

Chemical Analysis Report

WQAP-2017-06-30-02

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

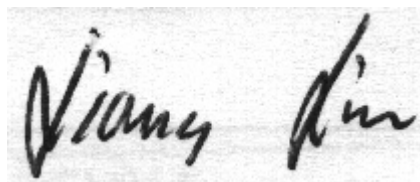
Event Description: **Lake Istokpoga**
Request ID: **RQ-2017-06-05-18**
Customer: **WQAP**
Project ID: **SPPROJECTS**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-JUL-2017 11:54

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: 06/29/2017 09:05

Field ID: SD062717-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910599	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P327817	
	SM 2120 B	Color (true)	320		PCU	P327808	
	SM 2540 D-97	TSS	7	I	mg/L	P328297	
1910605	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P327978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P328183	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P327985	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P328053	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P328072	
1910611	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P327813	

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: Batch matrix spike recoveries are unavailable because of high 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: Lake Istokpoga Algae CEN

Collection Date/Time: 06/29/2017 09:20

Field ID: SD062717-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910600	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P327817	
	SM 2120 B	Color (true)	88		PCU	P327808	
	SM 2540 D-97	TSS	17	I	mg/L	P328297	
1910606	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P327978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P328183	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327985	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P328053	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P328072	
1910612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327813	

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.

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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: Lake Istokpoga Algae S

Collection Date/Time: 06/29/2017 09:50

Field ID: SD062717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910601	EPA 180.1 Rev. 2.0	Turbidity	9.9		NTU	P327817	
	SM 2120 B	Color (true)	43		PCU	P327808	
	SM 2540 D-97	TSS	40	I	mg/L	P328297	
1910607	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P327978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P328186	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327985	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P328053	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P328072	
1910613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327813	

Field ID: SD062717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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. EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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: Lake Istokpoga Algae SE

Collection Date/Time: 06/29/2017 09:35

Field ID: SD062717-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910602	EPA 180.1 Rev. 2.0	Turbidity	8.9	A	NTU	P327818	
	SM 2120 B	Color (true)	44		PCU	P327809	
	SM 2540 D-97	TSS	38	I	mg/L	P328297	
1910608	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P327978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P328186	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327985	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P328053	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P328072	
1910614	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327814	

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.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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: Lake Istokpoga Algae W

Collection Date/Time: 06/29/2017 10:10

Field ID: SD062717-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910603	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P327818	
	SM 2120 B	Color (true)	65		PCU	P327809	
	SM 2540 D-97	TSS	38	I	mg/L	P328297	
1910609	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P327978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P328186	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327985	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P328053	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P328072	
1910615	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327814	

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.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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: Lake Istokpoga Algae NW

Collection Date/Time: 06/29/2017 10:20

Field ID: SD062717-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910604	EPA 180.1 Rev. 2.0	Turbidity	9.4		NTU	P327818	
	SM 2120 B	Color (true)	51		PCU	P327809	

Field ID: SD062717-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910604	SM 2540 D-97	TSS	40	I	mg/L	P328297	
1910610	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P327978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P328186	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327985	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P328053	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P328072	
1910616	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327814	

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.
 EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P327817

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P327818

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327978

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P328183

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P328186

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327985

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328053

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327813

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327814

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

Reference Method: SM 2120 B
Batch ID: P327808

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P327809

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
Batch ID: P328297

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 5310 B-00
Batch ID: P328072

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: P327978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328183

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328183

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: P328186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327985

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328053

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327813

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327814

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

Reference Method: SM 5310 B-00
Batch ID: P328072

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910605	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910606	Total-P	98.9	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910525	O-Phosphate-P	94.2	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910614	O-Phosphate-P	91.5	92.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P328072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910536	Organic Carbon	96.2	91.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910523	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910602	Turbidity	1.12	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910605	Ammonia-N	0.0316	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910606	Kjeldahl Nitrogen	2.34	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910610	Kjeldahl Nitrogen	1.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910605	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910606	Total-P	2.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910525	O-Phosphate-P	1.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910614	O-Phosphate-P	0.545	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910532	Color (true)	1.18	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910625	Color (true)	3.18	Sample	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P328072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910536	Organic Carbon	2.99	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: SM 2120 B

Run ID: A77468

Included Lab Sample IDs: 1910599, 1910600, 1910601, 1910602, 1910603, 1910604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.1	P/P	85 - 115
Color (true)	96.6	98.3	P/P	85 - 115
Color (true)	98.3	96.7	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77469

Included Lab Sample IDs: 1910611, 1910612, 1910613, 1910614, 1910615, 1910616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.4	P/P	90 - 110
O-Phosphate-P	99.2	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77471

Included Lab Sample IDs: 1910599, 1910600, 1910601, 1910602, 1910603, 1910604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77531

Included Lab Sample IDs: 1910605, 1910606, 1910607, 1910608, 1910609, 1910610

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77534

Included Lab Sample IDs: 1910605, 1910606, 1910607, 1910608, 1910609, 1910610

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

Reference Method: SM 5310 B-00

Run ID: A77560

Included Lab Sample IDs: 1910605, 1910606, 1910607, 1910608, 1910609, 1910610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77605

Included Lab Sample IDs: 1910605, 1910606, 1910607, 1910608, 1910609, 1910610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77637

Included Lab Sample IDs: 1910605, 1910606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.9	91.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77654

Included Lab Sample IDs: 1910607, 1910608, 1910609, 1910610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	94.7	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				0.0	
	Turbidity				1.12	
EPA 350.1 Rev. 2.0	Ammonia-N	100				0.0316
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.5				2.34
	Kjeldahl Nitrogen	98.2				1.85
EPA 353.2 Rev. 2.0	NO2NO3-N	103	101 101			0.475
EPA 365.1 Rev. 2.0	Total-P	97.3	98.9 102			2.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	94.2 96.5			1.95
	O-Phosphate-P	103	91.5 92.0			0.545
SM 2120 B	Color (true)				1.18	
	Color (true)				3.18	
SM 5310 B-00	Organic Carbon	97.9	96.2 91.0			2.99

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1910599, 1910600, 1910601, 1910602, 1910603, 1910604
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1910605, 1910606, 1910607, 1910608, 1910609, 1910610
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1910605, 1910606, 1910607, 1910608, 1910609, 1910610
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1910605, 1910606, 1910607, 1910608, 1910609, 1910610

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1910605, 1910606, 1910607, 1910608, 1910609, 1910610
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1910611, 1910612, 1910613, 1910614, 1910615, 1910616
SM 2120 B / E31780	True Color measured at 450 nm	1910599, 1910600, 1910601, 1910602, 1910603, 1910604
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1910599, 1910600, 1910601, 1910602, 1910603, 1910604
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1910605, 1910606, 1910607, 1910608, 1910609, 1910610

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/30/2017			06/30/2017 16:05	Sima Feizi	1910599, 1910600, 1910601, 1910602, 1910603, 1910604
EPA 350.1 Rev. 2.0	06/30/2017			07/05/2017	Sofia Elnemr	1910605, 1910606, 1910607, 1910608, 1910609, 1910610
EPA 351.2 Rev. 2.0	06/30/2017	07/10/2017	Adrian Shelby	07/11/2017	Joseph Suarez	1910605, 1910606
	06/30/2017	07/10/2017	Adrian Shelby	07/12/2017	Joseph Suarez	1910607, 1910608, 1910609, 1910610
EPA 353.2 Rev. 2.0	06/30/2017			07/06/2017	Beverly Y. Sanders	1910605, 1910606, 1910607, 1910608, 1910609, 1910610
EPA 365.1 Rev. 2.0	06/30/2017	07/07/2017	Adrian Shelby	07/10/2017	Lipi Saha	1910605, 1910606, 1910607, 1910608, 1910609, 1910610
EPA 365.1 Rev. 2.0 dissolved	06/30/2017			06/30/2017 15:13	Anthony C. Onicha	1910614
	06/30/2017			06/30/2017 15:23	Anthony C. Onicha	1910611
	06/30/2017			06/30/2017 15:24	Anthony C. Onicha	1910612, 1910613
	06/30/2017			06/30/2017 15:25	Anthony C. Onicha	1910615
	06/30/2017			06/30/2017 15:26	Anthony C. Onicha	1910616
SM 2120 B	06/30/2017			06/30/2017 14:53	Tanya Welborn	1910600, 1910601
	06/30/2017			06/30/2017 14:56	Tanya Welborn	1910602
	06/30/2017			06/30/2017 14:57	Tanya Welborn	1910603
	06/30/2017			06/30/2017 14:58	Tanya Welborn	1910604
	06/30/2017			06/30/2017 15:18	Tanya Welborn	1910599
SM 2540 D-97	06/30/2017			07/05/2017	Yijie Li	1910599, 1910600, 1910601, 1910602, 1910603, 1910604
SM 5310 B-00	06/30/2017			07/06/2017	Ping Hua	1910605, 1910606, 1910607, 1910608, 1910609, 1910610