Chemical Analysis Report

CEN-DIST-2020-06-19-01

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

Event Description: **Jane/Kasey/Roberts/Fox/Bird**
Request ID: **RQ-2020-06-15-65**
Customer: **CEN-DIST**
Project ID: **SMP**

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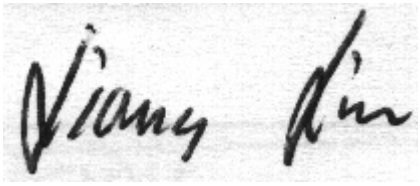
Date Certified: 13-JUL-2020 12:34



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: Roberts Branch @ Curryville Rd. **Collection Date/Time: 06/18/2020 11:00**

Field ID: G3CE0011 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2177730	EPA 180.1 Rev. 2.0	Turbidity	1.2E+03		NTU	P383459	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P383738	
		Sulfate	6.9		mg SO4/L	P383741	
	SM 2120 B-2011	Color (true)	92	A	PCU	P383465	
	SM 2320 B-2011	Total Alkalinity	1.5	I	mg CaCO3/L	P383552	
	SM 2540 C-2011	TDS	452		mg/L	P383857	
	SM 2540 D-2011	TSS	365		mg/L	P383820	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P383556	
2177732	EPA 350.1 Rev. 2.0	Ammonia-N	0.079		mg N/L	P383476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P383545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.092		mg N/L	P383494	
	EPA 365.1 Rev. 2.0	Total-P	2.1		mg P/L	P383668	
	SM 5310 B-2011	Organic Carbon	26		mg C/L	P383708	
2177734	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.067		mg P/L	P383488	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The sample has large amount of particulate matter.
SM 2540 C-2011: High result compared to conductivity was confirmed on 07/01/2020.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The result was confirmed on 06/26/2020.

Sample Location: Bird Lake Ditches @ 75m East of FL 407 **Collection Date/Time: 06/18/2020 11:59**

Field ID: G3CE0014 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2177731	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P383459	
	EPA 300.0 Rev. 2.1	Chloride	80		mg Cl/L	P383738	
		Sulfate	39		mg SO4/L	P383741	
	SM 2120 B-2011	Color (true)	20		PCU	P383462	
	SM 2320 B-2011	Total Alkalinity	264		mg CaCO3/L	P383552	
	SM 2540 C-2011	TDS	480	A	mg/L	P383858	
	SM 2540 D-2011	TSS	3	I A	mg/L	P383821	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P383556	
2177733	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P383476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P383545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P383494	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P383508	
	SM 5310 B-2011	Organic Carbon	6.9		mg C/L	P383708	
2177735	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P383488	

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: Fox Lake @ center of SE Lobe **Collection Date/Time: 06/18/2020 12:20**

Field ID: G3CE0004 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2177724	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P383459	
	EPA 300.0 Rev. 2.1	Chloride	240		mg Cl/L	P383969	
		Sulfate	50		mg SO4/L	P383740	
	SM 2120 B-2011	Color (true)	190		PCU	P383462	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P383552	
	SM 2540 C-2011	TDS	509		mg/L	P383857	
	SM 2540 D-2011	TSS	2	U	mg/L	P383820	
	SM 4500 F-C-2011	Fluoride	0.053	I	mg F/L	P383556	
2177726	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P383476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P383545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P383494	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P383507	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P383708	
2177728	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P383488	

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: Lake Jane @ Center **Collection Date/Time: 06/18/2020 14:18**

Field ID: G4CE0152 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2177725	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P383459	
	EPA 300.0 Rev. 2.1	Chloride	12	A	mg Cl/L	P383738	
		Sulfate	8.2	A	mg SO4/L	P383741	
	SM 2120 B-2011	Color (true)	33		PCU	P383462	
	SM 2320 B-2011	Total Alkalinity	80		mg CaCO3/L	P383552	
	SM 2540 C-2011	TDS	123		mg/L	P383857	
	SM 2540 D-2011	TSS	10		mg/L	P383820	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P383556	
2177727	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P383476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P383545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P383494	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P383507	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P383708	
2177729	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P383488	

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: P383459

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383738

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383740

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383741

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383969

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383476

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383545

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383494

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383507

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: P383508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383668

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383488

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

Reference Method: SM 2120 B-2011
Batch ID: P383462

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P383465

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P383552

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

Reference Method: SM 2540 C-2011
Batch ID: P383857

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P383858

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P383820

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P383821

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383556

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383708

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: P383738

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383740

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383741

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383969

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383476

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383545

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: P383494

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: P383507

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383508

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	93.4		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P383462

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.5		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P383465

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

Reference Method: SM 2320 B-2011
Batch ID: P383552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P383556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383708

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177725	Chloride	103		P	90 - 110
2177789	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177487	Sulfate	102		P	90 - 110
2177628	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177725	Sulfate	103		P	90 - 110
2177789	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178462	Chloride	103		P	90 - 110
2178597	Chloride	110		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177727	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177784	Kjeldahl Nitrogen	97.2	98.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177690	NO2NO3-N	97.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177654	Total-P	107	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177733	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178029	Total-P	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177728	O-Phosphate-P	90.5	92.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P383556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177783	Fluoride	99.4	97.9	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P383708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177691	Organic Carbon	96.0	98.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177682	Turbidity	1.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177725	Chloride	0.216	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177487	Sulfate	0.342	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177725	Sulfate	0.110	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178597	Chloride	1.37	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177727	Ammonia-N	0.168	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177784	Kjeldahl Nitrogen	0.931	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177690	NO2NO3-N	1.53	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177654	Total-P	3.59	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177733	Total-P	0.216	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178029	Total-P	0.888	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177728	O-Phosphate-P	1.69	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177688	Color (true)	0.0633	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177730	Color (true)	1.76	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P383552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177783	Total Alkalinity	1.13	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P383857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177708	TDS	8.07	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 C-2011
Batch ID: P383858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177731	TDS	5.21	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P383556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177783	Fluoride	0.965	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P383708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177691	Organic Carbon	1.28	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: A99430
Included Lab Sample IDs: 2177724, 2177725, 2177730, 2177731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A99431
Included Lab Sample IDs: 2177724, 2177725, 2177730, 2177731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	101	P/P	90 - 115
Color (true)	101	99.5	P/P	90 - 115

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99435
Included Lab Sample IDs: 2177726, 2177727, 2177732, 2177733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110
Ammonia-N	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99440
Included Lab Sample IDs: 2177728, 2177729, 2177734, 2177735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	90.5	90.4	P/P	90 - 110
O-Phosphate-P	92.2	90.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99442
Included Lab Sample IDs: 2177726, 2177727, 2177732, 2177733

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

Reference Method: SM 2320 B-2011
Run ID: A99462
Included Lab Sample IDs: 2177724, 2177725, 2177730, 2177731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A99462
Included Lab Sample IDs: 2177724, 2177725, 2177730, 2177731

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99463
Included Lab Sample IDs: 2177727, 2177733

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99483
Included Lab Sample IDs: 2177726

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A99488
Included Lab Sample IDs: 2177726, 2177727, 2177732, 2177733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	95.1	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A99535
Included Lab Sample IDs: 2177726, 2177727, 2177732, 2177733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99546
Included Lab Sample IDs: 2177725, 2177730, 2177731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	99.2	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	98.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99563
Included Lab Sample IDs: 2177732

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99640
Included Lab Sample IDs: 2177724

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	101	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					1.23	
EPA 300.0 Rev. 2.1	Chloride	102	103	103		0.216	
	Chloride	103	110	103		1.37	
	Sulfate	101	102	101		0.342	
	Sulfate	103	103	102		0.110	
EPA 350.1 Rev. 2.0	Ammonia-N	104	104	104			0.168
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	97.2	98.3			0.931
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.0	98.5			1.53
EPA 365.1 Rev. 2.0	Total-P	104	107	103			3.59
	Total-P	105	104	104			0.216
	Total-P	97.3	99.6	100			0.888
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	93.4	90.5	92.3			1.69
SM 2120 B-2011	Color (true)	98.5				0.0633	
	Color (true)	101				1.76	
SM 2320 B-2011	Total Alkalinity	99.2				1.13	
SM 2540 C-2011	TDS					8.07	
	TDS					5.21	
SM 4500 F-C-2011	Fluoride	97.1	99.4	97.9			0.965
SM 5310 B-2011	Organic Carbon	96.1	96.0	98.1			1.28

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2177724, 2177725, 2177730, 2177731
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2177724, 2177725, 2177730, 2177731
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2177724, 2177725, 2177730, 2177731
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2177726, 2177727, 2177732, 2177733
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2177726, 2177727, 2177732, 2177733
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2177726, 2177727, 2177732, 2177733
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2177726, 2177727, 2177732, 2177733
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2177728, 2177729, 2177734, 2177735
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2177724, 2177725, 2177730, 2177731
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2177724, 2177725, 2177730, 2177731
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2177724, 2177725, 2177730, 2177731
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2177724, 2177725, 2177730, 2177731
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2177724, 2177725, 2177730, 2177731
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2177726, 2177727, 2177732, 2177733

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	06/19/2020			06/19/2020 15:56	Yen Ta	2177724, 2177725, 2177730, 2177731
EPA 300.0 Rev. 2.1	06/19/2020			06/24/2020 03:59	Elliott Rodriguez	2177724
	06/19/2020			06/24/2020 05:30	Elliott Rodriguez	2177725
	06/19/2020			06/24/2020 06:22	Elliott Rodriguez	2177730
	06/19/2020			06/24/2020 06:35	Elliott Rodriguez	2177731
	06/19/2020			06/30/2020 09:34	Julia Storbeck	2177724
EPA 350.1 Rev. 2.0	06/19/2020			06/21/2020 11:48	Ping Hua	2177733
	06/19/2020			06/21/2020 11:57	Ping Hua	2177726
	06/19/2020			06/21/2020 11:59	Ping Hua	2177727
	06/19/2020			06/21/2020 12:06	Ping Hua	2177732
EPA 351.2 Rev. 2.0	06/19/2020	06/23/2020 10:10	Sima Feizi	06/24/2020 10:36	Jhamieka S. Greenwood	2177726
	06/19/2020	06/23/2020 10:10	Sima Feizi	06/24/2020 10:38	Jhamieka S. Greenwood	2177727
	06/19/2020	06/23/2020 10:10	Sima Feizi	06/24/2020 10:39	Jhamieka S. Greenwood	2177732
	06/19/2020	06/23/2020 10:10	Sima Feizi	06/24/2020 10:41	Jhamieka S. Greenwood	2177733
EPA 353.2 Rev. 2.0	06/19/2020			06/22/2020 09:10	Beverly Y. Sanders	2177726
	06/19/2020			06/22/2020 09:11	Beverly Y. Sanders	2177727
	06/19/2020			06/22/2020 09:12	Beverly Y. Sanders	2177732
	06/19/2020			06/22/2020 09:14	Beverly Y. Sanders	2177733
EPA 365.1 Rev. 2.0	06/19/2020	06/22/2020 14:35	Yen Ta	06/23/2020 09:37	Benjamin T. Nordmann	2177727
	06/19/2020	06/22/2020 14:35	Yen Ta	06/23/2020 09:42	Benjamin T. Nordmann	2177733
	06/19/2020	06/22/2020 14:35	Yen Ta	06/24/2020 08:26	Lipi Saha	2177726
	06/19/2020	06/25/2020 11:41	Yen Ta	06/29/2020 08:11	Benjamin T. Nordmann	2177732
EPA 365.1 Rev. 2.0 dissolved	06/19/2020			06/19/2020 17:27	Carlos Miranda	2177728
	06/19/2020			06/19/2020 17:32	Carlos Miranda	2177735
	06/19/2020			06/19/2020 17:33	Carlos Miranda	2177729
	06/19/2020			06/19/2020 17:38	Carlos Miranda	2177734
SM 2120 B-2011	06/19/2020			06/19/2020 17:00	Benjamin T. Nordmann	2177725
	06/19/2020			06/19/2020 17:01	Benjamin T. Nordmann	2177731
	06/19/2020			06/19/2020 17:19	Benjamin T. Nordmann	2177724
	06/19/2020			06/19/2020 17:26	Benjamin T. Nordmann	2177730
SM 2320 B-2011	06/19/2020			06/23/2020 02:10	Dale L. Simmons	2177724
	06/19/2020			06/23/2020 02:23	Dale L. Simmons	2177725
	06/19/2020			06/23/2020 02:32	Dale L. Simmons	2177730
	06/19/2020			06/23/2020 02:46	Dale L. Simmons	2177731
SM 2540 C-2011	06/19/2020			06/24/2020 13:02	Yijie Li	2177724, 2177725, 2177730, 2177731
SM 2540 D-2011	06/19/2020			06/24/2020 13:02	Yijie Li	2177724, 2177725, 2177730, 2177731
SM 4500 F-C-2011	06/19/2020			06/23/2020 02:10	Dale L. Simmons	2177724
	06/19/2020			06/23/2020 02:23	Dale L. Simmons	2177725
	06/19/2020			06/23/2020 02:32	Dale L. Simmons	2177730
	06/19/2020			06/23/2020 02:46	Dale L. Simmons	2177731

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	06/19/2020			06/25/2020 17:53	David Boose	2177726
	06/19/2020			06/25/2020 18:06	David Boose	2177727
	06/19/2020			06/25/2020 18:18	David Boose	2177732
	06/19/2020			06/25/2020 18:31	David Boose	2177733