Chemical Analysis Report

CEN-DIST-2022-11-17-02

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

Event Description: **Addison Creek Sites**
Request ID: **RQ-2022-11-14-27**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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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: 11/16/2022 13:15

Field ID: G5CE0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370453	EPA 180.1 Rev. 2.0	Turbidity	24		NTU	P422520	
	SM 2320 B-2011	Total Alkalinity	99		mg CaCO3/L	P422780	
	SM 2540 D-2015	TSS	6	I	mg/L	P422927	
	SM 4500-F- C-2011	Fluoride	0.072	I	mg F/L	P422784	
2370454	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P423161	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P422633	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P422721	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P422573	
	SM 5310 B-2011	Organic Carbon	26		mg C/L	P422796	

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: EPA 180.1 Rev. 2.0
Batch ID: P422520

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423161

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422721

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422573

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

Reference Method: SM 2320 B-2011
Batch ID: P422780

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

Reference Method: SM 2540 D-2015
Batch ID: P422927

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422796

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422520

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

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: P422721

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: P422573

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

Reference Method: SM 2320 B-2011
Batch ID: P422780

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	94 - 106

Reference Method: SM 2540 D-2015
Batch ID: P422927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	98.1		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.3		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370801	Ammonia-N	97.0	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370587	Kjeldahl Nitrogen	93.0	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370363	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370208	Total-P	107	107	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370361	Fluoride	99.9	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370222	Organic Carbon	100	96.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370586	Turbidity	2.62	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370801	Ammonia-N	2.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370587	Kjeldahl Nitrogen	2.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370363	NO2NO3-N	0.250	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370208	Total-P	0.213	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P422780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370361	Total Alkalinity	1.05	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P422784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370361	Fluoride	0.516	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370222	Organic Carbon	3.63	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A116002
Included Lab Sample IDs: 2370453

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116067
Included Lab Sample IDs: 2370454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A116096
Included Lab Sample IDs: 2370454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116113
Included Lab Sample IDs: 2370454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	101	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A116138
Included Lab Sample IDs: 2370453

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.4	98.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A116138
Included Lab Sample IDs: 2370453

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

Reference Method: SM 5310 B-2011
Run ID: A116144
Included Lab Sample IDs: 2370454

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116280
Included Lab Sample IDs: 2370454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

* 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
EPA 180.1 Rev. 2.0	Turbidity	99.0				2.62	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	97.0	94.6			2.09
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	93.0	97.0			2.70
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100	101			0.250
EPA 365.1 Rev. 2.0	Total-P	104	107	107			0.213
SM 2320 B-2011	Total Alkalinity	99.1				1.05	
SM 2540 D-2015	TSS	98.1					
SM 4500-F- C-2011	Fluoride	100	99.9	101			0.516
SM 5310 B-2011	Organic Carbon	98.3	100	96.0			3.63

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2370453
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2370454
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2370454
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2370454
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2370454
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2370453
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2370453
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2370453
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2370454

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	11/17/2022			11/17/2022 14:59	Anna M. Plaviak	2370453
EPA 350.1 Rev. 2.0	11/17/2022			12/06/2022 12:52	Ping Hua	2370454
EPA 351.2 Rev. 2.0	11/17/2022	11/21/2022 13:35	Alexandra J Mattheus	11/22/2022 16:41	Alexandra J Mattheus	2370454
EPA 353.2 Rev. 2.0	11/17/2022			11/22/2022 10:07	Beverly Y. Sanders	2370454
EPA 365.1 Rev. 2.0	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 11:06	James L Waggerby	2370454
SM 2320 B-2011	11/17/2022			11/23/2022 05:43	Dale L. Simmons	2370453
SM 2540 D-2015	11/17/2022			11/22/2022 16:06	Yijie Li	2370453
SM 4500-F- C-2011	11/17/2022			11/23/2022 05:43	Dale L. Simmons	2370453
SM 5310 B-2011	11/17/2022			11/24/2022 03:28	Touraj Touran	2370454