

Chemical Analysis Report

SO-DIST-2021-11-30-01

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

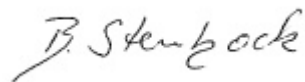
Event Description: **2021 SMP: Punta Rassa Cove**
Request ID: **RQ-2021-11-29-27**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: William Mullen

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: 16-DEC-2021 13:24



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: Punta Rassa Cove

Collection Date/Time: 11/29/2021 08:35

Field ID: G2SD0047

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291552	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P406838	
	SM 2320 B-2011	Total Alkalinity	129		mg CaCO3/L	P407162	
	SM 2540 D-2011	TSS	3	UA	mg/L	P407350	
	SM 4500 F-C-2011	Fluoride	0.83		mg F/L	P407166	
2291553	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P407081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P407067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P406952	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P406883	
	SM 5310 B-2011	Organic Carbon	9.5		mg C/L	P407177	
2291554	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P406834	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FB

Collection Date/Time: 11/29/2021 09:10

Field ID: FB_11292021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291555	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P406838	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407029	
	SM 2540 D-2011	TSS	2	U	mg/L	P407349	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407038	
2291556	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P407305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P407065	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P406862	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P406829	
	SM 5310 B-2011	Organic Carbon	0.53	I	mg C/L	P407288	
2291557	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406833	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 5310 B-2011: The result was confirmed on 12/09/2021.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406838

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407081

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407305

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407065

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406862

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406829

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406883

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406833

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406834

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

Reference Method: SM 2320 B-2011
Batch ID: P407029

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

Reference Method: SM 2320 B-2011
Batch ID: P407162

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

Reference Method: SM 2540 D-2011
Batch ID: P407349

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407350

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407038

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407166

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P407177

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P407288

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: P407081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407305

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: P407065

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406862

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

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: P406829

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406883

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406833

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406834

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

Reference Method: SM 2320 B-2011
Batch ID: P407029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P407162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P407038

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

Reference Method: SM 4500 F-C-2011
Batch ID: P407166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P407177

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

Reference Method: SM 5310 B-2011
Batch ID: P407288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290447	Ammonia-N	94.4	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291646	Ammonia-N	97.6	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291652	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291553	Kjeldahl Nitrogen	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291593	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291040	NO2NO3-N	99.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291511	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291494	Total-P	91.2	93.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291524	O-Phosphate-P	98.7	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291554	O-Phosphate-P	99.9	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P407038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292330	Fluoride	98.3	101	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P407166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293021	Fluoride	98.2	99.6	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P407177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292469	Organic Carbon	104	105	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291841	Organic Carbon	95.6	94.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291546	Turbidity	2.39	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290447	Ammonia-N	1.43	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291646	Ammonia-N	1.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291652	Kjeldahl Nitrogen	1.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291553	Kjeldahl Nitrogen	1.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291593	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291040	NO2NO3-N	0.767	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291511	Total-P	0.757	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P406883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291494	Total-P	2.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P406833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291524	O-Phosphate-P	1.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P406834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291554	O-Phosphate-P	1.39	Spike	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P407029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292330	Total Alkalinity	1.87	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011

Batch ID: P407162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293021	Total Alkalinity	0.867	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011

Batch ID: P407038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292330	Fluoride	1.47	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011

Batch ID: P407166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293021	Fluoride	1.01	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P407177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292469	Organic Carbon	0.808	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P407288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291841	Organic Carbon	1.34	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: A109128

Included Lab Sample IDs: 2291554, 2291557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109131

Included Lab Sample IDs: 2291552, 2291555

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109138

Included Lab Sample IDs: 2291556

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109175

Included Lab Sample IDs: 2291553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109194

Included Lab Sample IDs: 2291556

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

Reference Method: SM 2320 B-2011

Run ID: A109203

Included Lab Sample IDs: 2291555

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109203

Included Lab Sample IDs: 2291555

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109220

Included Lab Sample IDs: 2291553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109228

Included Lab Sample IDs: 2291553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109241

Included Lab Sample IDs: 2291553, 2291556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110
Kjeldahl Nitrogen	102	99.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A109252

Included Lab Sample IDs: 2291552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.8	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109252

Included Lab Sample IDs: 2291552

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

Reference Method: SM 5310 B-2011

Run ID: A109260

Included Lab Sample IDs: 2291553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	105	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A109313

Included Lab Sample IDs: 2291556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109316

Included Lab Sample IDs: 2291556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.7	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.39	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	94.4	96.0			1.43
	Ammonia-N	99.2	97.6	99.4			1.72
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	103			1.38
	Kjeldahl Nitrogen	104	102	100			1.44
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103			0.0
	NO2NO3-N	100	99.8	101			0.767
EPA 365.1 Rev. 2.0	Total-P	102	104	102			0.757
	Total-P	102	91.2	93.6			2.57
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	98.7	100			1.71
	O-Phosphate-P	99.2	99.9	97.9			1.39
SM 2320 B-2011	Total Alkalinity	99.6				1.87	
	Total Alkalinity	97.1				0.867	
SM 4500 F-C-2011	Fluoride	102	98.3	101			1.47
	Fluoride	100	98.2	99.6			1.01
SM 5310 B-2011	Organic Carbon	105	104	105			0.808
	Organic Carbon	97.4	95.6	94.1			1.34

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2291552, 2291555
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2291553, 2291556
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2291553, 2291556
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2291553, 2291556
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2291553, 2291556
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2291554, 2291557
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2291552, 2291555
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2291552, 2291555
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2291552, 2291555
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2291553, 2291556

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	11/30/2021			11/30/2021 14:43	Khloe J Berg	2291552, 2291555
EPA 350.1 Rev. 2.0	11/30/2021			12/06/2021 14:58	Ping Hua	2291553
	11/30/2021			12/10/2021 12:47	Ping Hua	2291556
EPA 351.2 Rev. 2.0	11/30/2021	12/06/2021 12:33	Benjamin T. Nordmann	12/07/2021 11:28	Alexandra J Mattheus	2291556
	11/30/2021	12/06/2021 12:33	Benjamin T. Nordmann	12/07/2021 12:19	Alexandra J Mattheus	2291553
EPA 353.2 Rev. 2.0	11/30/2021			12/01/2021 09:58	Beverly Y. Sanders	2291556
	11/30/2021			12/02/2021 11:22	Nathaniel J Jones	2291553
EPA 365.1 Rev. 2.0	11/30/2021	12/01/2021 13:15	Simonne.V. Calhoun	12/03/2021 12:57	Shengyu Ding	2291556
	11/30/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/06/2021 12:22	Shengyu Ding	2291553
EPA 365.1 Rev. 2.0 dissolved	11/30/2021			11/30/2021 15:09	James L Waggeberby	2291557
	11/30/2021			11/30/2021 15:12	James L Waggeberby	2291554
SM 2320 B-2011	11/30/2021			12/04/2021 02:18	Dale L. Simmons	2291555
	11/30/2021			12/08/2021 03:07	Dale L. Simmons	2291552
SM 2540 D-2011	11/30/2021			12/03/2021 15:35	Yijie Li	2291552, 2291555
SM 4500 F-C-2011	11/30/2021			12/04/2021 02:18	Dale L. Simmons	2291555
	11/30/2021			12/07/2021 23:21	Dale L. Simmons	2291552
SM 5310 B-2011	11/30/2021			12/08/2021 01:28	Khloe J Berg	2291553
	11/30/2021			12/09/2021 22:56	Touraj Touran	2291556