Chemical Analysis Report

CEN-DIST-2022-04-28-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Addison Creek Retrieval (x2)**
Request ID: **RQ-2022-04-25-49**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 24-MAY-2022 11:20

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: Addison Creek @ Enchanted Forest Nature Preserve

Collection Date/Time: 04/27/2022 11:02

Field ID: G5CE0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2322652	DEP SOP: NU-094-1	Color (true)**	110		PCU	P413072	
	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P413078	
	EPA 300.0 Rev. 2.1	Chloride	360		mg Cl/L	P413257	
		Sulfate	110		mg SO4/L	P413259	
	SM 2320 B-2011	Total Alkalinity	122		mg CaCO3/L	P413552	
	SM 2540 C-2011	TDS	876		mg/L	P413670	
	SM 2540 D-2011	TSS	4	I	mg/L	P413228	
	SM 4500-F- C-2011	Fluoride	0.069	I	mg F/L	P413555	
2322653	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P413286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P413479	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P413263	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P413404	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P413420	

Ref. Method and Comment:
SM 2540 D-2011: 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: P413072

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413078

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413257

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413259

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413286

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413479

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413263

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413404

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

Reference Method: SM 2320 B-2011
Batch ID: P413552

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P413670

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P413228

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P413555

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P413420

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: P413072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413078

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413257

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413259

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413286

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413479

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413263

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: P413404

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

Reference Method: SM 2320 B-2011
Batch ID: P413552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.6		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P413555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P413420

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322550	Chloride	97.1		P	90 - 110
2322740	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322550	Sulfate	96.5		P	90 - 110
2322740	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322417	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322830	Kjeldahl Nitrogen	98.1	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322638	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322653	Total-P	105	99.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P413555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322887	Fluoride	101	100	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P413420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322653	Organic Carbon	91.2	97.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P413072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322608	Color (true)	3.25	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322739	Turbidity	3.96	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322550	Chloride	0.817	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322550	Sulfate	0.231	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322417	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322830	Kjeldahl Nitrogen	2.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322638	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322653	Total-P	3.54	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P413552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322887	Total Alkalinity	1.05	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P413670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322887	TDS	5.00	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P413555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322887	Fluoride	0.498	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P413420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322653	Organic Carbon	4.12	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: A111778
Included Lab Sample IDs: 2322652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A111781
Included Lab Sample IDs: 2322652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A111865
Included Lab Sample IDs: 2322652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	100	P/P	90 - 110
Sulfate	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A111869
Included Lab Sample IDs: 2322653

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A111877
Included Lab Sample IDs: 2322653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	98.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A111937
Included Lab Sample IDs: 2322653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A111985
Included Lab Sample IDs: 2322652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.0	98.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A111985
Included Lab Sample IDs: 2322652

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A111987
Included Lab Sample IDs: 2322653

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A112104
Included Lab Sample IDs: 2322653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	93.5	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)	98.4				3.25	
EPA 180.1 Rev. 2.0	Turbidity	95.6				3.96	
EPA 300.0 Rev. 2.1	Chloride	101	97.1	98.2		0.817	
	Sulfate	100	96.5	98.3		0.231	
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	101	101			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	98.1	94.0			2.62
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	99.5			1.00
EPA 365.1 Rev. 2.0	Total-P	101	105	99.9			3.54
SM 2320 B-2011	Total Alkalinity	95.6				1.05	
SM 2540 C-2011	TDS					5.00	
SM 4500-F- C-2011	Fluoride	100	101	100			0.498
SM 5310 B-2011	Organic Carbon	95.3	91.2	97.8			4.12

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2322652
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2322652
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2322652
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2322652
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2322653
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2322653
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2322653
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2322653
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2322652
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2322652
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2322652
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2322652
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2322653

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	04/28/2022			04/28/2022 14:35	Blanca Fach	2322652
EPA 180.1 Rev. 2.0	04/28/2022			04/28/2022 13:38	Khloe J Berg	2322652
EPA 300.0 Rev. 2.1	04/28/2022			05/03/2022 03:28	James L Waggerby	2322652
EPA 350.1 Rev. 2.0	04/28/2022			05/03/2022 13:47	Judith K. Clark	2322653
EPA 351.2 Rev. 2.0	04/28/2022	05/11/2022 13:28	Alexandra J Mattheus	05/12/2022 13:24	Alexandra J Mattheus	2322653
EPA 353.2 Rev. 2.0	04/28/2022			05/03/2022 11:08	Beverly Y. Sanders	2322653
EPA 365.1 Rev. 2.0	04/28/2022	05/05/2022 14:45	Simonne.V. Calhoun	05/06/2022 16:23	Sarah A Nixon	2322653
SM 2320 B-2011	04/28/2022			05/04/2022 12:34	Dale L. Simmons	2322652
SM 2540 C-2011	04/28/2022			04/29/2022 13:01	Ping Hua	2322652
SM 2540 D-2011	04/28/2022			04/29/2022 13:01	Ping Hua	2322652
SM 4500-F- C-2011	04/28/2022			05/04/2022 12:34	Dale L. Simmons	2322652
SM 5310 B-2011	04/28/2022			05/03/2022 21:46	Judith K. Clark	2322653