

Chemical Analysis Report

WQAP-2017-05-24-02

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

Event Description: **Lake Istokpoga**
Request ID: **RQ-2017-05-01-02**
Customer: **WQAP**
Project ID: **SPPROJECTS**

Send Reports to:
FL Dept. of Environmental Protection
2295 Victoria AVE
Suite 364
Fort Myers, FL 33901
Attn: Kirby Wolfe

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 14-JUN-2017 09:33



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: Lake Istokpoga Algae NE

Collection Date/Time: 05/23/2017 07:50

Field ID: G4SD0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901077	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P325791	
	SM 2120 B	Color (true)	57		PCU	P325781	
	SM 2540 D-97	TSS	48	I	mg/L	P326270	
1901083	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P325916	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P325799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325885	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P325803	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P326023	
1901089	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325775	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated due to sample matrix interference.

Sample Location: Lake Istokpoga Algae CEN

Collection Date/Time: 05/23/2017 08:10

Field ID: G4SD0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901078	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P325791	
	SM 2120 B	Color (true)	58		PCU	P325781	
	SM 2540 D-97	TSS	42	I	mg/L	P326270	
1901084	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P325916	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P325799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325885	
	EPA 365.1 Rev. 2.0	Total-P	0.097		mg P/L	P325803	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P326023	
1901090	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325775	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated due to sample matrix interference.

Sample Location: Lake Istokpoga Algae NW

Collection Date/Time: 05/23/2017 08:25

Field ID: G4SD0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901079	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P325791	
	SM 2120 B	Color (true)	57		PCU	P325781	
	SM 2540 D-97	TSS	46	I	mg/L	P326270	
1901085	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P325916	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P325799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325885	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P325803	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P326023	
1901091	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325775	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated due to sample matrix interference.

Sample Location: Lake Istokpoga Algae W

Collection Date/Time: 05/23/2017 08:10

Field ID: G4SD0155

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901080	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P325792	
	SM 2120 B	Color (true)	56		PCU	P325782	
	SM 2540 D-97	TSS	48	I	mg/L	P326270	
1901086	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P325916	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P325799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325886	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P325803	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P326023	
1901092	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325775	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated due to sample matrix interference.

Sample Location: Lake Istokpoga Algae S

Collection Date/Time: 05/23/2017 09:05

Field ID: G4SD0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901081	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P325792	
	SM 2120 B	Color (true)	55		PCU	P325782	
	SM 2540 D-97	TSS	44	I	mg/L	P326270	
1901087	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P325862	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P325799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325886	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P325803	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P326023	
1901093	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325776	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated due to sample matrix interference.

Sample Location: Lake Istokpoga Algae SE

Collection Date/Time: 05/23/2017 09:20

Field ID: G4SD0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901082	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P325792	
	SM 2120 B	Color (true)	59		PCU	P325782	
	SM 2540 D-97	TSS	46	I	mg/L	P326270	
1901088	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P325862	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P325799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325886	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P325803	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P326073	
1901094	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325776	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated due to sample matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325791

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325792

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325862

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325916

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325799

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325885

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325886

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325803

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325775

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P325776

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

Reference Method: SM 2120 B
 Batch ID: P325781

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
 Batch ID: P325782

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
 Batch ID: P326270

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 5310 B-00
 Batch ID: P326023

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

Reference Method: SM 5310 B-00
 Batch ID: P326073

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325862

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325916

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325799

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325799

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: P325885

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325886

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325803

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325775

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325776

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

Reference Method: SM 5310 B-00
Batch ID: P326023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	90.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325862

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901126	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900981	Ammonia-N	96.8	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901063	Kjeldahl Nitrogen	97.4	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900973	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901086	NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P325803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901064	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P325775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901066	O-Phosphate-P	97.2	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P325776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901093	O-Phosphate-P	96.6	97.6	P/P	90 - 110

Reference Method: SM 5310 B-00
 Batch ID: P326023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899373	Organic Carbon	89.4	95.9	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P326073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901088	Organic Carbon	96.8	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900970	Turbidity	1.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901080	Turbidity	3.28	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901126	Ammonia-N	0.444	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900981	Ammonia-N	0.253	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901063	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900973	NO2NO3-N	0.654	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901086	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901064	Total-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901066	O-Phosphate-P	0.671	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901093	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P325781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901062	Color (true)	1.27	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P325782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901121	Color (true)	1.02	Sample	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P326023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899373	Organic Carbon	5.81	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P326073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901088	Organic Carbon	0.0565	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76655

Included Lab Sample IDs: 1901089, 1901090, 1901091, 1901092, 1901093, 1901094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A76656

Included Lab Sample IDs: 1901077, 1901078, 1901079, 1901080, 1901081, 1901082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	95.5	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76659

Included Lab Sample IDs: 1901077, 1901078, 1901079, 1901080, 1901081, 1901082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76683

Included Lab Sample IDs: 1901087, 1901088

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76697

Included Lab Sample IDs: 1901083, 1901084, 1901085, 1901086, 1901087, 1901088

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76700

Included Lab Sample IDs: 1901083, 1901084, 1901085, 1901086, 1901087, 1901088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	106	P/P	90 - 110
Total-P	106	107	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76718

Included Lab Sample IDs: 1901083, 1901084, 1901085, 1901086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	99.8	P/P	90 - 110
Ammonia-N	99.8	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76727

Included Lab Sample IDs: 1901083, 1901084, 1901085, 1901086

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76734

Included Lab Sample IDs: 1901087, 1901088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	108	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76775

Included Lab Sample IDs: 1901083, 1901084, 1901085, 1901086, 1901087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	91.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76792

Included Lab Sample IDs: 1901088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	94.2	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				1.65	
	Turbidity				3.28	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102 102			0.444
	Ammonia-N	96.8	96.8 96.5			0.253
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.4 99.2			1.36
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.0 100			0.654
	NO2NO3-N	102	98.0 98.0			0.0
EPA 365.1 Rev. 2.0	Total-P	104	108 107			1.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	97.2 97.9			0.671
	O-Phosphate-P	101	96.6 97.6			1.03

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2120 B	Color (true)				1.27	
	Color (true)				1.02	
SM 5310 B-00	Organic Carbon	90.6	89.4	95.9		5.81
	Organic Carbon	93.5	96.8	96.8		0.0565

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1901077, 1901078, 1901079, 1901080, 1901081, 1901082
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1901083, 1901084, 1901085, 1901086, 1901087, 1901088
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1901083, 1901084, 1901085, 1901086, 1901087, 1901088
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1901083, 1901084, 1901085, 1901086, 1901087, 1901088
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1901083, 1901084, 1901085, 1901086, 1901087, 1901088
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1901089, 1901090, 1901091, 1901092, 1901093, 1901094
SM 2120 B / E31780	True Color measured at 450 nm	1901077, 1901078, 1901079, 1901080, 1901081, 1901082
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1901077, 1901078, 1901079, 1901080, 1901081, 1901082
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1901083, 1901084, 1901085, 1901086, 1901087, 1901088

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	05/24/2017			05/24/2017 16:45	Sima Feizi	1901077, 1901078, 1901079, 1901080, 1901081, 1901082
EPA 350.1 Rev. 2.0	05/24/2017			05/25/2017	Julia Storbeck	1901087, 1901088
	05/24/2017			05/26/2017	Julia Storbeck	1901083, 1901084, 1901085, 1901086
EPA 351.2 Rev. 2.0	05/24/2017	05/25/2017	Adrian Shelby	05/26/2017	Joseph Suarez	1901083, 1901084, 1901085, 1901086
	05/24/2017	05/25/2017	Adrian Shelby	05/30/2017	Joseph Suarez	1901087, 1901088
EPA 353.2 Rev. 2.0	05/24/2017			05/26/2017	Beverly Y. Sanders	1901083, 1901084, 1901085, 1901086, 1901087, 1901088
EPA 365.1 Rev. 2.0	05/24/2017	05/25/2017	Adrian Shelby	05/26/2017	Lipi Saha	1901083, 1901084, 1901085, 1901086, 1901087, 1901088
EPA 365.1 Rev. 2.0 dissolved	05/24/2017			05/24/2017 14:47	Julia Storbeck	1901093
	05/24/2017			05/24/2017 15:20	Julia Storbeck	1901089
	05/24/2017			05/24/2017 15:21	Julia Storbeck	1901090
	05/24/2017			05/24/2017 15:22	Julia Storbeck	1901091
	05/24/2017			05/24/2017 15:23	Julia Storbeck	1901092
	05/24/2017			05/24/2017 15:24	Julia Storbeck	1901094
SM 2120 B	05/24/2017			05/24/2017 15:07	Tanya Welborn	1901077
	05/24/2017			05/24/2017 15:08	Tanya Welborn	1901078
	05/24/2017			05/24/2017 15:09	Tanya Welborn	1901079
	05/24/2017			05/24/2017 15:12	Tanya Welborn	1901080, 1901081
	05/24/2017			05/24/2017 15:13	Tanya Welborn	1901082
SM 2540 D-97	05/24/2017			05/26/2017	Yijie Li	1901077, 1901078, 1901079, 1901080, 1901081, 1901082
SM 5310 B-00	05/24/2017			05/31/2017	Julie Michelle Frank	1901083, 1901084, 1901085, 1901086, 1901087, 1901088