

Chemical Analysis Report

WQAP-2016-09-28-02

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-2016-09-05-16**
Customer: **WQAP**
Project ID: **SPPROJECTS**

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Date Certified: 25-OCT-2016 10:33



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 W

Collection Date/Time: 09/27/2016 09:39

Field ID: G4SD0155

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835298	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P312078	
	SM 2120 B	Color (true)	110		PCU	P312031	
	SM 2540 D-97	TSS	10	I	mg/L	P312365	
1835304	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P313466	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P312603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312511	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P313019	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P312199	
1835310	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312067	

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Istokpoga Algae CEN

Collection Date/Time: 09/27/2016 10:44

Field ID: G4SD0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835299	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P312078	
	SM 2120 B	Color (true)	160		PCU	P312031	
	SM 2540 D-97	TSS	6	I	mg/L	P312365	
1835305	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P312503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P312603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312511	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P313019	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P312199	
1835311	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312067	

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Istokpoga Algae NE

Collection Date/Time: 09/27/2016 11:00

Field ID: G4SD0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835300	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P312078	
	SM 2120 B	Color (true)	190		PCU	P312031	
	SM 2540 D-97	TSS	4	I	mg/L	P312365	
1835306	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P312503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P312603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312511	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P313019	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P312199	
1835312	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P312067	

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Istokpoga Algae NW

Collection Date/Time: 09/27/2016 09:20

Field ID: G4SD0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835301	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P312078	
	SM 2120 B	Color (true)	130		PCU	P312031	
	SM 2540 D-97	TSS	10		mg/L	P312365	
1835307	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P312503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P312603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P312511	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P313019	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P312198	
1835313	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312068	

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Istokpoga Algae S

Collection Date/Time: 09/27/2016 10:02

Field ID: G4SD0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835302	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P312078	
	SM 2120 B	Color (true)	71		PCU	P312031	
	SM 2540 D-97	TSS	6	I	mg/L	P312365	
1835308	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P312503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P312603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312511	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P313019	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P312198	
1835314	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312068	

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Istokpoga Algae SE

Collection Date/Time: 09/27/2016 10:20

Field ID: G4SD0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835303	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P312078	
	SM 2120 B	Color (true)	110	A	PCU	P312031	
	SM 2540 D-97	TSS	9	I	mg/L	P312365	
1835309	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P312503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P312603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312511	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P313019	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P312547	
1835315	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312068	

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: 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: P312078

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312503

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313466

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312603

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312511

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313019

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312067

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312068

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

Reference Method: SM 2120 B
Batch ID: P312031

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P312365

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 5310 B-00
Batch ID: P312198

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

Reference Method: SM 5310 B-00
Batch ID: P312199

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

Reference Method: SM 5310 B-00
Batch ID: P312547

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: P312503

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313466

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312603

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: P312511

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: P313019

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P313019

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P312067

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P312068

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

Reference Method: SM 5310 B-00

Batch ID: P312198

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

Reference Method: SM 5310 B-00

Batch ID: P312199

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

Reference Method: SM 5310 B-00

Batch ID: P312547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P312503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835308	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P313466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838570	Ammonia-N	98.2	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P312511

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835304	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835304	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835220	O-Phosphate-P	98.4	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835475	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P312198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834614	Organic Carbon	96.8	99.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P312199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834800	Organic Carbon	96.2	97.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P312547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833096	Organic Carbon	113		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835206	Turbidity	2.14	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835308	Ammonia-N	0.709	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838570	Ammonia-N	2.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835305	Kjeldahl Nitrogen	5.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835304	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835304	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835220	O-Phosphate-P	0.680	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835475	O-Phosphate-P	0.890	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P312031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835303	Color (true)	0.0220	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P312198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834614	Organic Carbon	2.05	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P312199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834800	Organic Carbon	0.912	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P312547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833096	Organic Carbon	0.673	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: A71886
Included Lab Sample IDs: 1835298, 1835299, 1835300, 1835301, 1835302, 1835303

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	101	99.0	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71901
Included Lab Sample IDs: 1835310, 1835311, 1835312, 1835313, 1835314, 1835315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71903
Included Lab Sample IDs: 1835298, 1835299, 1835300, 1835301, 1835302, 1835303

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A71943
Included Lab Sample IDs: 1835304, 1835305, 1835306, 1835307, 1835308

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

Reference Method: SM 5310 B-00

Run ID: A71943

Included Lab Sample IDs: 1835304, 1835305, 1835306, 1835307, 1835308

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72029

Included Lab Sample IDs: 1835305, 1835306, 1835307, 1835308, 1835309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	104	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72032

Included Lab Sample IDs: 1835304, 1835305, 1835306, 1835307, 1835308, 1835309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A72041

Included Lab Sample IDs: 1835309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	108	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72114

Included Lab Sample IDs: 1835304, 1835305, 1835306, 1835307, 1835308, 1835309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	96.8	P/P	90 - 110
Kjeldahl Nitrogen	104	101	P/P	90 - 110
Kjeldahl Nitrogen	95.9	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72194

Included Lab Sample IDs: 1835304, 1835305, 1835306, 1835307, 1835308, 1835309

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72311

Included Lab Sample IDs: 1835304

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.14	
EPA 350.1 Rev. 2.0	Ammonia-N	108	101	102			0.709
	Ammonia-N	106	98.2	102			2.64
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101					5.31
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	102			0.980
EPA 365.1 Rev. 2.0	Total-P	101	103	102			1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.4	99.1			0.680
	O-Phosphate-P	104	101	102			0.890
SM 2120 B	Color (true)					0.0220	
SM 5310 B-00	Organic Carbon	101	96.8	99.6			2.05
	Organic Carbon	99.3	96.2	97.4			0.912
	Organic Carbon	105	113				0.673

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1835298, 1835299, 1835300, 1835301, 1835302, 1835303
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1835310, 1835311, 1835312, 1835313, 1835314, 1835315
SM 2120 B / E31780	True Color measured at 450 nm	1835298, 1835299, 1835300, 1835301, 1835302, 1835303
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1835298, 1835299, 1835300, 1835301, 1835302, 1835303
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1835304, 1835305, 1835306, 1835307, 1835308, 1835309

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	09/28/2016			09/28/2016 16:47	Sima Feizi	1835298, 1835299, 1835300, 1835301, 1835302, 1835303
EPA 350.1 Rev. 2.0	09/28/2016			10/04/2016	Sofia Elnemr	1835305, 1835306, 1835307, 1835308, 1835309
	09/28/2016			10/18/2016	Sofia Elnemr	1835304
EPA 351.2 Rev. 2.0	09/28/2016	10/06/2016	Adrian Shelby	10/07/2016	Christopher Armour	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 353.2 Rev. 2.0	09/28/2016			10/04/2016	Beverly Y. Sanders	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 365.1 Rev. 2.0	09/28/2016	10/12/2016	Vijayalakshmi Reddy	10/12/2016	Lipi Saha	1835304, 1835305, 1835306, 1835307, 1835308, 1835309
EPA 365.1 Rev. 2.0 dissolved	09/28/2016			09/28/2016 17:31	Julia Storbeck	1835310
	09/28/2016			09/28/2016 17:32	Julia Storbeck	1835311
	09/28/2016			09/28/2016 17:33	Julia Storbeck	1835312
	09/28/2016			09/28/2016 17:38	Julia Storbeck	1835313
	09/28/2016			09/28/2016 17:39	Julia Storbeck	1835314
	09/28/2016			09/28/2016 17:40	Julia Storbeck	1835315
SM 2120 B	09/28/2016			09/28/2016 21:35	Julie Michelle Frank	1835298
	09/28/2016			09/28/2016 21:37	Julie Michelle Frank	1835301
	09/28/2016			09/28/2016 21:38	Julie Michelle Frank	1835302
	09/28/2016			09/28/2016 21:40	Julie Michelle Frank	1835303
	09/28/2016			09/28/2016 22:21	Julie Michelle Frank	1835299
	09/28/2016			09/28/2016 22:22	Julie Michelle Frank	1835300
SM 2540 D-97	09/28/2016			09/30/2016	Yijie Li	1835298, 1835299, 1835300, 1835301, 1835302, 1835303
SM 5310 B-00	09/28/2016			09/29/2016	Julie Michelle Frank	1835307, 1835308
	09/28/2016			09/30/2016	Julie Michelle Frank	1835304, 1835305, 1835306
	09/28/2016			10/05/2016	Julie Michelle Frank	1835309