

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

Reference Method: SM 2320 B-2011
Batch ID: P429747

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: P429605

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P429606

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P429695

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P429459

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: P429269

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.1		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429276

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: P429563

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429566

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429517

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429471

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: P429310

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

Reference Method: SM 2320 B-2011
Batch ID: P429747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P429605

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	95.4		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P429606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	91.7		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P429695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P429459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404436	Chloride	98.6		P	90 - 110
2404637	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404436	Sulfate	99.1		P	90 - 110
2404637	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404437	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404051	Kjeldahl Nitrogen	101	90.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404391	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404437	Total-P	105	105	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P429695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404876	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P429459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2404437	Organic Carbon	95.8	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P429269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404436	Color (true)	5.26	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404542	Turbidity	13.3	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404436	Chloride	0.0860	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404436	Sulfate	0.310	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404437	Ammonia-N	1.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404051	Kjeldahl Nitrogen	5.81	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404391	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404437	Total-P	0.0672	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P429747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405038	Total Alkalinity	1.31	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P429605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404436	TDS	2.15	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P429695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404876	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P429459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404437	Organic Carbon	5.44	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: A118912
Included Lab Sample IDs: 2404415

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: A118913
Included Lab Sample IDs: 2404415

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A118939
Included Lab Sample IDs: 2404416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A118957
Included Lab Sample IDs: 2404416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A118972
Included Lab Sample IDs: 2404416

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A118973
Included Lab Sample IDs: 2404416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A119022
Included Lab Sample IDs: 2404415

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A119052
Included Lab Sample IDs: 2404416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A119080

Included Lab Sample IDs: 2404415

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

Reference Method: SM 2320 B-2011

Run ID: A119101

Included Lab Sample IDs: 2404415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	97.1	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)	96.1			5.26	
EPA 180.1 Rev. 2.0	Turbidity	99.6			13.3	
EPA 300.0 Rev. 2.1	Chloride	100	98.6	98.4	0.0860	
	Sulfate	100	99.1	98.7	0.310	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	100	102		1.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	101	90.1		5.81
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104		0.0
EPA 365.1 Rev. 2.0	Total-P	104	105	105		0.0672
SM 2320 B-2011	Total Alkalinity	99.0			1.31	
SM 2540 C-2015	TDS	95.4			2.15	
SM 2540 D-2015	TSS	91.7				
SM 4500-F- C-2011	Fluoride	98.0	101	101		0.0
SM 5310 B-2011	Organic Carbon	95.0	95.8	103		5.44

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2404415
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2404415
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2404415
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2404415
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2404416
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2404416
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2404416
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2404416
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2404415
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2404415
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2404415
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2404415
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2404416

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	05/02/2023			05/02/2023 15:44	Alexis Price	2404415
EPA 180.1 Rev. 2.0	05/02/2023			05/02/2023 13:56	Khloe J Berg	2404415
EPA 300.0 Rev. 2.1	05/02/2023			05/05/2023 20:15	Anna M. Plaviak	2404415
EPA 350.1 Rev. 2.0	05/02/2023			05/03/2023 13:49	Khloe J Berg	2404416
EPA 351.2 Rev. 2.0	05/02/2023	05/08/2023 15:11	Simonne.V. Calhoun	05/09/2023 14:56	Ping Hua	2404416
EPA 353.2 Rev. 2.0	05/02/2023			05/05/2023 10:41	Beverly Y. Sanders	2404416
EPA 365.1 Rev. 2.0	05/02/2023	05/03/2023 12:11	Adam P Silver	05/04/2023 14:14	James L Waggerby	2404416
SM 2320 B-2011	05/02/2023			05/11/2023 06:00	Dale L. Simmons	2404415
SM 2540 C-2015	05/02/2023			05/03/2023 14:10	Yijie Li	2404415
SM 2540 D-2015	05/02/2023			05/03/2023 14:10	Yijie Li	2404415
SM 4500-F- C-2011	05/02/2023			05/09/2023 21:28	Dale L. Simmons	2404415
SM 5310 B-2011	05/02/2023			05/04/2023 19:16	Elise M. Gillis	2404416