Chemical Analysis Report

SE-DIST-2022-03-01-01

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

Event Description: **G2SE0017 deployment recovery**
Request ID: **RQ-2022-02-28-46**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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2199 South Rock Road
Fort Pierce, FL 34945
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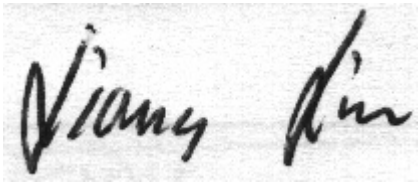
Certified by: Liang Lin, Environmental Administrator

Date Certified: 23-MAR-2022 12:09



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: Bessey Creek @ Murphy **Collection Date/Time: 02/28/2022 13:30**

Field ID: G2SE0017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2308742	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P410514	
	SM 2320 B-2011	Total Alkalinity	225		mg CaCO3/L	P410711	
	SM 2540 D-2011	TSS	3	U	mg/L	P410902	
	SM 4500 F-C-2011	Fluoride	0.34		mg F/L	P410715	
2308743	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P410685	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P410480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P410912	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P411011	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P411060	

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: P410514

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410685

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P410480

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410912

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411011

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

Reference Method: SM 2320 B-2011
Batch ID: P410711

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

Reference Method: SM 2540 D-2011
Batch ID: P410902

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P410715

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P411060

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P410514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410685

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P410480

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410912

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411011

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

Reference Method: SM 2320 B-2011
Batch ID: P410711

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.8		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P410715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P411060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2308743	Ammonia-N	97.6	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P410480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2308138	Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2308877	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2308473	Total-P	92.6	93.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P410715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2307282	Fluoride	98.9	99.7	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P411060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2308823	Organic Carbon	91.9	94.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P410514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2308650	Turbidity	3.33	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2308743	Ammonia-N	1.20	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P410480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2308138	Kjeldahl Nitrogen	1.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2308877	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2308473	Total-P	0.973	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P410711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2307282	Total Alkalinity	1.50	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P410715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2307282	Fluoride	0.516	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P411060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2308823	Organic Carbon	1.90	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A110692
Included Lab Sample IDs: 2308742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A110754
Included Lab Sample IDs: 2308743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.9	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A110761
Included Lab Sample IDs: 2308743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.2	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A110777
Included Lab Sample IDs: 2308742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A110777
Included Lab Sample IDs: 2308742

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A110852
Included Lab Sample IDs: 2308743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A110922
Included Lab Sample IDs: 2308743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.1	93.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A110948
Included Lab Sample IDs: 2308743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

* 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	97.2				3.33	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	97.6	99.4			1.20
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.9	104	102			1.25
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	99.8	92.6	93.6			0.973
SM 2320 B-2011	Total Alkalinity	94.8				1.50	
SM 4500 F-C-2011	Fluoride	98.7	98.9	99.7			0.516
SM 5310 B-2011	Organic Carbon	94.8	91.9	94.2			1.90

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2308742
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2308743
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2308743
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2308743
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2308743
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2308742
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2308742
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2308742
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2308743

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	03/01/2022			03/01/2022 15:28	Khloe J Berg	2308742
EPA 350.1 Rev. 2.0	03/01/2022			03/04/2022 11:40	Judith K. Clark	2308743
EPA 351.2 Rev. 2.0	03/01/2022	03/02/2022 12:36	Samantha L Bates	03/03/2022 17:20	Alexandra J Mattheus	2308743
EPA 353.2 Rev. 2.0	03/01/2022			03/09/2022 17:49	Nathaniel J Jones	2308743
EPA 365.1 Rev. 2.0	03/01/2022	03/14/2022 15:55	Simonne.V. Calhoun	03/15/2022 15:39	Sarah A Nixon	2308743
SM 2320 B-2011	03/01/2022			03/04/2022 07:10	Dale L. Simmons	2308742
SM 2540 D-2011	03/01/2022			03/02/2022 14:26	Yijie Li	2308742
SM 4500 F-C-2011	03/01/2022			03/04/2022 03:33	Dale L. Simmons	2308742
SM 5310 B-2011	03/01/2022			03/11/2022 16:19	Khloe J Berg	2308743