Chemical Analysis Report

NE-DIST-2020-10-28-01

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

Event Description: **Interlachen**
Request ID: **RQ-2020-10-26-45**
Customer: **NE-DIST**
Project ID: **SMP**

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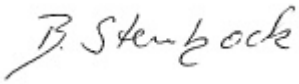
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 20-NOV-2020 15:54



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: Gillis Pond Center **Collection Date/Time: 10/27/2020 11:05**

Field ID: G1NE0863 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2205220	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P389411	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P389955	
		Sulfate	3.3		mg SO4/L	P389957	
	SM 2120 B-2011	Color (true)	27	A	PCU	P389413	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P389621	
	SM 2540 C-2011	TDS	27		mg/L	P389856	
	SM 2540 D-2011	TSS	2	U	mg/L	P389871	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389625	
2205221	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P389586	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P389762	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P389534	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P389571	
	SM 5310 B-2011	Organic Carbon	4.4		mg C/L	P389521	
2205222	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389417	

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: EPA 180.1 Rev. 2.0
Batch ID: P389411

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389955

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389957

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389586

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389762

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389534

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389571

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389417

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

Reference Method: SM 2120 B-2011
Batch ID: P389413

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P389621

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

Reference Method: SM 2540 C-2011
Batch ID: P389856

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389871

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389625

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389521

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: P389955

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389957

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389586

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389762

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389534

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389571

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389417

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

Reference Method: SM 2120 B-2011
Batch ID: P389413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P389621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.2		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P389625

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389521

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: P389955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205184	Chloride	98.4		P	90 - 110
2205240	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205184	Sulfate	99.1		P	90 - 110
2205240	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205155	Ammonia-N	96.4	96.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205221	Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205142	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205152	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205222	O-Phosphate-P	97.4	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205351	Fluoride	104	106	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205065	Organic Carbon	103	104	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205181	Turbidity	4.88	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205240	Chloride	0.129	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205240	Sulfate	0.344	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205155	Ammonia-N	0.208	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205221	Kjeldahl Nitrogen	1.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205142	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205152	Total-P	0.258	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205222	O-Phosphate-P	1.12	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P389413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205220	Color (true)	4.00	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205351	Total Alkalinity	1.11	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P389856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205063	TDS	7.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P389625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205351	Fluoride	0.953	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205065	Organic Carbon	0.394	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: A101824
Included Lab Sample IDs: 2205220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A101825
Included Lab Sample IDs: 2205220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A101826
Included Lab Sample IDs: 2205222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	97.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A101872
Included Lab Sample IDs: 2205221

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A101878
Included Lab Sample IDs: 2205221

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A101893
Included Lab Sample IDs: 2205221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.7	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A101910
Included Lab Sample IDs: 2205220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.4	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A101910
Included Lab Sample IDs: 2205220

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A101926
Included Lab Sample IDs: 2205221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.8	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102025
Included Lab Sample IDs: 2205221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A102065
Included Lab Sample IDs: 2205220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.4	P/P	90 - 110
Sulfate	101	100	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					4.88	
EPA 300.0 Rev. 2.1	Chloride	101	101	98.4		0.129	
	Sulfate	101	100	99.1		0.344	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	96.4	96.7			0.208
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	103	105			1.25
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	100	100			0.499
EPA 365.1 Rev. 2.0	Total-P	104	104	104			0.258
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	97.4	98.5			1.12
SM 2120 B-2011	Color (true)	102				4.00	
SM 2320 B-2011	Total Alkalinity	98.2				1.11	
SM 2540 C-2011	TDS					7.14	
SM 4500 F-C-2011	Fluoride	103	104	106			0.953
SM 5310 B-2011	Organic Carbon	101	103	104			0.394

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2205220
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2205220
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2205220
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2205221
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2205221
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2205221
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2205221
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2205222
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2205220
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2205220
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2205220
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2205220
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2205220
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2205221

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	10/28/2020			10/28/2020 15:54	Yen Ta	2205220
EPA 300.0 Rev. 2.1	10/28/2020			11/09/2020 22:36	Lipi Saha	2205220
EPA 350.1 Rev. 2.0	10/28/2020			11/01/2020 10:07	Ping Hua	2205221
EPA 351.2 Rev. 2.0	10/28/2020	11/04/2020 14:53	David Boose	11/05/2020 13:59	Elliott Rodriguez	2205221
EPA 353.2 Rev. 2.0	10/28/2020			10/30/2020 10:31	Beverly Y. Sanders	2205221
EPA 365.1 Rev. 2.0	10/28/2020	10/30/2020 16:48	Yen Ta	11/03/2020 14:42	Shengyu Wang	2205221
EPA 365.1 Rev. 2.0 dissolved	10/28/2020			10/28/2020 16:36	Virginia P. Brown	2205222
SM 2120 B-2011	10/28/2020			10/28/2020 16:42	Benjamin T. Nordmann	2205220
SM 2320 B-2011	10/28/2020			10/31/2020 09:20	Samantha Davila	2205220
SM 2540 C-2011	10/28/2020			10/29/2020 15:08	Yijie Li	2205220
SM 2540 D-2011	10/28/2020			10/29/2020 15:08	Yijie Li	2205220
SM 4500 F-C-2011	10/28/2020			10/31/2020 09:20	Samantha Davila	2205220
SM 5310 B-2011	10/28/2020			10/29/2020 21:30	Madeline Gruver	2205221