Chemical Analysis Report

CEN-DIST-2023-02-16-01

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

Event Description: **Run 22**
Request ID: **RQ-2023-02-06-24**
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
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 03-MAR-2023 09:42

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 Talmadge S of Center **Collection Date/Time: 02/08/2023 10:10**

Field ID: G2CE0267 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2387971	DEP SOP: NU-094-1	Color (true)	180	A	PCU	P425621	
	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P425616	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P426519	
		Sulfate	5.7		mg SO4/L	P426521	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P426063	
	SM 2540 C-2015	TDS	96		mg/L	P426311	
	SM 2540 D-2015	TSS	4	I	mg/L	P426113	
	SM 4500-F- C-2011	Fluoride	0.039	I	mg F/L	P426065	
2387972	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P426250	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P425809	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P425857	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P425818	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P425801	

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: P425621

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P425616

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426519

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426521

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426250

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425809

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425857

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425818

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

Reference Method: SM 2320 B-2011
Batch ID: P426063

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: P426311

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P426113

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P426065

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P425801

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: P425621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P425616

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426519

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426521

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426250

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425857

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.1		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P426063

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.2		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P426311

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

Reference Method: SM 2540 D-2015
Batch ID: P426113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	91.9		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P426065

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P425801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387929	Chloride	96.8		P	90 - 110
2387931	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387929	Sulfate	101		P	90 - 110
2387931	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387781	Ammonia-N	97.2	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386461	Kjeldahl Nitrogen	98.7	91.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386432	NO2NO3-N	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386456	Total-P	100	103	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P426065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387009	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P425801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386453	Organic Carbon	95.7	96.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P425621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386491	Color (true)	0.570	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P425616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386357	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387929	Chloride	1.21	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387929	Sulfate	1.32	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387781	Ammonia-N	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386461	Kjeldahl Nitrogen	4.99	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386432	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386456	Total-P	1.82	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P426063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387009	Total Alkalinity	0.478	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P426311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386420	TDS	1.78	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P426065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387009	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P425801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386453	Organic Carbon	0.562	Spike	P	0 - 20

* 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: A117357
Included Lab Sample IDs: 2387971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1
Run ID: A117358
Included Lab Sample IDs: 2387971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.9	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A117442
Included Lab Sample IDs: 2387972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117454
Included Lab Sample IDs: 2387972

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A117485
Included Lab Sample IDs: 2387972

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A117528
Included Lab Sample IDs: 2387972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	96.3	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A117531
Included Lab Sample IDs: 2387971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.6	95.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A117531
Included Lab Sample IDs: 2387971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	105	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A117602
Included Lab Sample IDs: 2387972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	99.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A117687
Included Lab Sample IDs: 2387971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	95.7	98.3	P/P	90 - 110
Sulfate	99.1	101	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)	98.4				0.570	
EPA 180.1 Rev. 2.0	Turbidity	101				0.0	
EPA 300.0 Rev. 2.1	Chloride	103	96.8	102		1.21	
	Sulfate	106	101	106		1.32	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	97.2	99.8			1.70
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.5	98.7	91.4			4.99
EPA 353.2 Rev. 2.0	NO2NO3-N	100	95.8				0.0
EPA 365.1 Rev. 2.0	Total-P	99.1	100	103			1.82
SM 2320 B-2011	Total Alkalinity	94.2				0.478	
SM 2540 C-2015	TDS	95.8				1.78	
SM 2540 D-2015	TSS	91.9					
SM 4500-F- C-2011	Fluoride	99.8	101	101			0.0
SM 5310 B-2011	Organic Carbon	96.9	95.7	96.3			0.562

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2387971
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2387971
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2387971
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2387971
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2387972
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2387972
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2387972
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2387972
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2387971
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2387971
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2387971
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2387971
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2387972

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	02/09/2023			02/09/2023 15:30	Anna M. Plaviak	2387971
EPA 180.1 Rev. 2.0	02/09/2023			02/09/2023 14:10	Chandler E Cox	2387971
EPA 300.0 Rev. 2.1	02/09/2023			03/01/2023 05:22	Judith K. Clark	2387971
EPA 350.1 Rev. 2.0	02/09/2023			02/22/2023 12:51	Ping Hua	2387972
EPA 351.2 Rev. 2.0	02/09/2023	02/15/2023 11:46	Samantha L Bates	02/17/2023 16:21	Samantha L Bates	2387972
EPA 353.2 Rev. 2.0	02/09/2023			02/15/2023 09:56	Beverly Y. Sanders	2387972
EPA 365.1 Rev. 2.0	02/09/2023	02/15/2023 13:30	Adam P Silver	02/16/2023 13:17	James L Waggerby	2387972
SM 2320 B-2011	02/09/2023			02/17/2023 23:03	Dale L. Simmons	2387971
SM 2540 C-2015	02/09/2023			02/14/2023 15:41	Yijie Li	2387971
SM 2540 D-2015	02/09/2023			02/14/2023 15:41	Yijie Li	2387971
SM 4500-F- C-2011	02/09/2023			02/17/2023 23:03	Dale L. Simmons	2387971
SM 5310 B-2011	02/09/2023			02/14/2023 20:20	Elise M. Gillis	2387972