

Chemical Analysis Report

SO-DIST-2021-03-12-02

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

Event Description: **Caloosa Creeks**
Request ID: **RQ-2021-03-08-71**
Customer: **SO-DIST**
Project ID: **BMAP**

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FLDEP South District Office
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Date Certified: 01-APR-2021 11:08



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: Telegraph Creek @ USGS

Collection Date/Time: 03/11/2021 12:40

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231400	SM 2120 B-2011	Color (true)	120	A	PCU	P394919	
	SM 2320 B-2011	Total Alkalinity	198		mg CaCO3/L	P395081	
	SM 2540 D-2011	TSS	2	I	mg/L	P395376	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P395084	
2231405	SM 5310 B-2011 dissolved	Organic Carbon	19		mg C/L	P395501	
2231410	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P395252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P395283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P395075	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P395102	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P395501	
2231415	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P394914	

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: Bee Branch @LoblollyBay

Collection Date/Time: 03/11/2021 10:25

Field ID: G3SD0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231401	SM 2120 B-2011	Color (true)	130		PCU	P394919	
	SM 2320 B-2011	Total Alkalinity	34		mg CaCO3/L	P395081	
	SM 2540 D-2011	TSS	2	U	mg/L	P395376	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P395084	
2231406	SM 5310 B-2011 dissolved	Organic Carbon	17		mg C/L	P395501	
2231411	EPA 350.1 Rev. 2.0	Ammonia-N	0.078		mg N/L	P395255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P395283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.072		mg N/L	P395075	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P395102	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P395501	
2231416	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P394914	

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: Nine Mile Canal @ SR 80

Collection Date/Time: 03/11/2021 11:15

Field ID: G3SD0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231402	SM 2120 B-2011	Color (true)	71		PCU	P394919	
	SM 2320 B-2011	Total Alkalinity	115		mg CaCO3/L	P395081	
	SM 2540 D-2011	TSS	6	I	mg/L	P395376	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P395084	
2231407	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P395501	
2231412	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P395255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P395283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P395075	
	EPA 365.1 Rev. 2.0	Total-P	0.085		mg P/L	P395103	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P395501	
2231417	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P394914	

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: Roberts Canal @ SR 80

Collection Date/Time: 03/11/2021 12:00

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231403	SM 2120 B-2011	Color (true)	60		PCU	P394919	
	SM 2320 B-2011	Total Alkalinity	237		mg CaCO3/L	P395081	
	SM 2540 D-2011	TSS	14		mg/L	P395376	
	SM 4500 F-C-2011	Fluoride	0.39		mg F/L	P395084	
2231408	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P395501	
2231413	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P395255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P395283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P395075	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P395103	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P395501	
2231418	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P394914	

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: Orange River @BoatRamp

Collection Date/Time: 03/11/2021 13:15

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231404	SM 2120 B-2011	Color (true)	28		PCU	P394919	
	SM 2320 B-2011	Total Alkalinity	199		mg CaCO3/L	P395081	
	SM 2540 D-2011	TSS	3	IA	mg/L	P395376	
	SM 4500 F-C-2011	Fluoride	0.18		mg F/L	P395084	
2231409	SM 5310 B-2011 dissolved	Organic Carbon	8.6		mg C/L	P395501	
2231414	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P395255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P395283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P395075	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P395103	
	SM 5310 B-2011	Organic Carbon	8.8		mg C/L	P395501	
2231419	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P394914	

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 350.1 Rev. 2.0
Batch ID: P395252

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395255

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395283

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395075

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395102

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395103

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394914

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

Reference Method: SM 2120 B-2011
Batch ID: P394919

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P395081

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P395376

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395084

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395501

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P395501

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: P395252

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395255

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395283

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395075

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395102

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394914

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P394919

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P395081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P395084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395501

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P395501

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231296	Ammonia-N	98.2	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231414	Ammonia-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231410	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231413	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231296	Total-P	105	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231412	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231117	O-Phosphate-P	97.3	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P395084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231391	Fluoride	100	99.0	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P395501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231290	Organic Carbon	97.0	97.6	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P395501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231290	Organic Carbon	97.0	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231296	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231414	Ammonia-N	0.873	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231410	Kjeldahl Nitrogen	1.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231413	NO2NO3-N	0.418	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231296	Total-P	4.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231412	Total-P	0.868	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231117	O-Phosphate-P	0.172	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P394919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231400	Color (true)	0.793	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P395081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231391	Total Alkalinity	0.245	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P395084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231391	Fluoride	0.946	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231290	Organic Carbon	0.389	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P395501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231290	Organic Carbon	0.389	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: A104041

Included Lab Sample IDs: 2231415, 2231416, 2231417, 2231418, 2231419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.8	P/P	90 - 110
O-Phosphate-P	98.8	99.2	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A104042

Included Lab Sample IDs: 2231400, 2231401, 2231402, 2231403, 2231404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104102

Included Lab Sample IDs: 2231410, 2231411, 2231412, 2231413, 2231414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104103

Included Lab Sample IDs: 2231400, 2231401, 2231402, 2231403, 2231404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.5	P/P	90 - 110
Total Alkalinity	98.5	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104103

Included Lab Sample IDs: 2231400, 2231401, 2231402, 2231403, 2231404

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104133

Included Lab Sample IDs: 2231410, 2231411, 2231412, 2231413

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104154

Included Lab Sample IDs: 2231414

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: A104179

Included Lab Sample IDs: 2231410, 2231411, 2231412, 2231413, 2231414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	97.9	P/P	90 - 110
Ammonia-N	98.0	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104250

Included Lab Sample IDs: 2231410, 2231411, 2231412, 2231413, 2231414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104280

Included Lab Sample IDs: 2231410, 2231411, 2231412, 2231413, 2231414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.3	96.4	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A104280

Included Lab Sample IDs: 2231405, 2231406, 2231407, 2231408, 2231409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	97.3	P/P	90 - 110
Organic Carbon	97.3	96.4	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	MS
EPA 350.1 Rev. 2.0	Ammonia-N	95.8	98.2	99.2		1.01
	Ammonia-N	95.8	97.0	96.0		0.873
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	109	106		1.61
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	101	102		0.418
EPA 365.1 Rev. 2.0	Total-P	103	105	109		4.07
	Total-P	105	106	105		0.868
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	97.3	97.5		0.172
SM 2120 B-2011	Color (true)	101			0.793	
SM 2320 B-2011	Total Alkalinity	101			0.245	
SM 4500 F-C-2011	Fluoride	99.2	100	99.0		0.946
SM 5310 B-2011	Organic Carbon	95.5	97.0	97.6		0.389
SM 5310 B-2011 dissolved	Organic Carbon	95.5	97.0	97.6		0.389

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2231410, 2231411, 2231412, 2231413, 2231414
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2231410, 2231411, 2231412, 2231413, 2231414
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2231410, 2231411, 2231412, 2231413, 2231414
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2231410, 2231411, 2231412, 2231413, 2231414
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2231415, 2231416, 2231417, 2231418, 2231419
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2231400, 2231401, 2231402, 2231403, 2231404
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2231400, 2231401, 2231402, 2231403, 2231404
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2231400, 2231401, 2231402, 2231403, 2231404
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2231400, 2231401, 2231402, 2231403, 2231404
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2231410, 2231411, 2231412, 2231413, 2231414
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2231405, 2231406, 2231407, 2231408, 2231409

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	03/12/2021			03/20/2021 11:45	Ping Hua	2231410
	03/12/2021			03/20/2021 12:48	Ping Hua	2231414
	03/12/2021			03/20/2021 12:59	Ping Hua	2231411
	03/12/2021			03/20/2021 13:00	Ping Hua	2231412
	03/12/2021			03/20/2021 13:01	Ping Hua	2231413
EPA 351.2 Rev. 2.0	03/12/2021	03/22/2021 13:25	Benjamin T. Nordmann	03/23/2021 22:20	Julia Storbeck	2231410
	03/12/2021	03/22/2021 13:25	Benjamin T. Nordmann	03/23/2021 22:25	Julia Storbeck	2231411
	03/12/2021	03/22/2021 13:25	Benjamin T. Nordmann	03/23/2021 22:27	Julia Storbeck	2231412
	03/12/2021	03/22/2021 13:25	Benjamin T. Nordmann	03/23/2021 22:28	Julia Storbeck	2231413
	03/12/2021	03/22/2021 13:25	Benjamin T. Nordmann	03/23/2021 22:30	Julia Storbeck	2231414
EPA 353.2 Rev. 2.0	03/12/2021			03/17/2021 09:34	Beverly Y. Sanders	2231410
	03/12/2021			03/17/2021 09:35	Beverly Y. Sanders	2231411
	03/12/2021			03/17/2021 09:37	Beverly Y. Sanders	2231412
	03/12/2021			03/17/2021 09:38	Beverly Y. Sanders	2231413
	03/12/2021			03/17/2021 09:39	Beverly Y. Sanders	2231414
EPA 365.1 Rev. 2.0	03/12/2021	03/17/2021 13:18	Yen Ta	03/18/2021 12:02	Shengyu Ding	2231410
	03/12/2021	03/17/2021 13:18	Yen Ta	03/18/2021 12:03	Shengyu Ding	2231411
	03/12/2021	03/17/2021 13:18	Yen Ta	03/18/2021 12:08	Shengyu Ding	2231412
	03/12/2021	03/17/2021 13:18	Yen Ta	03/18/2021 12:11	Shengyu Ding	2231413
	03/12/2021	03/17/2021 13:18	Yen Ta	03/18/2021 15:59	Shengyu Ding	2231414
EPA 365.1 Rev. 2.0 dissolved	03/12/2021			03/12/2021 14:58	Patrick M. Roche	2231415
	03/12/2021			03/12/2021 15:03	Patrick M. Roche	2231416
	03/12/2021			03/12/2021 15:04	Patrick M. Roche	2231417
	03/12/2021			03/12/2021 15:05	Patrick M. Roche	2231418
	03/12/2021			03/12/2021 15:06	Patrick M. Roche	2231419
SM 2120 B-2011	03/12/2021			03/12/2021 16:26	Benjamin T. Nordmann	2231400
	03/12/2021			03/12/2021 16:27	Benjamin T. Nordmann	2231401, 2231402
	03/12/2021			03/12/2021 16:28	Benjamin T. Nordmann	2231403, 2231404
SM 2320 B-2011	03/12/2021			03/17/2021 06:01	Dale L. Simmons	2231400
	03/12/2021			03/17/2021 06:15	Dale L. Simmons	2231401
	03/12/2021			03/17/2021 06:30	Dale L. Simmons	2231402
	03/12/2021			03/17/2021 06:46	Dale L. Simmons	2231403
	03/12/2021			03/17/2021 07:34	Dale L. Simmons	2231404
SM 2540 D-2011	03/12/2021			03/15/2021 15:01	Yijie Li	2231400, 2231401, 2231402, 2231403, 2231404
SM 4500 F-C-2011	03/12/2021			03/17/2021 06:01	Dale L. Simmons	2231400
	03/12/2021			03/17/2021 06:15	Dale L. Simmons	2231401
	03/12/2021			03/17/2021 06:30	Dale L. Simmons	2231402
	03/12/2021			03/17/2021 06:46	Dale L. Simmons	2231403
	03/12/2021			03/17/2021 07:34	Dale L. Simmons	2231404

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	03/12/2021			03/25/2021 01:14	Madeline Gruver	2231410
	03/12/2021			03/25/2021 01:25	Madeline Gruver	2231411
	03/12/2021			03/25/2021 01:36	Madeline Gruver	2231412
	03/12/2021			03/25/2021 01:47	Madeline Gruver	2231413
	03/12/2021			03/25/2021 01:57	Madeline Gruver	2231414
SM 5310 B-2011 dissolved	03/12/2021			03/24/2021 23:50	Madeline Gruver	2231405
	03/12/2021			03/25/2021 00:08	Madeline Gruver	2231406
	03/12/2021			03/25/2021 00:19	Madeline Gruver	2231407
	03/12/2021			03/25/2021 00:29	Madeline Gruver	2231408
	03/12/2021			03/25/2021 01:04	Madeline Gruver	2231409