

Chemical Analysis Report

NE-DIST-2024-02-29-01

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

Event Description: **Plummer Creek CM**
Request ID: **RQ-2024-02-05-33**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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: Marek Topolski, Environmental Administrator

Date Certified: 20-MAR-2024 11:22

A handwritten signature in black ink, appearing to read "Marek Topolski", with a stylized, flowing script.

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: PLUMMER CREEK AT SECOND ISLAND

Collection Date/Time: 02/28/2024 10:15

Field ID: G4NE0301					Matrix: W-SURF-FRH		
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2472498	DEP SOP: NU-094-1	Color (true)	240		PCU	P442161	
	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P442168	
	EPA 300.0 Rev. 2.1	Chloride	74		mg Cl/L	P442687	
		Sulfate	12		mg SO4/L	P442466	
	SM 2320 B-2011	Total Alkalinity	32		mg CaCO3/L	P442362	
	SM 2540 C-2015	TDS	250		mg/L	P442434	
	SM 2540 D-2015	TSS	10		mg/L	P442560	
	SM 4500-F- C-2011	Fluoride	0.087	I	mg F/L	P442365	
2472499	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P442223	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P442179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P442441	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P442214	
	SM 5310 B-2014	Organic Carbon	26		mg C/L	P442266	

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: P442161

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442168

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442466

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442687

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442223

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442179

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442441

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442214

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

Reference Method: SM 2320 B-2011
Batch ID: P442362

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: P442434

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P442560

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P442266

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: P442161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442168

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442687

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442223

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442441

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P442362

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	92 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P442434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.8		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P442560

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

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P442266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472425	Sulfate	96.0		P	90 - 110
2472536	Sulfate	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472522	Chloride	94.1		P	90 - 110
2472557	Chloride	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472529	Ammonia-N	97.2	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472357	Kjeldahl Nitrogen	107	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472429	NO2NO3-N	99.4	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472435	Total-P	105	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472055	Fluoride	101	102	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P442266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2472427	Organic Carbon	99.8	99.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P442161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472463	Color (true)	8.61	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P442168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472363	Turbidity	8.74	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472425	Sulfate	0.0151	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472522	Chloride	4.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P442223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472529	Ammonia-N	0.655	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472357	Kjeldahl Nitrogen	0.915	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P442441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472429	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P442214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472435	Total-P	0.694	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P442362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472055	Total Alkalinity	0.303	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P442434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472055	TDS	6.82	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P442365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472055	Fluoride	0.480	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P442266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2472427	Organic Carbon	0.0890	Spike	P	0 - 15

* 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: A124479
Included Lab Sample IDs: 2472498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.2	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A124482
Included Lab Sample IDs: 2472498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A124505
Included Lab Sample IDs: 2472499

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

Reference Method: SM 5310 B-2014
Run ID: A124518
Included Lab Sample IDs: 2472499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	118	99.0	P/P	70 - 130

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124528
Included Lab Sample IDs: 2472499

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A124544
Included Lab Sample IDs: 2472499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A124561
Included Lab Sample IDs: 2472498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	95.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A124561
Included Lab Sample IDs: 2472498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	105	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A124581
Included Lab Sample IDs: 2472498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	96.6	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A124597
Included Lab Sample IDs: 2472499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A124710
Included Lab Sample IDs: 2472498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	97.9	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)	99.4			8.61	
EPA 180.1 Rev. 2.0	Turbidity	103			8.74	
EPA 300.0 Rev. 2.1	Chloride	101	99.9	94.1	4.07	
	Sulfate	93.8	96.0	94.8	0.0151	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	97.2	98.0		0.655
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	107	108		0.915
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.4	99.4		0.0
EPA 365.1 Rev. 2.0	Total-P	99.8	105	104		0.694
SM 2320 B-2011	Total Alkalinity	102			0.303	
SM 2540 C-2015	TDS	96.8			6.82	
SM 2540 D-2015	TSS	97.6				
SM 4500-F- C-2011	Fluoride	102	101	102		0.480
SM 5310 B-2014	Organic Carbon	98.1	99.8	99.9		0.0890

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2472498
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2472498
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2472498
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2472498
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2472499
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2472499
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2472499
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2472499
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2472498
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2472498
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2472498
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2472498
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2472499

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	02/29/2024			02/29/2024 15:32	Jessica K Wilks	2472498
EPA 180.1 Rev. 2.0	02/29/2024			02/29/2024 14:16	Dipa Joshi	2472498
EPA 300.0 Rev. 2.1	02/29/2024			03/07/2024 16:51	James L Waggeberby	2472498
	02/29/2024			03/11/2024 23:42	James L Waggeberby	2472498
EPA 350.1 Rev. 2.0	02/29/2024			03/01/2024 12:40	Kenneth H Lee	2472499
EPA 351.2 Rev. 2.0	02/29/2024	03/01/2024 10:33	Samantha L Bates	03/05/2024 13:06	Ping Hua	2472499
EPA 353.2 Rev. 2.0	02/29/2024			03/06/2024 14:44	Fadila Guebre	2472499
EPA 365.1 Rev. 2.0	02/29/2024	03/01/2024 12:45	Adam P Silver	03/04/2024 14:41	Chandler E Cox	2472499
SM 2320 B-2011	02/29/2024			03/06/2024 09:05	Adam P Silver	2472498
SM 2540 C-2015	02/29/2024			03/01/2024 16:04	Yijie Li	2472498
SM 2540 D-2015	02/29/2024			03/01/2024 16:04	Yijie Li	2472498
SM 4500-F- C-2011	02/29/2024			03/06/2024 09:05	Adam P Silver	2472498
SM 5310 B-2014	02/29/2024			03/02/2024 08:20	Khloe J Berg	2472499