Chemical Analysis Report

NE-DIST-2020-10-29-01

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

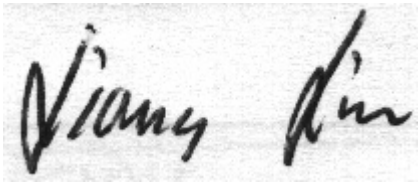
Event Description: **Palm Valley Boat**
Request ID: **RQ-2020-10-12-20**
Customer: **NE-DIST**
Project ID: **SMP**

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: Liang Lin, Environmental Administrator

Date Certified: 20-NOV-2020 14:06



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: Marshall Creek 450m Above Mouth **Collection Date/Time: 10/28/2020 10:20**

Field ID: G5NE0588 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2205312	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P389498	
	EPA 300.0 Rev. 2.1	Bromide	37		mg Br/L	P389912	
	SM 2320 B-2011	Total Alkalinity	105		mg CaCO3/L	P389777	
	SM 2540 D-2011	TSS	14	A	mg/L	P389683	
	SM 4500 F-C-2011	Fluoride	0.73		mg F/L	P389779	
2205313	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P389578	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P389759	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P389792	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P389568	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P389655	
2205314	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P389513	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Bromide: 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: P389498

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389759

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389568

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389513

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

Reference Method: SM 2320 B-2011
Batch ID: P389777

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

Reference Method: SM 2540 D-2011
Batch ID: P389683

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389655

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: P389912

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389759

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

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: P389568

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P389777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.3		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.5		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205470	Bromide	103		P	90 - 110
2205479	Bromide	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204753	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205182	Kjeldahl Nitrogen	107	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205580	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204882	Total-P	95.1	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205314	O-Phosphate-P	96.7	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205576	Fluoride	103	104	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205582	Organic Carbon	99.3	100	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205312	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204753	Ammonia-N	0.181	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205182	Kjeldahl Nitrogen	5.97	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205580	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204882	Total-P	0.367	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205314	O-Phosphate-P	0.201	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205576	Total Alkalinity	1.59	Sample	P	0 - 8.1

Reference Method: SM 2540 D-2011
Batch ID: P389683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205312	TSS	0.0	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205576	Fluoride	0.487	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205582	Organic Carbon	1.05	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: A101865
Included Lab Sample IDs: 2205312

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A101866
Included Lab Sample IDs: 2205314

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A101890
Included Lab Sample IDs: 2205313

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

Reference Method: SM 5310 B-2011
Run ID: A101919
Included Lab Sample IDs: 2205313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A101953
Included Lab Sample IDs: 2205313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	96.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A101970
Included Lab Sample IDs: 2205312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A101970
Included Lab Sample IDs: 2205312

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A101978
Included Lab Sample IDs: 2205313

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A101986
Included Lab Sample IDs: 2205312

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102026
Included Lab Sample IDs: 2205313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	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					0.0	
EPA 300.0 Rev. 2.1	Bromide	103	103	104			
EPA 350.1 Rev. 2.0	Ammonia-N	102	105	105			0.181
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	107	98.6			5.97
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	101			0.494
EPA 365.1 Rev. 2.0	Total-P	103	95.1	95.4			0.367
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	96.7	96.4			0.201
SM 2320 B-2011	Total Alkalinity	99.3				1.59	
SM 2540 D-2011	TSS					0.0	
SM 4500 F-C-2011	Fluoride	94.5	103	104			0.487
SM 5310 B-2011	Organic Carbon	105	99.3	100			1.05

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2205312
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2205312
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2205313
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2205313
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2205313
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2205313
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2205314
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2205312
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2205312
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2205312
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2205313

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	10/29/2020			10/29/2020 16:10	Yen Ta	2205312
EPA 300.0 Rev. 2.1	10/29/2020			11/06/2020 20:07	Lipi Saha	2205312
EPA 350.1 Rev. 2.0	10/29/2020			10/31/2020 14:39	Ping Hua	2205313
EPA 351.2 Rev. 2.0	10/29/2020	11/04/2020 15:00	David Boose	11/05/2020 16:21	Elliott Rodriguez	2205313
EPA 353.2 Rev. 2.0	10/29/2020			11/05/2020 10:09	Beverly Y. Sanders	2205313
EPA 365.1 Rev. 2.0	10/29/2020	10/30/2020 16:48	Yen Ta	11/04/2020 12:15	Shengyu Wang	2205313
EPA 365.1 Rev. 2.0 dissolved	10/29/2020			10/29/2020 16:43	Samantha Davila	2205314
SM 2320 B-2011	10/29/2020			11/05/2020 04:03	Samantha Davila	2205312
SM 2540 D-2011	10/29/2020			10/30/2020 19:59	Madeline Gruver	2205312
SM 4500 F-C-2011	10/29/2020			11/05/2020 01:36	Samantha Davila	2205312
SM 5310 B-2011	10/29/2020			11/02/2020 22:19	Touraj Touran	2205313