

Chemical Analysis Report

WQAP-2016-10-20-03

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

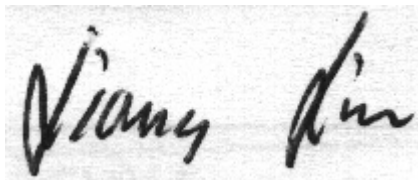
Event Description: **Lake Istokpoga**
Request ID: **RQ-2016-10-03-08**
Customer: **WQAP**
Project ID: **SPPROJECTS**

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

Date Certified: 16-NOV-2016 11:02

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: 10/19/2016 11:22

Field ID: G4SD0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842413	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P313581	
	SM 2120 B	Color (true)	190		PCU	P313599	
	SM 2540 D-97	TSS	6	I	mg/L	P314021	
1842419	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P314565	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313735	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P313761	
1842425	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P313593	

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: 10/19/2016 11:00

Field ID: G4SD0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842414	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P313581	
	SM 2120 B	Color (true)	170		PCU	P313599	
	SM 2540 D-97	TSS	9	I	mg/L	P314024	
1842420	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P314565	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313735	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P313761	
1842426	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P313593	

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: 10/19/2016 12:15

Field ID: G4SD0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842415	EPA 180.1 Rev. 2.0	Turbidity	9.3		NTU	P313581	
	SM 2120 B	Color (true)	97	A	PCU	P313599	
	SM 2540 D-97	TSS	16		mg/L	P314024	
1842421	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P314839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P314463	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313735	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P313761	
1842427	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313593	

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: 10/19/2016 12:00

Field ID: G4SD0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842416	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P313581	
	SM 2120 B	Color (true)	110		PCU	P313599	
	SM 2540 D-97	TSS	18		mg/L	P314025	
1842422	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P314565	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313736	
	EPA 365.1 Rev. 2.0	Total-P	0.083		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P313761	
1842428	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313593	

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: 10/19/2016 10:42

Field ID: G4SD0155

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842417	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P313581	
	SM 2120 B	Color (true)	140		PCU	P313599	
	SM 2540 D-97	TSS	12		mg/L	P314025	
1842423	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P314565	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313736	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P313761	
1842429	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313593	

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: 10/19/2016 11:40

Field ID: G4SD0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842418	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P313581	
	SM 2120 B	Color (true)	160		PCU	P313599	
	SM 2540 D-97	TSS	13	I	mg/L	P314025	
1842424	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P314839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1	J	mg N/L	P314565	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313736	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P313761	
1842430	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313593	

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 insufficient sample volume to perform the analysis.

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313581

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314642

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314463

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313735

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313736

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313593

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: P313599

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
Batch ID: P314021

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314024

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314025

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 5310 B-00
Batch ID: P313761

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: P314642

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314463

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

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: P314565

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313735

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313736

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: P314225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313593

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

Reference Method: SM 5310 B-00
Batch ID: P313761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842118	Ammonia-N	99.7	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843178	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842424	Kjeldahl Nitrogen	115	112	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842419	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842422	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842510	Total-P	101	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842427	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P313761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842419	Organic Carbon	100	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842283	Turbidity	0.840	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842118	Ammonia-N	0.666	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843178	Ammonia-N	0.860	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842421	Kjeldahl Nitrogen	3.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842424	Kjeldahl Nitrogen	1.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842419	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842422	NO2NO3-N	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842510	Total-P	2.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842427	O-Phosphate-P	0.992	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842415	Color (true)	3.44	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P313761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842419	Organic Carbon	1.12	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: EPA 180.1 Rev. 2.0
Run ID: A72346
Included Lab Sample IDs: 1842413, 1842414, 1842415, 1842416, 1842417, 1842418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72349
Included Lab Sample IDs: 1842425, 1842426, 1842427, 1842428, 1842429, 1842430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	102	99.5	P/P	90 - 110
O-Phosphate-P	99.5	102	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A72350
Included Lab Sample IDs: 1842415, 1842416, 1842417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	103	P/P	85 - 115

Reference Method: SM 2120 B
Run ID: A72352
Included Lab Sample IDs: 1842413, 1842414, 1842418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	102	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72388
Included Lab Sample IDs: 1842419, 1842420, 1842421, 1842422, 1842423, 1842424

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A72401

Included Lab Sample IDs: 1842419, 1842420, 1842421, 1842422, 1842423, 1842424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72548

Included Lab Sample IDs: 1842419, 1842420, 1842421, 1842422, 1842423, 1842424

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72628

Included Lab Sample IDs: 1842421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72636

Included Lab Sample IDs: 1842419, 1842420, 1842422, 1842423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.5	P/P	90 - 110
Ammonia-N	98.5	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72672

Included Lab Sample IDs: 1842419, 1842420, 1842422, 1842423, 1842424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.9	97.0	P/P	90 - 110
Kjeldahl Nitrogen	98.1	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72705

Included Lab Sample IDs: 1842421, 1842424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	103	102	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				0.840	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	106	99.7	101		0.666
	Ammonia-N	103	101	100		0.860
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6				3.19
	Kjeldahl Nitrogen	99.3	115	112		1.52
EPA 353.2 Rev. 2.0	NO2NO3-N	106	104	104		0.962
	NO2NO3-N	106	106	104		1.90
EPA 365.1 Rev. 2.0	Total-P	97.8	101	98.0		2.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	100	101		0.992
SM 2120 B	Color (true)				3.44	
SM 5310 B-00	Organic Carbon	103	100	98.0		1.12

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1842413, 1842414, 1842415, 1842416, 1842417, 1842418
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1842419, 1842420, 1842421, 1842422, 1842423, 1842424
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1842419, 1842420, 1842421, 1842422, 1842423, 1842424
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1842419, 1842420, 1842421, 1842422, 1842423, 1842424
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1842419, 1842420, 1842421, 1842422, 1842423, 1842424
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1842425, 1842426, 1842427, 1842428, 1842429, 1842430
SM 2120 B / E31780	True Color measured at 450 nm	1842413, 1842414, 1842415, 1842416, 1842417, 1842418
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1842413, 1842414, 1842415, 1842416, 1842417, 1842418
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1842419, 1842420, 1842421, 1842422, 1842423, 1842424

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	10/20/2016			10/20/2016 15:29	Sima Feizi	1842413, 1842414, 1842415, 1842416, 1842417, 1842418
EPA 350.1 Rev. 2.0	10/20/2016			11/04/2016	Sofia Elnemr	1842419, 1842420, 1842422, 1842423
	10/20/2016			11/08/2016	Sofia Elnemr	1842421, 1842424
EPA 351.2 Rev. 2.0	10/20/2016	11/03/2016	Adrian Shelby	11/04/2016	Joseph Suarez	1842421
	10/20/2016	11/04/2016	Adrian Shelby	11/07/2016	Joseph Suarez	1842419, 1842420, 1842422, 1842423, 1842424
EPA 353.2 Rev. 2.0	10/20/2016			10/24/2016	Beverly Y. Sanders	1842419, 1842420, 1842421, 1842422, 1842423, 1842424
EPA 365.1 Rev. 2.0	10/20/2016	10/31/2016	Vijayalakshmi Reddy	11/01/2016	Lipi Saha	1842419, 1842420, 1842421, 1842422, 1842423, 1842424
EPA 365.1 Rev. 2.0 dissolved	10/20/2016			10/20/2016 15:01	Julia Storbeck	1842427
	10/20/2016			10/20/2016 15:58	Julia Storbeck	1842425
	10/20/2016			10/20/2016 16:03	Julia Storbeck	1842426
	10/20/2016			10/20/2016 16:04	Julia Storbeck	1842428
	10/20/2016			10/20/2016 16:05	Julia Storbeck	1842429
	10/20/2016			10/20/2016 16:06	Julia Storbeck	1842430
SM 2120 B	10/20/2016			10/20/2016 15:55	Julie Michelle Frank	1842415
	10/20/2016			10/20/2016 15:58	Julie Michelle Frank	1842416
	10/20/2016			10/20/2016 15:59	Julie Michelle Frank	1842417
	10/20/2016			10/20/2016 17:19	Jared I. Manley	1842413
	10/20/2016			10/20/2016 17:20	Jared I. Manley	1842414, 1842418
SM 2540 D-97	10/20/2016			10/24/2016	Sima Feizi	1842413, 1842414, 1842415, 1842416, 1842417, 1842418
SM 5310 B-00	10/20/2016			10/24/2016	Julie Michelle Frank	1842419, 1842420, 1842421, 1842422, 1842423, 1842424