

Chemical Analysis Report

WQAP-2017-01-31-01

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

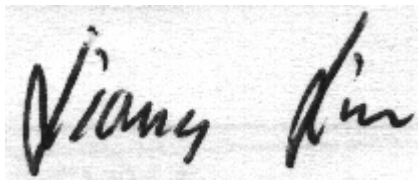
Event Description: **Lake Istokpoga**
Request ID: **RQ-2017-01-02-02**
Customer: **WQAP**
Project ID: **SPPROJECTS**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-FEB-2017 16:49

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: 01/30/2017 11:50

Field ID: G4SD0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868097	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P319018	
	SM 2120 B	Color (true)	91		PCU	P318999	
	SM 2540 D-97	TSS	26		mg/L	P319174	
1868103	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P319073	
1868109	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P319013	

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: Lake Istokpoga Algae NW

Collection Date/Time: 01/30/2017 11:30

Field ID: G4SD0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868098	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P319018	
	SM 2120 B	Color (true)	85		PCU	P318999	
	SM 2540 D-97	TSS	22		mg/L	P319174	
1868104	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P319073	
1868110	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319013	

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: Lake Istokpoga Algae S

Collection Date/Time: 01/30/2017 13:00

Field ID: G4SD0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868099	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P319018	
	SM 2120 B	Color (true)	85		PCU	P318999	
	SM 2540 D-97	TSS	29		mg/L	P319174	
1868105	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P319073	
1868111	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319013	

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: Lake Istokpoga Algae SE

Collection Date/Time: 01/30/2017 12:35

Field ID: G4SD0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868100	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P319018	
	SM 2120 B	Color (true)	86		PCU	P318999	
	SM 2540 D-97	TSS	25		mg/L	P319174	
1868106	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P319073	
1868112	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P319013	

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: Lake Istokpoga Algae W

Collection Date/Time: 01/30/2017 11:05

Field ID: G4SD0155

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868101	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P319019	
	SM 2120 B	Color (true)	85		PCU	P319000	
	SM 2540 D-97	TSS	29		mg/L	P319175	
1868107	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P319098	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P319073	
1868113	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P319014	

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: Lake Istokpoga Algae CEN

Collection Date/Time: 01/30/2017 12:15

Field ID: G4SD0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868102	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P319019	
	SM 2120 B	Color (true)	88		PCU	P319000	
	SM 2540 D-97	TSS	24		mg/L	P319175	
1868108	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P319098	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P319073	
1868114	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P319014	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319018

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319019

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P318999

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P319000

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
Batch ID: P319174

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319175

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 5310 B-00
Batch ID: P319073

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: P319338

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: P319030

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

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: P319097

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

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: P319014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P319073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868028	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868166	Kjeldahl Nitrogen	93.5	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868103	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

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: P319097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868014	Total-P	92.5	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868193	Total-P	97.4	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868025	O-Phosphate-P	96.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868190	O-Phosphate-P	98.3	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P319073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867211	Organic Carbon	96.0	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868012	Turbidity	11.6	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868164	Turbidity	1.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868028	Ammonia-N	1.08	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868166	Kjeldahl Nitrogen	3.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868103	NO2NO3-N	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868014	Total-P	3.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868193	Total-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868025	O-Phosphate-P	2.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868190	O-Phosphate-P	2.11	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868012	Color (true)	0.871	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P319000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868180	Color (true)	0.384	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P319073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867211	Organic Carbon	0.259	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: A74192
Included Lab Sample IDs: 1868097, 1868098, 1868099, 1868100, 1868101, 1868102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	99.4	P/P	85 - 115
Color (true)	99.4	100	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74194
Included Lab Sample IDs: 1868109, 1868110, 1868111, 1868112, 1868113, 1868114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74195
Included Lab Sample IDs: 1868097, 1868098, 1868099, 1868100, 1868101, 1868102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	97.0	P/P	95 - 105
Turbidity	97.0	98.0	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A74208
Included Lab Sample IDs: 1868103, 1868104, 1868105, 1868106, 1868107, 1868108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74218
Included Lab Sample IDs: 1868103, 1868104, 1868105, 1868106, 1868107, 1868108

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74224
Included Lab Sample IDs: 1868107, 1868108

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74224
Included Lab Sample IDs: 1868107, 1868108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74229
Included Lab Sample IDs: 1868103, 1868104, 1868105, 1868106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.5	P/P	90 - 110
Total-P	98.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74235
Included Lab Sample IDs: 1868103, 1868104, 1868105, 1868106, 1868107, 1868108

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74289
Included Lab Sample IDs: 1868103, 1868104, 1868105, 1868106, 1868107, 1868108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	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				11.6	
	Turbidity				1.61	
EPA 350.1 Rev. 2.0	Ammonia-N	102	100 102			1.08
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	93.5 99.4			3.88
EPA 353.2 Rev. 2.0	NO2NO3-N	106	106 104			1.39
EPA 365.1 Rev. 2.0	Total-P	98.2	92.5 95.5			3.09
	Total-P	92.8	97.4 95.8			1.36
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.8 99.4			2.65
	O-Phosphate-P	98.3	98.3 100			2.11
SM 2120 B	Color (true)				0.871	
	Color (true)				0.384	
SM 5310 B-00	Organic Carbon	94.6	96.0 95.6			0.259

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1868097, 1868098, 1868099, 1868100, 1868101, 1868102
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1868109, 1868110, 1868111, 1868112, 1868113, 1868114
SM 2120 B / E31780	True Color measured at 450 nm	1868097, 1868098, 1868099, 1868100, 1868101, 1868102
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1868097, 1868098, 1868099, 1868100, 1868101, 1868102
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1868103, 1868104, 1868105, 1868106, 1868107, 1868108

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	01/31/2017			01/31/2017 16:45	Julie Michelle Frank	1868097, 1868098, 1868099, 1868100, 1868101, 1868102
EPA 350.1 Rev. 2.0	01/31/2017			02/02/2017	Sofia Elnemr	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 351.2 Rev. 2.0	01/31/2017	02/01/2017	Adrian Shelby	02/01/2017	Joseph Suarez	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 353.2 Rev. 2.0	01/31/2017			02/02/2017	Beverly Y. Sanders	1868103, 1868104, 1868105, 1868106, 1868107, 1868108
EPA 365.1 Rev. 2.0	01/31/2017	02/01/2017	Vijayalakshmi Reddy	02/01/2017	Lipi Saha	1868107, 1868108
EPA 365.1 Rev. 2.0 dissolved	01/31/2017	02/01/2017	Vijayalakshmi Reddy	02/02/2017	Lipi Saha	1868103, 1868104, 1868105, 1868106
	01/31/2017			01/31/2017 15:01	Julie Michelle Frank	1868109
	01/31/2017			01/31/2017 15:02	Julie Michelle Frank	1868110
	01/31/2017			01/31/2017 15:03	Julie Michelle Frank	1868111, 1868112
	01/31/2017			01/31/2017 15:04	Julie Michelle Frank	1868113
	01/31/2017			01/31/2017 15:05	Julie Michelle Frank	1868114
SM 2120 B	01/31/2017			01/31/2017 14:56	Jared I. Manley	1868097
	01/31/2017			01/31/2017 14:57	Jared I. Manley	1868098, 1868099
	01/31/2017			01/31/2017 14:58	Jared I. Manley	1868100
	01/31/2017			01/31/2017 15:03	Jared I. Manley	1868101, 1868102
SM 2540 D-97	01/31/2017			02/01/2017	Christopher Armour	1868097, 1868098, 1868099, 1868100, 1868101, 1868102
SM 5310 B-00	01/31/2017			01/31/2017	Julie Michelle Frank	1868103, 1868104, 1868105, 1868106, 1868107, 1868108