

Chemical Analysis Report

CEN-DIST-2020-06-24-04

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

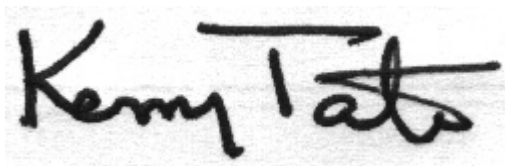
Event Description: **Upper Cypress, Johns Lake, Baldwin Outfall, Econ Trib**
Request ID: **RQ-2020-06-22-55**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Natalie Ayala

For additional information please contact
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Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 13-JUL-2020 09:03

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Lake Baldwin Outfall @ 225m east of N Semoran Blvd

Collection Date/Time: 06/22/2020 09:55

Field ID: G2CE0229

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178396	EPA 180.1 Rev. 2.0	Turbidity	1.5	YQ	NTU	P383626	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P383968	
		Sulfate	16	Y	mg SO4/L	P383972	
	SM 2120 B-2011	Color (true)	25	YQ	PCU	P383630	
	SM 2320 B-2011	Total Alkalinity	59	Y	mg CaCO3/L	P383727	
	SM 2540 C-2011	TDS	151	Y	mg/L	P384126	
	SM 2540 D-2011	TSS	3	IY	mg/L	P384122	
	SM 4500 F-C-2011	Fluoride	0.091	I	mg F/L	P383733	
2178400	EPA 350.1 Rev. 2.0	Ammonia-N	0.092	Y	mg N/L	P383766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60	Y	mg N/L	P383715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.067	Y	mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.032	Y	mg P/L	P383673	
	SM 5310 B-2011	Organic Carbon	9.4	Y	mg C/L	P383792	
2178404	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	IYQ	mg P/L	P383636	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B-2011: The sample expired prior to receipt. Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-2011: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Econ River Trib @ 170m N of Jay Blanchard Trail

Collection Date/Time: 06/22/2020 10:35

Field ID: G2CE0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178397	EPA 180.1 Rev. 2.0	Turbidity	2.5	AYQ	NTU	P383626	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P383968	
		Sulfate	6.0	Y	mg SO4/L	P383972	
	SM 2120 B-2011	Color (true)	76	YQ	PCU	P383630	
	SM 2320 B-2011	Total Alkalinity	68	Y	mg CaCO3/L	P383727	
	SM 2540 C-2011	TDS	150	Y	mg/L	P384126	
	SM 2540 D-2011	TSS	3	IY	mg/L	P384122	
	SM 4500 F-C-2011	Fluoride	0.056	I	mg F/L	P383733	
2178401	EPA 350.1 Rev. 2.0	Ammonia-N	0.032	Y	mg N/L	P383766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58	Y	mg N/L	P383715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23	Y	mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.059	Y	mg P/L	P383673	
	SM 5310 B-2011	Organic Carbon	14	Y	mg C/L	P383792	
2178405	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036	YQ	mg P/L	P383636	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B-2011: The sample expired prior to receipt. Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-2011: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Upper Cypress Creek @ Jacaranda

Collection Date/Time: 06/22/2020 11:35

Field ID: G4CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178398	EPA 180.1 Rev. 2.0	Turbidity	0.60	YQ	NTU	P383626	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P383968	
		Sulfate	5.9	Y	mg SO4/L	P383972	
	SM 2120 B-2011	Color (true)	410	YQ	PCU	P383630	
	SM 2320 B-2011	Total Alkalinity	15	Y	mg CaCO3/L	P383727	
	SM 2540 C-2011	TDS	158	AY	mg/L	P384127	
	SM 2540 D-2011	TSS	2	UAY	mg/L	P384123	
	SM 4500 F-C-2011	Fluoride	0.096	I	mg F/L	P383733	
2178402	EPA 350.1 Rev. 2.0	Ammonia-N	0.009	Y	mg N/L	P383766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2	Y	mg N/L	P383909	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015	Y	mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.027	Y	mg P/L	P383673	
	SM 5310 B-2011	Organic Carbon	32	Y	mg C/L	P383792	
2178406	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015	YQ	mg P/L	P383636	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B-2011: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-2011: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: John's Lake Outlet @ Conservation area dock Collection Date/Time: 06/22/2020 12:24

Field ID: G1CE0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178399	EPA 180.1 Rev. 2.0	Turbidity	3.9	AY	NTU	P383623	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P383968	
		Sulfate	18	Y	mg SO4/L	P383972	
	SM 2120 B-2011	Color (true)	120	YQ	PCU	P383619	
	SM 2320 B-2011	Total Alkalinity	46	Y	mg CaCO3/L	P383727	
	SM 2540 C-2011	TDS	168	Y	mg/L	P384127	
	SM 2540 D-2011	TSS	3	IY	mg/L	P384123	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P383733	
2178403	EPA 350.1 Rev. 2.0	Ammonia-N	0.017	Y	mg N/L	P383766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94	Y	mg N/L	P383715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012	Y	mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.090	Y	mg P/L	P383809	
	SM 5310 B-2011	Organic Carbon	18	Y	mg C/L	P383792	
2178407	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050	YQ	mg P/L	P383636	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2120 B-2011: .The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2320 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2540 C-2011: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 5310 B-2011: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Non-Conformance Report

NCR ID: 8321

Event(s)

CEN-DIST-2020-06-24-04

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one day late by FedEx, samples received outside of the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.
Biology and Chemistry supervisors were notified by email.
Customer contacted by email.

Authorized by/Date: Joshua Ayres 6/30/2020

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: P383623

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383626

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383968

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383715

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383909

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383673

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: P383809

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

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

Reference Method: SM 2120 B-2011
Batch ID: P383619

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P383630

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P383727

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

Reference Method: SM 2540 C-2011
Batch ID: P384126

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P384127

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384122

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384123

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383792

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: P383968

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383909

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383673

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383809

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P383619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.0		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P383630

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

Reference Method: SM 2320 B-2011
Batch ID: P383727

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

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P383968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178287	Chloride	101		P	90 - 110
2178366	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P383972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178287	Sulfate	103		P	90 - 110
2178366	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P383766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178367	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P383715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178402	Kjeldahl Nitrogen	96.6	93.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P383797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178392	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P383673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178348	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P383809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178403	Total-P	96.5	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P383636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178425	O-Phosphate-P	95.4	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
 Batch ID: P383733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178195	Fluoride	99.4	97.1	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P383792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178460	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178399	Turbidity	5.32	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178397	Turbidity	2.40	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178366	Chloride	1.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178366	Sulfate	2.09	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178367	Ammonia-N	0.430	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178402	Kjeldahl Nitrogen	1.43	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179071	Kjeldahl Nitrogen	6.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178392	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178348	Total-P	0.464	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178403	Total-P	0.898	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178425	O-Phosphate-P	0.890	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178287	Color (true)	1.15	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178423	Color (true)	0.752	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P383727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178195	Total Alkalinity	2.38	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P384126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178234	TDS	4.18	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P384127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178398	TDS	8.20	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178195	Fluoride	1.45	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P383792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178460	Organic Carbon	0.0798	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A99494

Included Lab Sample IDs: 2178399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.2	99.9	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A99497

Included Lab Sample IDs: 2178396, 2178397, 2178398, 2178399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105
Turbidity	102	103	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A99499

Included Lab Sample IDs: 2178396, 2178397, 2178398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A99500

Included Lab Sample IDs: 2178404, 2178405, 2178406, 2178407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	97.9	P/P	90 - 110
O-Phosphate-P	97.9	96.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99540

Included Lab Sample IDs: 2178396, 2178397, 2178398, 2178399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A99540

Included Lab Sample IDs: 2178396, 2178397, 2178398, 2178399

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99556

Included Lab Sample IDs: 2178400, 2178401, 2178402, 2178403

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99563

Included Lab Sample IDs: 2178401

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

Reference Method: SM 5310 B-2011

Run ID: A99564

Included Lab Sample IDs: 2178400, 2178401, 2178402, 2178403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99570

Included Lab Sample IDs: 2178400, 2178401, 2178402, 2178403

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99571

Included Lab Sample IDs: 2178400, 2178401, 2178403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99586

Included Lab Sample IDs: 2178400, 2178402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.8	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99590

Included Lab Sample IDs: 2178403

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A99640

Included Lab Sample IDs: 2178396, 2178397, 2178398, 2178399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	99.8	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99648

Included Lab Sample IDs: 2178402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.32	
	Turbidity					2.40	
EPA 300.0 Rev. 2.1	Chloride	101	106	101		1.90	
	Sulfate	104	108	103		2.09	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	102	102			0.430
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.4	96.6	93.9			1.43
	Kjeldahl Nitrogen	104					6.38
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	101	101			0.464
	Total-P	99.6	96.5	97.6			0.898
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	95.4	96.4			0.890
SM 2120 B-2011	Color (true)	98.0				1.15	
	Color (true)	99.9				0.752	
SM 2320 B-2011	Total Alkalinity	101				2.38	
SM 2540 C-2011	TDS					4.18	
	TDS					8.20	
SM 4500 F-C-2011	Fluoride	99.4	99.4	97.1			1.45
SM 5310 B-2011	Organic Carbon	99.7	100	100			0.0798

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2178396, 2178397, 2178398, 2178399
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2178396, 2178397, 2178398, 2178399
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2178396, 2178397, 2178398, 2178399
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2178400, 2178401, 2178402, 2178403
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2178400, 2178401, 2178402, 2178403
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2178400, 2178401, 2178402, 2178403
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2178400, 2178401, 2178402, 2178403
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2178404, 2178405, 2178406, 2178407
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2178396, 2178397, 2178398, 2178399
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2178396, 2178397, 2178398, 2178399
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2178396, 2178397, 2178398, 2178399
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2178396, 2178397, 2178398, 2178399
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2178396, 2178397, 2178398, 2178399
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2178400, 2178401, 2178402, 2178403

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	06/24/2020			06/24/2020 12:18	Yen Ta	2178399
	06/24/2020			06/24/2020 15:01	Yen Ta	2178396, 2178397, 2178398
EPA 300.0 Rev. 2.1	06/24/2020			06/30/2020 05:08	Julia Storbeck	2178396
	06/24/2020			06/30/2020 05:21	Julia Storbeck	2178397
	06/24/2020			06/30/2020 05:33	Julia Storbeck	2178398
	06/24/2020			06/30/2020 05:45	Julia Storbeck	2178399
EPA 350.1 Rev. 2.0	06/24/2020			06/27/2020 15:55	Ping Hua	2178400
	06/24/2020			06/27/2020 15:57	Ping Hua	2178401
	06/24/2020			06/27/2020 15:58	Ping Hua	2178402
	06/24/2020			06/27/2020 16:00	Ping Hua	2178403
EPA 351.2 Rev. 2.0	06/24/2020	06/26/2020 11:30	Elliott Rodriguez	06/29/2020 09:49	Jhamieka S. Greenwood	2178400
	06/24/2020	06/26/2020 11:30	Elliott Rodriguez	06/29/2020 09:51	Jhamieka S. Greenwood	2178401
	06/24/2020	06/26/2020 11:30	Elliott Rodriguez	06/29/2020 09:53	Jhamieka S. Greenwood	2178403
	06/24/2020	07/01/2020 09:40	Elliott Rodriguez	07/02/2020 08:53	Jhamieka S. Greenwood	2178402
EPA 353.2 Rev. 2.0	06/24/2020			06/29/2020 08:46	Beverly Y. Sanders	2178400
	06/24/2020			06/29/2020 08:47	Beverly Y. Sanders	2178401
	06/24/2020			06/29/2020 08:48	Beverly Y. Sanders	2178402
	06/24/2020			06/29/2020 08:49	Beverly Y. Sanders	2178403
EPA 365.1 Rev. 2.0	06/24/2020	06/25/2020 11:41	Yen Ta	06/29/2020 09:02	Benjamin T. Nordmann	2178401
	06/24/2020	06/25/2020 11:41	Yen Ta	06/30/2020 08:34	Lipi Saha	2178400
	06/24/2020	06/25/2020 11:41	Yen Ta	06/30/2020 08:36	Lipi Saha	2178402
	06/24/2020	06/29/2020 13:17	Yen Ta	06/30/2020 08:34	Benjamin T. Nordmann	2178403
EPA 365.1 Rev. 2.0 dissolved	06/24/2020			06/24/2020 17:14	Julia Storbeck	2178405
	06/24/2020			06/24/2020 17:15	Julia Storbeck	2178406
	06/24/2020			06/24/2020 17:16	Julia Storbeck	2178407
	06/24/2020			06/24/2020 17:22	Julia Storbeck	2178404
SM 2120 B-2011	06/24/2020			06/24/2020 12:26	Madeline Gruver	2178399
	06/24/2020			06/24/2020 16:40	Benjamin T. Nordmann	2178396
	06/24/2020			06/24/2020 16:41	Benjamin T. Nordmann	2178397
	06/24/2020			06/24/2020 16:51	Benjamin T. Nordmann	2178398
SM 2320 B-2011	06/24/2020			06/26/2020 01:18	Dale L. Simmons	2178396
	06/24/2020			06/26/2020 01:30	Dale L. Simmons	2178397
	06/24/2020			06/26/2020 01:43	Dale L. Simmons	2178398
	06/24/2020			06/26/2020 01:56	Dale L. Simmons	2178399
SM 2540 C-2011	06/24/2020			06/26/2020 14:26	Yijie Li	2178396, 2178397, 2178398, 2178399
SM 2540 D-2011	06/24/2020			06/26/2020 14:26	Yijie Li	2178396, 2178397, 2178398, 2178399
SM 4500 F-C-2011	06/24/2020			06/26/2020 01:18	Dale L. Simmons	2178396
	06/24/2020			06/26/2020 01:30	Dale L. Simmons	2178397
	06/24/2020			06/26/2020 01:43	Dale L. Simmons	2178398
	06/24/2020			06/26/2020 01:56	Dale L. Simmons	2178399

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	06/24/2020			06/26/2020 22:24	David Boose	2178400
	06/24/2020			06/26/2020 22:36	David Boose	2178401
	06/24/2020			06/26/2020 22:49	David Boose	2178402
	06/24/2020			06/26/2020 23:02	David Boose	2178403