Chemical Analysis Report

CEN-DIST-2021-10-14-01

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

Event Description: **Rose Bay/Turnbull/Strickland**
Request ID: **RQ-2021-08-02-19**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-NOV-2021 13:39

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: Turnbull Bay 1.2km S of Turnbull Bay Rd **Collection Date/Time: 10/13/2021 11:15**

Field ID: G5CE0130 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283505	EPA 180.1 Rev. 2.0	Turbidity	8.3		NTU	P405053	
	SM 2320 B-2011	Total Alkalinity	170	A	mg CaCO3/L	P405225	
	SM 2540 D-2011	TSS	13		mg/L	P405595	
	SM 4500 F-C-2011	Fluoride	0.31		mg F/L	P405226	
2283506	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P405559	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P405339	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P405325	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P405306	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P405421	
2283507	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P405082	

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: P405053

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405339

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405082

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

Reference Method: SM 2320 B-2011
Batch ID: P405225

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

Reference Method: SM 2540 D-2011
Batch ID: P405595

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405226

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P405421

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405339

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: P405325

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: P405306

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405082

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

Reference Method: SM 2320 B-2011
Batch ID: P405225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P405226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P405421

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283497	Ammonia-N	96.6	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283475	Kjeldahl Nitrogen	99.9	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283497	NO2NO3-N	96.3	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283500	Total-P	99.7	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283528	O-Phosphate-P	98.5	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P405226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283505	Fluoride	101	102	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P405421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283506	Organic Carbon	97.7	96.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P405053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283601	Turbidity	0.311	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283497	Ammonia-N	0.701	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283475	Kjeldahl Nitrogen	0.272	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283497	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283500	Total-P	0.873	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283528	O-Phosphate-P	0.793	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P405225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283505	Total Alkalinity	2.62	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P405226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283505	Fluoride	0.960	Spike	P	0 - 2.1

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P405421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283506	Organic Carbon	0.507	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: A108337
Included Lab Sample IDs: 2283505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A108345
Included Lab Sample IDs: 2283507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.7	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A108407
Included Lab Sample IDs: 2283505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A108407
Included Lab Sample IDs: 2283505

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108439
Included Lab Sample IDs: 2283506

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108465
Included Lab Sample IDs: 2283506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A108471
Included Lab Sample IDs: 2283506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108481
Included Lab Sample IDs: 2283506

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A108519
Included Lab Sample IDs: 2283506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	97.7	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					0.311	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	96.6	95.8			0.701
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.9	100			0.272
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.3	96.3			0.0
EPA 365.1 Rev. 2.0	Total-P	98.7	99.7	98.8			0.873
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	98.5	99.4			0.793
SM 2320 B-2011	Total Alkalinity	100				2.62	
SM 4500 F-C-2011	Fluoride	102	101	102			0.960
SM 5310 B-2011	Organic Carbon	97.6	97.7	96.8			0.507

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2283505
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2283506
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2283506
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2283506
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2283506
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2283507
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2283505
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2283505
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2283505
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2283506

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	10/14/2021			10/14/2021 16:12	Khloe J Berg	2283505
EPA 350.1 Rev. 2.0	10/14/2021			10/22/2021 11:40	Ping Hua	2283506
EPA 351.2 Rev. 2.0	10/14/2021	10/20/2021 13:30	Benjamin T. Nordmann	10/21/2021 09:51	Alexandra J Mattheus	2283506
EPA 353.2 Rev. 2.0	10/14/2021			10/19/2021 11:05	Beverly Y. Sanders	2283506
EPA 365.1 Rev. 2.0	10/14/2021	10/20/2021 14:17	Simonne.V. Calhoun	10/22/2021 10:33	Lipi Saha	2283506
EPA 365.1 Rev. 2.0 dissolved	10/14/2021			10/14/2021 15:55	Blanca Fach	2283507
SM 2320 B-2011	10/14/2021			10/18/2021 18:42	Dale L. Simmons	2283505
SM 2540 D-2011	10/14/2021			10/19/2021 15:08	Yijie Li	2283505
SM 4500 F-C-2011	10/14/2021			10/18/2021 17:04	Dale L. Simmons	2283505
SM 5310 B-2011	10/14/2021			10/21/2021 04:34	Khloe J Berg	2283506