Chemical Analysis Report

NE-DIST-2020-11-24-01

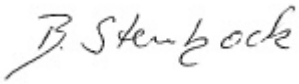
Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **UEC makeup/bio**
Request ID: **RQ-2020-11-23-34**
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.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 14-DEC-2020 16:12



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: Red House Br @ Hefferon Rd **Collection Date/Time: 11/23/2020 10:15**

Field ID: 27010076 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2209071	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P390434	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P390527	
		Sulfate	16		mg SO4/L	P390528	
	SM 2120 B-2011	Color (true)	180		PCU	P390429	
	SM 2320 B-2011	Total Alkalinity	161	A	mg CaCO3/L	P390500	
	SM 2540 C-2011	TDS	309		mg/L	P390772	
	SM 2540 D-2011	TSS	2	I	mg/L	P390767	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P390503	
2209072	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P390492	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P390613	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P390557	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P390617	
	SM 5310 B-2011	Organic Carbon	25		mg C/L	P390551	
2209073	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P390430	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2120 B-2011: Batch relative percent difference is unavailable because of high analyte concentration in the QC sample.
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: EPA 180.1 Rev. 2.0
Batch ID: P390434

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390527

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390528

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P390492

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P390613

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390557

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390617

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390430

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B-2011
Batch ID: P390429

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P390500

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

Reference Method: SM 2540 C-2011
Batch ID: P390772

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P390767

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P390503

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P390551

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P390492

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: P390613

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390557

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: P390617

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P390429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P390500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P390503

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P390551

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2208998	Chloride	98.5		P	90 - 110
2209077	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2208998	Sulfate	97.4		P	90 - 110
2209077	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P390492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209072	Ammonia-N	97.2	91.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P390613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209051	Kjeldahl Nitrogen	95.0	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209031	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209051	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209290	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P390503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209071	Fluoride	102	102	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P390551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209050	Organic Carbon	104	106	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2208998	Turbidity	3.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2208998	Chloride	0.402	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P390492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209072	Ammonia-N	4.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P390613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209051	Kjeldahl Nitrogen	4.76	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209031	NO2NO3-N	0.386	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209051	Total-P	0.724	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209290	O-Phosphate-P	1.49	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P390500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209071	Total Alkalinity	0.683	Sample	P	0 - 8.1

Quality Assurance Report
Precision

Reference Method: SM 2540 C-2011
Batch ID: P390772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209030	TDS	2.97	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P390503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209071	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P390551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209050	Organic Carbon	1.63	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A102288
Included Lab Sample IDs: 2209073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	101	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A102289
Included Lab Sample IDs: 2209071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	106	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A102290
Included Lab Sample IDs: 2209071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.0	98.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A102298
Included Lab Sample IDs: 2209071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	99.3	P/P	90 - 110
Sulfate	99.1	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A102320
Included Lab Sample IDs: 2209072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.7	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A102325
Included Lab Sample IDs: 2209071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A102325
Included Lab Sample IDs: 2209071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	104	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A102346
Included Lab Sample IDs: 2209072

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A102349
Included Lab Sample IDs: 2209072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102391
Included Lab Sample IDs: 2209072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102393
Included Lab Sample IDs: 2209072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	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
EPA 180.1 Rev. 2.0	Turbidity					3.47	
EPA 300.0 Rev. 2.1	Chloride	99.4	98.5	101		0.402	
	Sulfate	98.6	97.4	100			
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	97.2	91.6			4.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	95.0	102			4.76
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.5				0.386
EPA 365.1 Rev. 2.0	Total-P	105	104	104			0.724
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	100	102			1.49
SM 2120 B-2011	Color (true)	105					
SM 2320 B-2011	Total Alkalinity	99.5				0.683	
SM 2540 C-2011	TDS					2.97	
SM 4500 F-C-2011	Fluoride	100	102	102			0.0
SM 5310 B-2011	Organic Carbon	101	104	106			1.63

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2209071
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2209071
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2209071
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2209072
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2209072
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2209072
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2209072
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2209073
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2209071
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2209071
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2209071
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2209071
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2209071
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2209072

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	11/24/2020			11/24/2020 17:06	Yen Ta	2209071
EPA 300.0 Rev. 2.1	11/24/2020			11/25/2020 18:22	Lipi Saha	2209071
EPA 350.1 Rev. 2.0	11/24/2020			11/28/2020 18:06	Ping Hua	2209072
EPA 351.2 Rev. 2.0	11/24/2020	12/02/2020 12:21	David Boose	12/03/2020 11:44	Elliott Rodriguez	2209072
EPA 353.2 Rev. 2.0	11/24/2020			12/01/2020 10:30	Beverly Y. Sanders	2209072
EPA 365.1 Rev. 2.0	11/24/2020	12/02/2020 16:51	Madeline Gruver	12/03/2020 11:37	Benjamin T. Nordmann	2209072
EPA 365.1 Rev. 2.0 dissolved	11/24/2020			11/24/2020 16:06	Blanca Fach	2209073
SM 2120 B-2011	11/24/2020			11/24/2020 16:49	Benjamin T. Nordmann	2209071
SM 2320 B-2011	11/24/2020			11/25/2020 22:24	Dale L. Simmons	2209071
SM 2540 C-2011	11/24/2020			11/25/2020 11:25	Yijie Li	2209071
SM 2540 D-2011	11/24/2020			11/25/2020 11:25	Yijie Li	2209071
SM 4500 F-C-2011	11/24/2020			11/25/2020 22:13	Dale L. Simmons	2209071
SM 5310 B-2011	11/24/2020			11/30/2020 20:58	Madeline Gruver	2209072