

Chemical Analysis Report

WQAP-2016-09-08-02

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

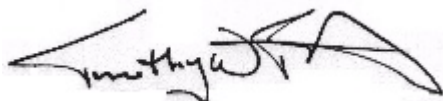
Event Description: **East River, St. Marks River, Moriah Creek and Wakulla River**
Request ID: **RQ-2016-08-29-21**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Ben Ralys

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 29-SEP-2016 10:31



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 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: Wakulla River Below US 98

Collection Date/Time: 09/08/2016 09:45

Field ID: G1WA0028_09082016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829753	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P310873	
	EPA 300.0 Rev. 2.1	Chloride	8.4		mg Cl/L	P311401	
		Sulfate	9.5		mg SO4/L	P311407	
	SM 2120 B	Color (true)	66		PCU	P310846	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P311257	
	SM 2540 C-97	TDS	175		mg/L	P311457	
	SM 2540 D-97	TSS	3	I	mg/L	P311486	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P311260	
1829755	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P311168	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	I	mg N/L	P311470	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P311280	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P311324	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P311343	
1829757	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P310919	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: St. Marks River @ Channel Marker 60

Collection Date/Time: 09/08/2016 10:15

Field ID: G1WA0055_09082016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829741	EPA 180.1 Rev. 2.0	Turbidity	1.6	A	NTU	P310873	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P311257	
	SM 2540 D-97	TSS	2	I	mg/L	P311490	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P311260	
1829745	EPA 350.1 Rev. 2.0	Ammonia-N	0.017	Y	mg N/L	P311169	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	Y	mg N/L	P311470	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19	Y	mg N/L	P311280	
	EPA 365.1 Rev. 2.0	Total-P	0.045	Y	mg P/L	P311324	
	SM 5310 B-00	Organic Carbon	10	Y	mg C/L	P311343	
1829749	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P310919	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

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

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

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

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: St. Marks River @ Channel Marker 22

Collection Date/Time: 09/08/2016 10:45

Field ID: G1WA0008_09082016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829742	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P310873	
	SM 2320 B-97	Total Alkalinity	107		mg CaCO3/L	P311257	
	SM 2540 D-97	TSS	4	I	mg/L	P311490	

Field ID: G1WA0008_09082016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829742	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P311260	
1829746	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P311169	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P311200	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P311696	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P311300	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P311343	
1829750	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P310922	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Mouth of East River

Collection Date/Time: 09/08/2016 11:15

Field ID: G1WA0011_09082016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829743	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P310873	
	SM 2320 B-97	Total Alkalinity	95		mg CaCO3/L	P311452	
	SM 2540 D-97	TSS	6	I	mg/L	P311492	RPD
	SM 4500 F-C-97	Fluoride	0.49		mg F/L	P311627	
1829747	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P311169	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P311200	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P311696	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P311300	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P311164	
1829751	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P310922	

Sample Location: East River Downstream of Boggy Bayou

Collection Date/Time: 09/08/2016 11:33

Field ID: G1WA0056_09082016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829744	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P310873	
	SM 2320 B-97	Total Alkalinity	66		mg CaCO3/L	P311257	
	SM 2540 D-97	TSS	3	I	mg/L	P311490	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P311260	
1829748	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P311171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P311200	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P311696	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P311300	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P311343	
1829752	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P310922	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Mariah Creek @ St. Marks River

Collection Date/Time: 09/08/2016 12:55

Field ID: G1WA0037_09082016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
-----------	-------------	-----------	--------	------	-------	----------	----------

Field ID: G1WA0037_09082016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829754	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P310873	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P311401	
		Sulfate	0.60		mg SO4/L	P311407	
	SM 2120 B	Color (true)	120		PCU	P310846	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P311257	
	SM 2540 C-97	TDS	180		mg/L	P311458	
	SM 2540 D-97	TSS	2	I	mg/L	P311487	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P311260	
1829756	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P311168	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P311470	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P311280	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P311324	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P311343	
1829758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310919	

Sample Location: St. Marks River @ Channel Marker 22

Collection Date/Time: 09/08/2016 10:45

Field ID: G1WA0008_09082016 DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829765	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P310873	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P311257	
	SM 2540 D-97	TSS	4	I	mg/L	P311490	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P311260	
1829766	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P311169	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41	J	mg N/L	P311200	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P311696	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P311300	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P311344	
1829767	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P310922	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: Mariah Creek @ St. Marks River

Collection Date/Time: 09/08/2016 12:55

Field ID: G1WA0037_09082016 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829762	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P310873	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P311401	
		Sulfate	0.66		mg SO4/L	P311407	
	SM 2120 B	Color (true)	120		PCU	P310846	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P311257	
	SM 2540 C-97	TDS	189		mg/L	P311458	
	SM 2540 D-97	TSS	2	I	mg/L	P311487	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P311260	
1829763	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P311168	

Field ID: G1WA0037_09082016 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829763	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P311095	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P311280	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P311324	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P311344	
1829764	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310919	

Sample Location: FIELD BLANK

Collection Date/Time: 09/08/2016 14:25

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829759	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P310873	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P311401	
		Sulfate	0.20	U	mg SO4/L	P311407	
	SM 2120 B	Color (true)	2.5	U	PCU	P310846	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P311257	
	SM 2540 C-97	TDS	15	U	mg/L	P311457	
	SM 2540 D-97	TSS	2	U	mg/L	P311486	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311260	
1829760	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P311168	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P311015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P311280	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P311324	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P311510	
1829761	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310919	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 6013

Event(s)

WQAP-2016-09-08-02

Job(s)

TLH-2016-09-08-96

Sample(s)

1829745

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample 1829745 not preserved to pH<2.

Resolution: Sample 1829745 preserved in lab with Sulfuric Acid.

Authorised by/Date: Ramsey K. White 9/14/2016

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

Chemistry Tim Fitzpatrick (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310873

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311401

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311407

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311168

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311169

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311015

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311095

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311200

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311470

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311280

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311696

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311324

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310922

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

Reference Method: SM 2120 B
Batch ID: P310846

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P311257

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P311452

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

Reference Method: SM 2540 C-97
Batch ID: P311457

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P311458

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311486

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311487

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311490

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311492

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P311260

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P311627

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P311164

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P311343

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P311344

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P311510

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: P311401

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311407

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311168

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311169

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311095

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311470

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310922

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

Reference Method: SM 2320 B-97
Batch ID: P311257

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P311452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P311260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P311627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P311164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	107		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311343

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

Reference Method: SM 5310 B-00
Batch ID: P311344

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P311510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	108		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829786	Chloride	101		P	90 - 110
1829961	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829786	Sulfate	98.6		P	90 - 110
1829961	Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829587	Ammonia-N	96.8	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829745	Ammonia-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829748	Ammonia-N	101	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829622	Kjeldahl Nitrogen	108	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829532	Kjeldahl Nitrogen	93.7	96.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829766	Kjeldahl Nitrogen	101	89.2	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828965	Kjeldahl Nitrogen	96.8	87.6	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829610	NO2NO3-N	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829747	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829506	Total-P	99.2	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829755	Total-P	95.4	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829757	O-Phosphate-P	96.1	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829751	O-Phosphate-P	97.5	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P311260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1830470	Fluoride	100	100	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P311627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1831182	Fluoride	97.0	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P311164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826897	Organic Carbon	95.2	96.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829595	Organic Carbon	97.1	97.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829763	Organic Carbon	94.1	96.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1830962	Organic Carbon	107	108	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829741	Turbidity	11.9	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829786	Chloride	0.205	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829786	Sulfate	0.237	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829587	Ammonia-N	2.29	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829745	Ammonia-N	0.729	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829748	Ammonia-N	2.68	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829622	Kjeldahl Nitrogen	2.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829532	Kjeldahl Nitrogen	2.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829766	Kjeldahl Nitrogen	10.9	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828965	Kjeldahl Nitrogen	6.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829610	NO2NO3-N	1.92	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829747	NO2NO3-N	1.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829506	Total-P	2.59	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829755	Total-P	1.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829757	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829751	O-Phosphate-P	0.931	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829621	Color (true)	7.40	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P311257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1830470	Total Alkalinity	0.137	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P311452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831182	Total Alkalinity	0.284	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P311457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829608	TDS	3.26	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P311458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829833	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P311487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829833	TSS	9.84	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P311492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829564	TSS	11.8	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P311260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1830470	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P311627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831182	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P311164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826897	Organic Carbon	1.10	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P311343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829595	Organic Carbon	0.176	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P311344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829763	Organic Carbon	1.45	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P311510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1830962	Organic Carbon	0.428	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A71492
Included Lab Sample IDs: 1829753, 1829754, 1829759, 1829762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.0	96.0	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71499
Included Lab Sample IDs: 1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71518
Included Lab Sample IDs: 1829749, 1829750, 1829751, 1829752, 1829757, 1829758, 1829761, 1829764, 1829767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	97.9	P/P	90 - 110
O-Phosphate-P	98.3	98.0	P/P	90 - 110
O-Phosphate-P	98.3	99.2	P/P	90 - 110
O-Phosphate-P	98.9	98.3	P/P	90 - 110
O-Phosphate-P	99.2	98.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A71576
Included Lab Sample IDs: 1829753, 1829754, 1829759, 1829762

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A71630
Included Lab Sample IDs: 1829747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A71633
Included Lab Sample IDs: 1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.7	P/P	90 - 110
Ammonia-N	99.4	99.2	P/P	90 - 110
Ammonia-N	99.7	99.9	P/P	90 - 110
Ammonia-N	99.9	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A71644
Included Lab Sample IDs: 1829760

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A71651
Included Lab Sample IDs: 1829745, 1829755, 1829756, 1829760, 1829763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A71656
Included Lab Sample IDs: 1829763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.9	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A71657
Included Lab Sample IDs: 1829741, 1829742, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765

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

Reference Method: SM 4500 F-C-97
Run ID: A71657
Included Lab Sample IDs: 1829741, 1829742, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A71683

Included Lab Sample IDs: 1829745, 1829746, 1829748, 1829755, 1829756, 1829763, 1829766

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71691

Included Lab Sample IDs: 1829746, 1829747, 1829748, 1829766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71716

Included Lab Sample IDs: 1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766

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

Reference Method: SM 2320 B-97

Run ID: A71720

Included Lab Sample IDs: 1829743

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

Reference Method: SM 5310 B-00

Run ID: A71732

Included Lab Sample IDs: 1829760

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71762

Included Lab Sample IDs: 1829745, 1829755, 1829756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.1	94.1	P/P	90 - 110
Kjeldahl Nitrogen	92.3	91.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71764

Included Lab Sample IDs: 1829743

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71785

Included Lab Sample IDs: 1829746, 1829747, 1829748, 1829766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				11.9	
EPA 300.0 Rev. 2.1	Chloride	101	101	100	0.205	
	Sulfate	100	98.6	99.9	0.237	
EPA 350.1 Rev. 2.0	Ammonia-N	101	96.8	99.4		2.29
	Ammonia-N	99.5	98.0	99.0		0.729
	Ammonia-N	102	101	95.6		2.68
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.2	108	104		2.02
	Kjeldahl Nitrogen	106	93.7	96.8		2.25
	Kjeldahl Nitrogen	97.5	101	89.2		10.9
	Kjeldahl Nitrogen	96.6	96.8	87.6		6.32
EPA 353.2 Rev. 2.0	NO2NO3-N	106	105	103		1.92
	NO2NO3-N	102	102	103		1.30
EPA 365.1 Rev. 2.0	Total-P	100	99.2	96.5		2.59
	Total-P	98.6	95.4	97.4		1.84
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.1	96.1		0.0
	O-Phosphate-P	104	97.5	98.5		0.931
SM 2120 B	Color (true)				7.40	
SM 2320 B-97	Total Alkalinity	104			0.137	
	Total Alkalinity	104			0.284	
SM 2540 C-97	TDS				3.26	
	TDS				6.74	
SM 2540 D-97	TSS				9.84	
	TSS				11.8	
SM 4500 F-C-97	Fluoride	98.7	100	100		0.0
	Fluoride	98.4	97.0	97.0		0.0
SM 5310 B-00	Organic Carbon	107	95.2	96.4		1.10
	Organic Carbon	96.6	97.1	97.3		0.176
	Organic Carbon	96.8	94.1	96.8		1.45
	Organic Carbon	108	107	108		0.428

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1829753, 1829754, 1829759, 1829762

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1829753, 1829754, 1829759, 1829762
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1829749, 1829750, 1829751, 1829752, 1829757, 1829758, 1829761, 1829764, 1829767
SM 2120 B / E31780	True Color measured at 450 nm	1829753, 1829754, 1829759, 1829762
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1829753, 1829754, 1829759, 1829762
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766

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	09/08/2016			09/08/2016 17:32	Sima Feizi	1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
EPA 300.0 Rev. 2.1	09/08/2016			09/16/2016	Ping Hua	1829753, 1829754, 1829759, 1829762
EPA 350.1 Rev. 2.0	09/08/2016			09/09/2016	Joseph Suarez	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766
EPA 351.2 Rev. 2.0	09/08/2016	09/13/2016	Adrian Shelby	09/15/2016	Christopher Armour	1829760
	09/08/2016	09/14/2016	Adrian Shelby	09/15/2016	Christopher Armour	1829763
	09/08/2016	09/15/2016	Adrian Shelby	09/16/2016	Virginia P. Brown	1829746, 1829747, 1829748, 1829766
	09/08/2016	09/20/2016	Adrian Shelby	09/21/2016	Christopher Armour	1829745, 1829755, 1829756
EPA 353.2 Rev. 2.0	09/08/2016			09/15/2016	Peter D. Kaus	1829745, 1829755, 1829756, 1829760, 1829763
	09/08/2016			09/21/2016	Beverly Y. Sanders	1829746, 1829747, 1829748, 1829766
EPA 365.1 Rev. 2.0	09/08/2016	09/16/2016	Vijayalakshmi Reddy	09/19/2016	Lipi Saha	1829745, 1829746, 1829747, 1829748, 1829755, 1829756, 1829760, 1829763, 1829766
EPA 365.1 Rev. 2.0 dissolved	09/08/2016			09/09/2016 14:55	Julia Storbeck	1829757
	09/08/2016			09/09/2016 15:12	Julia Storbeck	1829751
	09/08/2016			09/09/2016 15:19	Julia Storbeck	1829761
	09/08/2016			09/09/2016 15:22	Julia Storbeck	1829750
	09/08/2016			09/09/2016 15:23	Julia Storbeck	1829767
	09/08/2016			09/09/2016 15:27	Julia Storbeck	1829749
	09/08/2016			09/09/2016 15:32	Julia Storbeck	1829758
	09/08/2016			09/09/2016 15:33	Julia Storbeck	1829764
	09/08/2016			09/09/2016 16:00	Julia Storbeck	1829752
SM 2120 B	09/08/2016			09/08/2016 19:08	Julie Michelle Frank	1829753
	09/08/2016			09/08/2016 19:09	Julie Michelle Frank	1829754
	09/08/2016			09/08/2016 19:10	Julie Michelle Frank	1829759
	09/08/2016			09/08/2016 19:11	Julie Michelle Frank	1829762
SM 2320 B-97	09/08/2016			09/15/2016	Dale L. Simmons	1829741, 1829742, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
	09/08/2016			09/19/2016	Dale L. Simmons	1829743
SM 2540 C-97	09/08/2016			09/13/2016	Yijie Li	1829753, 1829754, 1829759, 1829762
SM 2540 D-97	09/08/2016			09/13/2016	Yijie Li	1829741, 1829742, 1829743, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
SM 4500 F-C-97	09/08/2016			09/15/2016	Dale L. Simmons	1829741, 1829742, 1829744, 1829753, 1829754, 1829759, 1829762, 1829765
	09/08/2016			09/21/2016	Dale L. Simmons	1829743
SM 5310 B-00	09/08/2016			09/15/2016	Sofia Elnemr	1829747

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	09/08/2016			09/16/2016	Sofia Elnemr	1829745, 1829746, 1829748, 1829755, 1829756, 1829763, 1829766
	09/08/2016			09/19/2016	Sofia Elnemr	1829760