

Chemical Analysis Report

SO-DIST-2020-03-17-01

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

Event Description: **2020 SMP : Wilderness Waterway**
Request ID: **RQ-2020-03-02-69**
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: Chris Hormuth

For additional information please contact
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 06-APR-2020 18:04



NON-CONFORMANCE REPORT INCLUDED

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: ENRE10 Lopez River

Collection Date/Time: 03/16/2020 11:00

Field ID: G5SD0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165358	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P380810	
	EPA 300.0 Rev. 2.1	Bromide	70		mg Br/L	P381200	
	SM 2320 B-2011	Total Alkalinity	165		mg CaCO3/L	P381064	
	SM 2540 D-2011	TSS	6	I	mg/L	P381224	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P381351	MS
2165363	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P381042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P381103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P381207	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P381392	
	SM 5310 B-2011	Organic Carbon	6.0		mg C/L	P380913	
2165368	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P380821	

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: ENRE11 Sunday Bay

Collection Date/Time: 03/16/2020 11:30

Field ID: G5SD0094

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165359	EPA 180.1 Rev. 2.0	Turbidity	4.6	A	NTU	P380811	
	EPA 300.0 Rev. 2.1	Bromide	64		mg Br/L	P381200	
	SM 2320 B-2011	Total Alkalinity	190		mg CaCO3/L	P381064	
	SM 2540 D-2011	TSS	6	I	mg/L	P381224	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P381351	MS
2165364	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P381042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P381103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P381207	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P381414	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P380913	
2165369	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P380821	

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: ENRE9 Lopez River

Collection Date/Time: 03/16/2020 11:15

Field ID: G5SD0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165360	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P380811	
	EPA 300.0 Rev. 2.1	Bromide	65		mg Br/L	P381200	
	SM 2320 B-2011	Total Alkalinity	188		mg CaCO3/L	P381064	
	SM 2540 D-2011	TSS	10	I	mg/L	P381224	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P381351	MS
2165365	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P381234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P381103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P381207	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P381414	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P380913	
2165370	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P380821	

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: ENRE 11 at Huston Bay

Collection Date/Time: 03/16/2020 11:50

Field ID: G5SD0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165361	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P380811	
	EPA 300.0 Rev. 2.1	Bromide	62		mg Br/L	P381200	
	SM 2320 B-2011	Total Alkalinity	175		mg CaCO3/L	P381064	
	SM 2540 D-2011	TSS	3	I	mg/L	P381224	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P381351	MS
2165366	EPA 350.1 Rev. 2.0	Ammonia-N	0.019	Y	mg N/L	P381234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86	Y	mg N/L	P381103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P381207	
	EPA 365.1 Rev. 2.0	Total-P	0.032	Y	mg P/L	P381414	
	SM 5310 B-2011	Organic Carbon	12	Y	mg C/L	P380913	
2165371	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P380821	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-2011: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: ENRE 9 Chatham River

Collection Date/Time: 03/16/2020 12:00

Field ID: G5SD0119

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165362	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P380811	
	EPA 300.0 Rev. 2.1	Bromide	64		mg Br/L	P381200	
	SM 2320 B-2011	Total Alkalinity	175		mg CaCO3/L	P381064	
	SM 2540 D-2011	TSS	4	IA	mg/L	P381224	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P381351	MS
2165367	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P381050	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P381103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P381207	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P381414	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P380913	
2165372	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P380821	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 8234

Event(s)

SO-DIST-2020-03-17-01

Job(s)

TLH-2020-03-17-26

Sample(s)

2165366

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with sulfuric acid.
H2SO4 Lot# SA9203100 | Expiration Date: 07/22/2020
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 3/20/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380810

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380811

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381200

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381042

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381050

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381103

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381207

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381392

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
Batch ID: P381414

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380821

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

Reference Method: SM 2320 B-2011
Batch ID: P381064

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-2011
Batch ID: P381224

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381351

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380913

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: P381200

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381042

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381050

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381103

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381392

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381414

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: P380821

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P381064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P381351

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P380913

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166022	Bromide	100	101	P/P	90 - 110
2166911	Bromide	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164932	Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166365	Ammonia-N	98.7	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166887	Ammonia-N	103	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165363	Kjeldahl Nitrogen	98.1	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165138	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165093	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165364	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165368	O-Phosphate-P	99.2	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P381351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166025	Fluoride	102	105	P/F	91 - 105

Reference Method: SM 5310 B-2011
Batch ID: P380913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165363	Organic Carbon	99.8	98.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165311	Turbidity	0.821	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165359	Turbidity	6.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166022	Bromide	0.551	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164932	Ammonia-N	0.934	Spike	P	0 - 15

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166365	Ammonia-N	0.0435	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166887	Ammonia-N	2.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165363	Kjeldahl Nitrogen	1.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165138	NO2NO3-N	0.496	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P381392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165093	Total-P	0.153	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P381414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165364	Total-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P380821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165368	O-Phosphate-P	0.172	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P381064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166025	Total Alkalinity	0.535	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
 Batch ID: P381351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166025	Fluoride	1.92	Spike	P	0 - 2.0

Reference Method: SM 5310 B-2011
 Batch ID: P380913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165363	Organic Carbon	1.14	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: A98248

Included Lab Sample IDs: 2165358, 2165359, 2165360, 2165361, 2165362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98251

Included Lab Sample IDs: 2165368, 2165369, 2165370, 2165371, 2165372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.3	P/P	90 - 110
O-Phosphate-P	98.7	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A98285

Included Lab Sample IDs: 2165363, 2165364, 2165365, 2165366, 2165367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	97.8	P/P	90 - 110
Organic Carbon	97.8	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98337

Included Lab Sample IDs: 2165363, 2165364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98342

Included Lab Sample IDs: 2165367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98350

Included Lab Sample IDs: 2165358, 2165359, 2165360, 2165361, 2165362

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98382

Included Lab Sample IDs: 2165363, 2165364, 2165365, 2165366, 2165367

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98393

Included Lab Sample IDs: 2165363, 2165364, 2165365, 2165366, 2165367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.9	99.4	P/P	90 - 110
Kjeldahl Nitrogen	99.1	96.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98406

Included Lab Sample IDs: 2165358, 2165359, 2165360, 2165361, 2165362

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98413

Included Lab Sample IDs: 2165365, 2165366

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

Reference Method: SM 4500 F-C-2011

Run ID: A98463

Included Lab Sample IDs: 2165358, 2165359, 2165360, 2165361, 2165362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98560

Included Lab Sample IDs: 2165363, 2165364, 2165365, 2165366, 2165367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.5	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						0.821	
	Turbidity						6.91	
EPA 300.0 Rev. 2.1	Bromide	104	100	101	100			0.551
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.8	101				0.934
	Ammonia-N	100	98.7	98.6				0.0435
	Ammonia-N	97.7	103	106				2.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	98.1	99.5				1.21
EPA 353.2 Rev. 2.0	NO2NO3-N	101	101	100				0.496
EPA 365.1 Rev. 2.0	Total-P	109	108	108				0.153
	Total-P	105	104	106				1.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.2	99.0				0.172
SM 2320 B-2011	Total Alkalinity	102					0.535	
SM 4500 F-C-2011	Fluoride	96.7	102	105				1.92
SM 5310 B-2011	Organic Carbon	104	99.8	98.5				1.14

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2165358, 2165359, 2165360, 2165361, 2165362
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2165358, 2165359, 2165360, 2165361, 2165362
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2165363, 2165364, 2165365, 2165366, 2165367
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2165363, 2165364, 2165365, 2165366, 2165367
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2165363, 2165364, 2165365, 2165366, 2165367
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2165363, 2165364, 2165365, 2165366, 2165367
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2165368, 2165369, 2165370, 2165371, 2165372
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2165358, 2165359, 2165360, 2165361, 2165362
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2165358, 2165359, 2165360, 2165361, 2165362
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2165358, 2165359, 2165360, 2165361, 2165362
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2165363, 2165364, 2165365, 2165366, 2165367

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	03/17/2020			03/17/2020 16:07	Yen Ta	2165358, 2165359, 2165360, 2165361, 2165362
EPA 300.0 Rev. 2.1	03/17/2020			03/23/2020 22:19	Elliott Rodriguez	2165358
	03/17/2020			03/23/2020 22:36	Elliott Rodriguez	2165359
	03/17/2020			03/23/2020 22:53	Elliott Rodriguez	2165360
	03/17/2020			03/23/2020 23:10	Elliott Rodriguez	2165361
	03/17/2020			03/24/2020 00:02	Elliott Rodriguez	2165362
EPA 350.1 Rev. 2.0	03/17/2020			03/20/2020 14:16	Ping Hua	2165364
	03/17/2020			03/20/2020 14:24	Ping Hua	2165363
	03/17/2020			03/21/2020 12:49	Ping Hua	2165367
	03/17/2020			03/24/2020 16:21	Ping Hua	2165365
	03/17/2020			03/24/2020 16:22	Ping Hua	2165366
EPA 351.2 Rev. 2.0	03/17/2020	03/23/2020 12:20	Sima Feizi	03/24/2020 09:37	Jhamieka S. Greenwood	2165363
	03/17/2020	03/23/2020 12:20	Sima Feizi	03/24/2020 09:45	Jhamieka S. Greenwood	2165364
	03/17/2020	03/23/2020 12:20	Sima Feizi	03/24/2020 09:47	Jhamieka S. Greenwood	2165365
	03/17/2020	03/23/2020 12:20	Sima Feizi	03/24/2020 09:48	Jhamieka S. Greenwood	2165366
	03/17/2020	03/23/2020 12:20	Sima Feizi	03/24/2020 09:50	Jhamieka S. Greenwood	2165367
EPA 353.2 Rev. 2.0	03/17/2020			03/23/2020 10:56	Beverly Y. Sanders	2165363
	03/17/2020			03/23/2020 10:57	Beverly Y. Sanders	2165364
	03/17/2020			03/23/2020 10:58	Beverly Y. Sanders	2165365
	03/17/2020			03/23/2020 11:00	Beverly Y. Sanders	2165366
	03/17/2020			03/23/2020 11:01	Beverly Y. Sanders	2165367
EPA 365.1 Rev. 2.0	03/17/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:09	Benjamin T. Nordmann	2165363
	03/17/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:11	Benjamin T. Nordmann	2165364
	03/17/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:12	Benjamin T. Nordmann	2165365
	03/17/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:13	Benjamin T. Nordmann	2165366
	03/17/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:14	Benjamin T. Nordmann	2165367
EPA 365.1 Rev. 2.0 dissolved	03/17/2020			03/17/2020 15:34	Carlos Miranda	2165368
	03/17/2020			03/17/2020 15:37	Carlos Miranda	2165369
	03/17/2020			03/17/2020 15:38	Carlos Miranda	2165370, 2165371
	03/17/2020			03/17/2020 15:44	Carlos Miranda	2165372
SM 2320 B-2011	03/17/2020			03/20/2020 17:12	Dale L. Simmons	2165358
	03/17/2020			03/20/2020 17:22	Dale L. Simmons	2165359
	03/17/2020			03/20/2020 17:34	Dale L. Simmons	2165360
	03/17/2020			03/20/2020 17:44	Dale L. Simmons	2165361
	03/17/2020			03/20/2020 17:54	Dale L. Simmons	2165362
SM 2540 D-2011	03/17/2020			03/18/2020 15:32	Yijie Li	2165358, 2165359, 2165360, 2165361, 2165362
SM 4500 F-C-2011	03/17/2020			03/25/2020 15:41	Dale L. Simmons	2165358
	03/17/2020			03/25/2020 15:47	Dale L. Simmons	2165359

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	03/17/2020			03/25/2020 15:52	Dale L. Simmons	2165360
	03/17/2020			03/25/2020 15:57	Dale L. Simmons	2165361
	03/17/2020			03/25/2020 16:02	Dale L. Simmons	2165362
SM 5310 B-2011	03/17/2020			03/18/2020 22:03	Lauren Lees	2165363
	03/17/2020			03/18/2020 22:43	Lauren Lees	2165364
	03/17/2020			03/18/2020 23:36	Lauren Lees	2165365
	03/17/2020			03/18/2020 23:48	Lauren Lees	2165366
	03/17/2020			03/19/2020 00:03	Lauren Lees	2165367