

Chemical Analysis Report

WQAP-2017-01-19-02

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

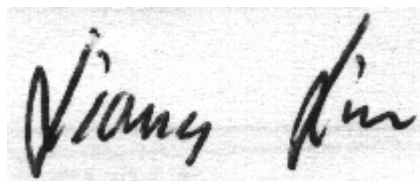
Event Description: **Hawthorne Lakes**
Request ID: **RQ-2017-01-16-13**
Customer: **WQAP**
Project ID: **SMP**

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

Date Certified: 14-FEB-2017 14:48

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Little Orange Lake-Center

Collection Date/Time: 01/18/2017 11:10

Field ID: G1NE0040 01182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1864980	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P318442	
	EPA 300.0 Rev. 2.1	Chloride	9.4		mg Cl/L	P318786	
		Sulfate	0.86		mg SO4/L	P318789	
	SM 2120 B	Color (true)	230		PCU	P318483	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P318536	
	SM 2540 C-97	TDS	56		mg/L	P319091	
	SM 2540 D-97	TSS	2	U	mg/L	P318757	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P318538	
1864984	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P318740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P318463	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P318687	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P318499	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P318552	
1864988	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P318446	

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: Holdens Ponds Center

Collection Date/Time: 01/18/2017 12:15

Field ID: G1NE0199 01182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1864981	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P318442	
	EPA 300.0 Rev. 2.1	Chloride	9.9		mg Cl/L	P318786	
		Sulfate	0.37	I	mg SO4/L	P318789	
	SM 2120 B	Color (true)	240		PCU	P318483	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P318536	
	SM 2540 C-97	TDS	63		mg/L	P319091	
	SM 2540 D-97	TSS	2	U	mg/L	P318757	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P318538	
1864985	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P318740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P318463	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318687	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P318499	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P318552	
1864989	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P318446	

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: Moss Lee Lake Center

Collection Date/Time: 01/18/2017 11:50

Field ID: G1NE0200 01182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1864982	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P318443	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P318786	
		Sulfate	0.60		mg SO4/L	P318789	

Field ID: G1NE0200 01182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1864982	SM 2120 B	Color (true)	190		PCU	P318483	
	SM 2320 B-97	Total Alkalinity	0.91	I	mg CaCO3/L	P318537	
	SM 2540 C-97	TDS	58		mg/L	P319091	
	SM 2540 D-97	TSS	2	U	mg/L	P318757	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P318539	
1864986	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P318740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P318463	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.069		mg N/L	P318687	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P318499	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P318552	
1864990	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P318446	

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 Jeffords Center

Collection Date/Time: 01/18/2017 14:30

Field ID: G1NE0041 01182017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1864983	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P318443	
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P318786	
		Sulfate	6.2	A	mg SO4/L	P318789	
	SM 2120 B	Color (true)	120		PCU	P318483	
	SM 2320 B-97	Total Alkalinity	0.74	I	mg CaCO3/L	P318537	
	SM 2540 C-97	TDS	56		mg/L	P319092	
	SM 2540 D-97	TSS	2	U	mg/L	P318758	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P318539	
1864987	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P318740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P318463	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318687	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P318499	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P318552	
1864991	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P318446	

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

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P318442

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P318443

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318443

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318786

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318789

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318463

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318687

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: P318499

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318446

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

Reference Method: SM 2120 B
Batch ID: P318483

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P318536

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P318537

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P319091

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P319092

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P318757

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P318758

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P318538

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P318539

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318552

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318786

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318740

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: P318463

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: P318687

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318499

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318446

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

Reference Method: SM 2320 B-97
Batch ID: P318536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P318537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P318538

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P318539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P318552

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864885	Chloride	99.8		P	90 - 110
1864983	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864885	Sulfate	97.2		P	90 - 110
1864983	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864984	Ammonia-N	99.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1865025	Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864887	NO2NO3-N	101	98.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1865006	Total-P	97.6	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1865009	O-Phosphate-P	102	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864719	Fluoride	96.8	98.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P318539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1865023	Fluoride	98.1	98.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1865019	Organic Carbon	97.8	99.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864885	Turbidity	15.9	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864983	Turbidity	1.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864983	Chloride	0.150	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864983	Sulfate	0.235	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864984	Ammonia-N	1.79	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865025	Kjeldahl Nitrogen	2.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864887	NO2NO3-N	1.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865006	Total-P	2.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865009	O-Phosphate-P	1.27	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865017	Color (true)	2.06	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864719	Total Alkalinity	0.238	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P318537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865023	Total Alkalinity	0.412	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864883	TDS	2.11	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P319092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865023	TDS	2.57	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P318538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864719	Fluoride	0.981	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P318539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865023	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865019	Organic Carbon	0.798	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: A74008
Included Lab Sample IDs: 1864980, 1864981, 1864982, 1864983

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74009

Included Lab Sample IDs: 1864988, 1864989, 1864990, 1864991

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

Reference Method: SM 2120 B

Run ID: A74020

Included Lab Sample IDs: 1864980, 1864981, 1864982, 1864983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	100	P/P	85 - 115
Color (true)	99.6	102	P/P	85 - 115

Reference Method: SM 2320 B-97

Run ID: A74037

Included Lab Sample IDs: 1864980, 1864981, 1864982, 1864983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74037

Included Lab Sample IDs: 1864980, 1864981, 1864982, 1864983

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

Reference Method: SM 5310 B-00

Run ID: A74044

Included Lab Sample IDs: 1864984, 1864985, 1864986, 1864987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74048

Included Lab Sample IDs: 1864984, 1864985, 1864986, 1864987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	94.9	P/P	90 - 110
Kjeldahl Nitrogen	98.5	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74059

Included Lab Sample IDs: 1864984, 1864985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A74087
 Included Lab Sample IDs: 1864986, 1864987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.5	96.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A74088
 Included Lab Sample IDs: 1864980, 1864981, 1864982, 1864983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	103	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	97.2	100	P/P	90 - 110
Sulfate	98.4	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Run ID: A74095
 Included Lab Sample IDs: 1864984, 1864985, 1864986, 1864987

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A74111
 Included Lab Sample IDs: 1864984, 1864985, 1864986, 1864987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	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				15.9	
	Turbidity				1.90	
EPA 300.0 Rev. 2.1	Chloride	101	99.8 99.8		0.150	
	Sulfate	95.9	101 97.2		0.235	
EPA 350.1 Rev. 2.0	Ammonia-N	102	99.9 102			1.79
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102 105			2.51
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101 98.4			1.84
EPA 365.1 Rev. 2.0	Total-P	96.5	97.6 95.6			2.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	102 103			1.27
SM 2120 B	Color (true)				2.06	
SM 2320 B-97	Total Alkalinity	103			0.238	
	Total Alkalinity	103			0.412	
SM 2540 C-97	TDS				2.11	
	TDS				2.57	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	96.7	96.8	98.1		0.981
	Fluoride	97.7	98.1	98.1		0.0
SM 5310 B-00	Organic Carbon	101	97.8	99.1		0.798

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1864980, 1864981, 1864982, 1864983
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1864980, 1864981, 1864982, 1864983
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1864980, 1864981, 1864982, 1864983
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1864984, 1864985, 1864986, 1864987
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1864984, 1864985, 1864986, 1864987
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1864984, 1864985, 1864986, 1864987
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1864984, 1864985, 1864986, 1864987
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1864988, 1864989, 1864990, 1864991
SM 2120 B / E31780	True Color measured at 450 nm	1864980, 1864981, 1864982, 1864983
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1864980, 1864981, 1864982, 1864983
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1864980, 1864981, 1864982, 1864983
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1864980, 1864981, 1864982, 1864983
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1864980, 1864981, 1864982, 1864983
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1864984, 1864985, 1864986, 1864987

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	01/19/2017			01/19/2017 15:40	Sima Feizi	1864980, 1864981, 1864982, 1864983
EPA 300.0 Rev. 2.1	01/19/2017			01/26/2017	Ping Hua	1864980, 1864981, 1864982, 1864983
EPA 350.1 Rev. 2.0	01/19/2017			01/24/2017	Sofia Elnemr	1864984, 1864985, 1864986, 1864987
EPA 351.2 Rev. 2.0	01/19/2017	01/20/2017	Adrian Shelby	01/23/2017	Joseph Suarez	1864984, 1864985, 1864986, 1864987
EPA 353.2 Rev. 2.0	01/19/2017			01/25/2017	Beverly Y. Sanders	1864984, 1864985, 1864986, 1864987
EPA 365.1 Rev. 2.0	01/19/2017	01/20/2017	Vijayalakshmi Reddy	01/23/2017	Lipi Saha	1864984, 1864985
	01/19/2017	01/20/2017	Vijayalakshmi Reddy	01/24/2017	Lipi Saha	1864986, 1864987
EPA 365.1 Rev. 2.0 dissolved	01/19/2017			01/19/2017 15:59	Julie Michelle Frank	1864988
	01/19/2017			01/19/2017 16:10	Julie Michelle Frank	1864989
	01/19/2017			01/19/2017 16:11	Julie Michelle Frank	1864990
	01/19/2017			01/19/2017 16:12	Julie Michelle Frank	1864991
SM 2120 B	01/19/2017			01/19/2017 16:52	Jared I. Manley	1864983
	01/19/2017			01/19/2017 17:01	Jared I. Manley	1864980
	01/19/2017			01/19/2017 17:02	Jared I. Manley	1864981
	01/19/2017			01/19/2017 17:03	Jared I. Manley	1864982
SM 2320 B-97	01/19/2017			01/20/2017	Dale L. Simmons	1864980, 1864981, 1864982
	01/19/2017			01/21/2017	Dale L. Simmons	1864983
SM 2540 C-97	01/19/2017			01/23/2017	Sima Feizi	1864980, 1864981, 1864982, 1864983
SM 2540 D-97	01/19/2017			01/23/2017	Sima Feizi	1864980, 1864981, 1864982, 1864983
SM 4500 F-C-97	01/19/2017			01/20/2017	Dale L. Simmons	1864980, 1864981, 1864982
	01/19/2017			01/21/2017	Dale L. Simmons	1864983
SM 5310 B-00	01/19/2017			01/20/2017	Julie Michelle Frank	1864984, 1864985, 1864986, 1864987