

Chemical Analysis Report

NW-DIST-2020-09-10-01

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

Event Description: **Whiteoak Continuous Monitoring**
Request ID: **RQ-2020-08-31-46**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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

Date Certified: 29-SEP-2020 10:34

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.

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: Williams Creek Below Frankfort Avenue

Collection Date/Time: 09/09/2020 10:00

Field ID: G4NW0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2195235	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P387217	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P387417	
		Sulfate	6.3		mg SO4/L	P387419	
	SM 2120 B-2011	Color (true)	43		PCU	P387220	
	SM 2320 B-2011	Total Alkalinity	9.4		mg CaCO3/L	P387352	
	SM 2540 C-2011	TDS	78		mg/L	P387620	
	SM 2540 D-2011	TSS	2	I	mg/L	P387624	
	SM 4500 F-C-2011	Fluoride	0.037	I	mg F/L	P387354	
2195236	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P387296	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P387325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.076		mg N/L	P387336	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P387670	
	SM 5310 B-2011	Organic Carbon	6.2		mg C/L	P387313	
2195237	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P387232	

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: White Oak Bayou at End of Aegean Drive

Collection Date/Time: 09/09/2020 11:08

Field ID: G4NW0387

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2195232	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P387217	
	EPA 300.0 Rev. 2.1	Bromide	13		mg Br/L	P387503	
	SM 2320 B-2011	Total Alkalinity	39		mg CaCO3/L	P387353	
	SM 2540 D-2011	TSS	4	I	mg/L	P387627	
	SM 4500 F-C-2011	Fluoride	0.27		mg F/L	P387355	
2195233	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P387294	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P387327	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P387372	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P387671	
	SM 5310 B-2011	Organic Carbon	6.4		mg C/L	P387313	
2195234	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387233	

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: P387217

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387417

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387419

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387503

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387294

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387296

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387325

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387327

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387336

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387372

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387670

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387671

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387233

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

Reference Method: SM 2120 B-2011
Batch ID: P387220

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P387352

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

Reference Method: SM 2320 B-2011
Batch ID: P387353

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

Reference Method: SM 2540 C-2011
Batch ID: P387620

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P387624

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P387627

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P387354

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P387355

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P387313

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: P387417

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387503

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387296

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387325

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387327

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.5		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387670

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387671

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387233

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

Reference Method: SM 2120 B-2011
Batch ID: P387220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P387352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P387353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P387354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P387355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	90 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P387313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195220	Chloride	95.8		P	90 - 110
2195337	Chloride	92.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195220	Sulfate	95.3		P	90 - 110
2195337	Sulfate	93.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195337	Bromide	92.4	93.8	P/P	90 - 110
2195700	Bromide	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194558	Ammonia-N	94.3	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195236	Ammonia-N	98.0	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195041	Kjeldahl Nitrogen	102	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195221	NO2NO3-N	95.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195233	NO2NO3-N	97.2	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195049	Total-P	108	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195233	Total-P	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195301	O-Phosphate-P	97.7	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195234	O-Phosphate-P	99.1	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P387354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195370	Fluoride	96.3	96.3	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P387355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195326	Fluoride	97.1	98.6	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P387313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195298	Organic Carbon	97.9	99.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P387217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195220	Turbidity	2.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195337	Chloride	0.294	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195337	Sulfate	0.431	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195337	Bromide	1.29	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194558	Ammonia-N	4.59	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195236	Ammonia-N	0.944	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195132	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195041	Kjeldahl Nitrogen	3.73	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195221	NO2NO3-N	0.198	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195233	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195049	Total-P	2.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195233	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195301	O-Phosphate-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195234	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P387220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195220	Color (true)	2.83	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P387352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195370	Total Alkalinity	2.53	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P387353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195326	Total Alkalinity	0.643	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P387620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194755	TDS	1.58	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P387354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195370	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P387355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195326	Fluoride	0.940	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P387313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195298	Organic Carbon	0.810	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: A100910

Included Lab Sample IDs: 2195232, 2195235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A100911

Included Lab Sample IDs: 2195235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.9	98.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100920

Included Lab Sample IDs: 2195234, 2195237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.9	P/P	90 - 110
O-Phosphate-P	99.6	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100944

Included Lab Sample IDs: 2195233, 2195236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	91.9	94.3	P/P	90 - 110
Ammonia-N	99.2	97.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A100952

Included Lab Sample IDs: 2195233, 2195236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100959

Included Lab Sample IDs: 2195236

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

Reference Method: SM 2320 B-2011

Run ID: A100972

Included Lab Sample IDs: 2195232, 2195235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110
Total Alkalinity	102	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A100972

Included Lab Sample IDs: 2195232, 2195235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.6	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100978

Included Lab Sample IDs: 2195233

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100980

Included Lab Sample IDs: 2195235

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100990

Included Lab Sample IDs: 2195236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101022

Included Lab Sample IDs: 2195232

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101047

Included Lab Sample IDs: 2195233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101161

Included Lab Sample IDs: 2195236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101168

Included Lab Sample IDs: 2195233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101168

Included Lab Sample IDs: 2195233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.0	91.8	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.09	
EPA 300.0 Rev. 2.1	Bromide	101	92.4	93.8	97.4		1.29
	Chloride	94.7	92.0	95.8		0.294	
	Sulfate	94.5	93.4	95.3		0.431	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	94.3	99.3			4.59
	Ammonia-N	97.8	98.0	99.3			0.944
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103					1.05
	Kjeldahl Nitrogen	101	102	107			3.73
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	95.2				0.198
	NO ₂ NO ₃ -N	98.5	97.7	97.2			0.489
EPA 365.1 Rev. 2.0	Total-P	107	108	106			2.26
	Total-P	107	107	106			1.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	97.7	98.9			1.08
	O-Phosphate-P	101	99.1	99.1			0.0
SM 2120 B-2011	Color (true)	98.6				2.83	
SM 2320 B-2011	Total Alkalinity	103				2.53	
	Total Alkalinity	99.6				0.643	
SM 2540 C-2011	TDS					1.58	
SM 4500 F-C-2011	Fluoride	98.1	96.3	96.3			0.0
	Fluoride	97.2	97.1	98.6			0.940
SM 5310 B-2011	Organic Carbon	97.8	97.9	99.3			0.810

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2195232, 2195235
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2195232
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2195235
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2195235
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2195233, 2195236
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2195233, 2195236
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2195233, 2195236
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2195233, 2195236
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2195234, 2195237
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2195235
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2195232, 2195235
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2195235
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2195232, 2195235
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2195232, 2195235
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2195233, 2195236

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	09/10/2020			09/10/2020 15:02	Yen Ta	2195232, 2195235
EPA 300.0 Rev. 2.1	09/10/2020			09/15/2020 17:33	Lipi Saha	2195235
	09/10/2020			09/17/2020 01:14	Elliott Rodriguez	2195232
EPA 350.1 Rev. 2.0	09/10/2020			09/12/2020 14:42	Ping Hua	2195233
	09/10/2020			09/12/2020 15:19	Ping Hua	2195236
EPA 351.2 Rev. 2.0	09/10/2020	09/14/2020 12:35	David Boose	09/15/2020 12:38	Elliott Rodriguez	2195236
	09/10/2020	09/14/2020 12:35	David Boose	09/16/2020 17:29	Elliott Rodriguez	2195233
EPA 353.2 Rev. 2.0	09/10/2020			09/14/2020 09:31	Beverly Y. Sanders	2195236
	09/10/2020			09/15/2020 10:01	Beverly Y. Sanders	2195233
EPA 365.1 Rev. 2.0	09/10/2020	09/22/2020 11:37	Yen Ta	09/23/2020 14:41	Benjamin T. Nordmann	2195236
	09/10/2020	09/22/2020 11:37	Yen Ta	09/23/2020 15:39	Lipi Saha	2195233
EPA 365.1 Rev. 2.0 dissolved	09/10/2020			09/10/2020 15:33	Virginia P. Brown	2195237
	09/10/2020			09/10/2020 15:45	Virginia P. Brown	2195234
SM 2120 B-2011	09/10/2020			09/10/2020 15:50	Benjamin T. Nordmann	2195235
SM 2320 B-2011	09/10/2020			09/11/2020 17:05	Dale L. Simmons	2195235
	09/10/2020			09/11/2020 23:10	Dale L. Simmons	2195232
SM 2540 C-2011	09/10/2020			09/14/2020 15:06	Yijie Li	2195235
SM 2540 D-2011	09/10/2020			09/14/2020 15:06	Yijie Li	2195232, 2195235
SM 4500 F-C-2011	09/10/2020			09/11/2020 17:05	Dale L. Simmons	2195235
	09/10/2020			09/11/2020 21:32	Dale L. Simmons	2195232
SM 5310 B-2011	09/10/2020			09/11/2020 20:24	David Boose	2195233
	09/10/2020			09/11/2020 20:38	David Boose	2195236