Chemical Analysis Report

SW-DIST-2020-08-18-01

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

Event Description: **Run 3: CATO CITRUS**
Request ID: **RQ-2020-08-17-15**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 09-SEP-2020 16:40

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: Mckethan Lake near Boat Launch **Collection Date/Time: 08/17/2020 11:39**

Field ID: G4SW0033 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190962	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P386192	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P386377	
		Sulfate	0.20	U	mg SO4/L	P386380	
	SM 2120 B-2011	Color (true)	15	A	PCU	P386201	
	SM 2320 B-2011	Total Alkalinity	6.6		mg CaCO3/L	P386325	
	SM 2540 C-2011	TDS	26		mg/L	P386505	
	SM 2540 D-2011	TSS	3	I	mg/L	P386392	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P386329	
2190965	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P386430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P386607	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P386304	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P386253	
	SM 5310 B-2011	Organic Carbon	7.5		mg C/L	P386333	
2190968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P386204	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Lindsay @ Center **Collection Date/Time: 08/17/2020 12:15**

Field ID: G4SW0124 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190963	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P386192	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P386377	
		Sulfate	0.20	U	mg SO4/L	P386380	
	SM 2120 B-2011	Color (true)	45		PCU	P386201	
	SM 2320 B-2011	Total Alkalinity	8.2		mg CaCO3/L	P386325	
	SM 2540 C-2011	TDS	28		mg/L	P386505	
	SM 2540 D-2011	TSS	21		mg/L	P386392	
	SM 4500 F-C-2011	Fluoride	0.055	I	mg F/L	P386329	
2190966	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P386431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P386371	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P386304	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P386253	
	SM 5310 B-2011	Organic Carbon	9.4		mg C/L	P386333	
2190969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P386204	

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: Cato Lake South **Collection Date/Time: 08/17/2020 10:48**

Field ID: G4SW0102 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190964	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P386192	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P386377	
		Sulfate	0.41	I	mg SO4/L	P386380	
	SM 2120 B-2011	Color (true)	39		PCU	P386201	
	SM 2320 B-2011	Total Alkalinity	136		mg CaCO3/L	P386325	
	SM 2540 C-2011	TDS	186		mg/L	P386505	
	SM 2540 D-2011	TSS	34		mg/L	P386392	
	SM 4500 F-C-2011	Fluoride	0.095	I	mg F/L	P386329	
2190967	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P386431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P386371	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P386305	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P386253	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P386333	
2190970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P386204	

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: P386192

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386377

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386380

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386431

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386371

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386607

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386304

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386305

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386253

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386204

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

Reference Method: SM 2120 B-2011
Batch ID: P386201

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P386325

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

Reference Method: SM 2540 C-2011
Batch ID: P386505

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386392

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386333

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: P386377

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386380

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386431

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386607

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386304

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: P386305

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386253

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386204

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

Reference Method: SM 2120 B-2011
Batch ID: P386201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P386325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.3		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190820	Chloride	99.0		P	90 - 110
2190962	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190820	Sulfate	99.7		P	90 - 110
2190962	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190965	Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191344	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190965	Kjeldahl Nitrogen	94.9	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190900	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190967	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190920	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190932	O-Phosphate-P	97.8	99.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190933	Fluoride	102	104	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P386333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190822	Organic Carbon	95.9	97.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190978	Turbidity	2.11	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190820	Chloride	1.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190820	Sulfate	0.620	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190965	Ammonia-N	0.719	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191344	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190965	Kjeldahl Nitrogen	1.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191631	Kjeldahl Nitrogen	3.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190900	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190967	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190920	Total-P	1.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190932	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P386201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190962	Color (true)	4.58	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190933	Total Alkalinity	3.11	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190919	TDS	7.02	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190933	Fluoride	0.909	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190822	Organic Carbon	1.71	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: A100517
Included Lab Sample IDs: 2190962, 2190963, 2190964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A100519
Included Lab Sample IDs: 2190962, 2190963, 2190964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A100520
Included Lab Sample IDs: 2190968, 2190969, 2190970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100543
Included Lab Sample IDs: 2190962, 2190963, 2190964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100558
Included Lab Sample IDs: 2190965, 2190966, 2190967

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

Reference Method: SM 2320 B-2011
Run ID: A100560
Included Lab Sample IDs: 2190962, 2190963, 2190964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100560
Included Lab Sample IDs: 2190962, 2190963, 2190964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A100563
Included Lab Sample IDs: 2190965, 2190966, 2190967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100566
Included Lab Sample IDs: 2190967

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100597
Included Lab Sample IDs: 2190965, 2190966, 2190967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.9	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100603
Included Lab Sample IDs: 2190965, 2190966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100612
Included Lab Sample IDs: 2190966, 2190967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	93.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100700
Included Lab Sample IDs: 2190965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.11	
EPA 300.0 Rev. 2.1	Chloride	98.7	99.0	97.9		1.76	
	Sulfate	99.5	99.7	98.4		0.620	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	99.4	100			0.719
	Ammonia-N	99.4	102	100			1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	94.9	97.8			1.81
	Kjeldahl Nitrogen	102					3.45
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.5				0.0
	NO2NO3-N	103	102	100			0.990
EPA 365.1 Rev. 2.0	Total-P	101	105	103			1.94
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	97.8	99.1			1.05
SM 2120 B-2011	Color (true)	99.9				4.58	
SM 2320 B-2011	Total Alkalinity	98.3				3.11	
SM 2540 C-2011	TDS					7.02	
SM 4500 F-C-2011	Fluoride	102	102	104			0.909
SM 5310 B-2011	Organic Carbon	96.6	95.9	97.9			1.71

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2190962, 2190963, 2190964
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2190962, 2190963, 2190964
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2190962, 2190963, 2190964
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2190965, 2190966, 2190967
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2190965, 2190966, 2190967
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2190965, 2190966, 2190967
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2190965, 2190966, 2190967
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2190968, 2190969, 2190970
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2190962, 2190963, 2190964
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2190962, 2190963, 2190964
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2190962, 2190963, 2190964
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2190962, 2190963, 2190964
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2190962, 2190963, 2190964
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2190965, 2190966, 2190967

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	08/18/2020			08/18/2020 15:27	Yen Ta	2190962, 2190963, 2190964
EPA 300.0 Rev. 2.1	08/18/2020			08/20/2020 21:53	Julia Storbeck	2190962
	08/18/2020			08/21/2020 01:07	Julia Storbeck	2190963
	08/18/2020			08/21/2020 01:19	Julia Storbeck	2190964
EPA 350.1 Rev. 2.0	08/18/2020			08/22/2020 14:02	Ping Hua	2190965
	08/18/2020			08/22/2020 14:38	Ping Hua	2190966
	08/18/2020			08/22/2020 14:40	Ping Hua	2190967
EPA 351.2 Rev. 2.0	08/18/2020	08/21/2020 09:05	David Boose	08/24/2020 10:00	Virginia P. Brown	2190966
	08/18/2020	08/21/2020 09:05	David Boose	08/24/2020 10:02	Virginia P. Brown	2190967
	08/18/2020	08/27/2020 09:15	Sima Feizi	08/28/2020 09:17	Virginia P. Brown	2190965
EPA 353.2 Rev. 2.0	08/18/2020			08/20/2020 09:58	Beverly Y. Sanders	2190965
	08/18/2020			08/20/2020 09:59	Beverly Y. Sanders	2190966
	08/18/2020			08/20/2020 10:06	Beverly Y. Sanders	2190967
EPA 365.1 Rev. 2.0	08/18/2020	08/19/2020 13:04	Yen Ta	08/20/2020 14:48	Benjamin T. Nordmann	2190967
	08/18/2020	08/19/2020 13:04	Yen Ta	08/21/2020 10:00	Lipi Saha	2190965
	08/18/2020	08/19/2020 13:04	Yen Ta	08/21/2020 10:01	Lipi Saha	2190966
EPA 365.1 Rev. 2.0 dissolved	08/18/2020			08/18/2020 16:33	Samantha Davila	2190968
	08/18/2020			08/18/2020 16:34	Samantha Davila	2190969
	08/18/2020			08/18/2020 16:35	Samantha Davila	2190970
SM 2120 B-2011	08/18/2020			08/18/2020 16:22	Benjamin T. Nordmann	2190962, 2190963
	08/18/2020			08/18/2020 16:23	Benjamin T. Nordmann	2190964
SM 2320 B-2011	08/18/2020			08/20/2020 02:52	Dale L. Simmons	2190962
	08/18/2020			08/20/2020 03:04	Dale L. Simmons	2190963
	08/18/2020			08/20/2020 03:17	Dale L. Simmons	2190964
SM 2540 C-2011	08/18/2020			08/19/2020 15:39	Yijie Li	2190962, 2190963, 2190964
SM 2540 D-2011	08/18/2020			08/19/2020 15:39	Yijie Li	2190962, 2190963, 2190964
SM 4500 F-C-2011	08/18/2020			08/20/2020 02:52	Dale L. Simmons	2190962
	08/18/2020			08/20/2020 03:04	Dale L. Simmons	2190963
	08/18/2020			08/20/2020 03:17	Dale L. Simmons	2190964
SM 5310 B-2011	08/18/2020			08/20/2020 05:10	David Boose	2190965
	08/18/2020			08/20/2020 05:22	David Boose	2190966
	08/18/2020			08/20/2020 05:35	David Boose	2190967