

Chemical Analysis Report

TLH-ROC-2017-11-13-03

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

Event Description: **SMP Freshwater Kit A**
Request ID: **RQ-2017-10-30-54**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-DEC-2017 16:36

A handwritten signature in black ink, appearing to read "Colin Wright", is written over a light gray rectangular 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: Middle of Lake Francis

Collection Date/Time: 11/13/2017 11:00

Field ID: G1TLHR0045-2017-05

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1945754	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P335265	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P335298	
	SM 2120 B	Color (true)	7.0		PCU	P335278	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P335625	
	SM 2540 C-97	TDS	69		mg/L	P335709	
	SM 2540 D-97	TSS	16		mg/L	P335727	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P335629	
1945757	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P336003	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P335809	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P335479	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P335447	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P335609	
1945760	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335243	

Sample Location: Ten Mile Pond

Collection Date/Time: 11/13/2017 11:35

Field ID: G1TLHR0023-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1945755	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P335265	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P335298	
	SM 2120 B	Color (true)	30	A	PCU	P335278	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P335625	
	SM 2540 C-97	TDS	30	U	mg/L	P335709	
	SM 2540 D-97	TSS	60		mg/L	P335727	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P335629	
1945758	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P336003	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P335874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P335479	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P335447	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P335610	
1945761	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335243	

Ref. Method and Comment:

SM 2540 C-97: The MDL was elevated due to sample matrix interference.

SM 2540 D-97: Sample has large amount of particulate matter.

Sample Location: Little Alapaha US 129

Collection Date/Time: 11/13/2017 13:10

Field ID: G1TLHR0037-2017-06

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1945756	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P335265	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P335298	
	SM 2120 B	Color (true)	700		PCU	P335270	
	SM 2320 B-97	Total Alkalinity	9.6		mg CaCO3/L	P335625	
	SM 2540 C-97	TDS	187		mg/L	P335709	

Field ID: G1TLHR0037-2017-06

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1945756	SM 2540 D-97	TSS	2	I	mg/L	P335727	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P335629	
1945759	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P336003	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P336047	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P335479	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P335448	
	SM 5310 B-00	Organic Carbon	76		mg C/L	P335610	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P335243	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P335265

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335298

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P336003

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P335809

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P335874

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P336047

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P335479

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335447

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335448

Component	Result	Code	Units
Total-P	0.003	I	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335243

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

Reference Method: SM 2120 B
Batch ID: P335270

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P335278

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335625

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

Reference Method: SM 2540 C-97
Batch ID: P335709

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335727

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335629

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P335609

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

Reference Method: SM 5310 B-00
 Batch ID: P335610

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: P335298

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P336003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P335809

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P335874

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P336047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	91.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P335479

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P335447

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: P335447

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335448

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335243

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

Reference Method: SM 2320 B-97
Batch ID: P335625

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

Reference Method: SM 4500 F-C-97
Batch ID: P335629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P335610

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335298

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945742	Chloride	96.5		P	90 - 110
1945795	Chloride	96.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945743	Ammonia-N	96.8	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945200	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945776	Kjeldahl Nitrogen	99.2	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946898	Kjeldahl Nitrogen	94.5	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945340	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945341	Total-P	96.8	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335448

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945778	Total-P	99.8	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945744	O-Phosphate-P	99.4	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945798	Fluoride	100	101	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P335609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945182	Organic Carbon	100	100	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P335610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945758	Organic Carbon	100	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P335265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945742	Turbidity	3.87	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P335298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945795	Chloride	0.212	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P336003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945743	Ammonia-N	1.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P335809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945200	Kjeldahl Nitrogen	1.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P335874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945776	Kjeldahl Nitrogen	2.22	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P336047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946898	Kjeldahl Nitrogen	2.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945340	NO2NO3-N	0.184	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945341	Total-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945778	Total-P	2.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945744	O-Phosphate-P	0.648	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P335270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945742	Color (true)	3.65	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P335278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945755	Color (true)	2.20	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945798	Total Alkalinity	0.644	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P335709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945742	TDS	5.83	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P335727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945742	TSS	8.89	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945798	Fluoride	0.479	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945182	Organic Carbon	0.0455	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P335610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945758	Organic Carbon	0.842	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 300.0 Rev. 2.1
Run ID: A80230
Included Lab Sample IDs: 1945754, 1945755, 1945756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80251
Included Lab Sample IDs: 1945760, 1945761, 1945762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A80257

Included Lab Sample IDs: 1945754, 1945755, 1945756

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

Reference Method: SM 2120 B

Run ID: A80259

Included Lab Sample IDs: 1945754, 1945755, 1945756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	102	103	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80324

Included Lab Sample IDs: 1945757, 1945758, 1945759

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

Reference Method: SM 5310 B-00

Run ID: A80378

Included Lab Sample IDs: 1945757, 1945758, 1945759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.2	P/P	90 - 110
Organic Carbon	99.2	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80380

Included Lab Sample IDs: 1945757, 1945759

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

Reference Method: SM 2320 B-97

Run ID: A80383

Included Lab Sample IDs: 1945754, 1945755, 1945756

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

Reference Method: SM 4500 F-C-97

Run ID: A80383

Included Lab Sample IDs: 1945754, 1945755, 1945756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80391

Included Lab Sample IDs: 1945758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80551

Included Lab Sample IDs: 1945757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.7	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80561

Included Lab Sample IDs: 1945757, 1945758, 1945759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.7	P/P	90 - 110
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80585

Included Lab Sample IDs: 1945758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80614

Included Lab Sample IDs: 1945759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.7	95.9	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				3.87	
EPA 300.0 Rev. 2.1	Chloride	96.6	96.6 96.5		0.212	
EPA 350.1 Rev. 2.0	Ammonia-N	94.9	96.8 97.8			1.00
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	104 103			1.10
	Kjeldahl Nitrogen	104	99.2 104			2.22
	Kjeldahl Nitrogen	91.8	94.5 98.9			2.65
EPA 353.2 Rev. 2.0	NO2NO3-N	106	100			0.184
EPA 365.1 Rev. 2.0	Total-P	100	96.8 95.3			1.36
	Total-P	98.3	99.8 97.3			2.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.4 98.6			0.648

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2120 B	Color (true)	103			3.65	
	Color (true)				2.20	
SM 2320 B-97	Total Alkalinity				0.644	
SM 2540 C-97	TDS				5.83	
SM 2540 D-97	TSS				8.89	
SM 4500 F-C-97	Fluoride	100	100	101		0.479
SM 5310 B-00	Organic Carbon	99.0	100	100		0.0455
	Organic Carbon	98.4	100	102		0.842

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1945754, 1945755, 1945756
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1945754, 1945755, 1945756
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1945757, 1945758, 1945759
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1945757, 1945758, 1945759
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1945757, 1945758, 1945759
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1945757, 1945758, 1945759
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1945760, 1945761, 1945762
SM 2120 B / E31780	True Color measured at 450 nm	1945754, 1945755, 1945756
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1945754, 1945755, 1945756
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1945754, 1945755, 1945756
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1945754, 1945755, 1945756
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1945754, 1945755, 1945756
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1945757, 1945758, 1945759

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	11/13/2017			11/14/2017 16:23	DeAsia Armster	1945754, 1945755, 1945756
EPA 300.0 Rev. 2.1	11/13/2017			11/14/2017	Julia Storbeck	1945754, 1945755, 1945756
EPA 350.1 Rev. 2.0	11/13/2017			11/28/2017	Sofia Elnemr	1945757, 1945758, 1945759
EPA 351.2 Rev. 2.0	11/13/2017	11/22/2017	Adrian Shelby	11/27/2017	Joseph Suarez	1945757
	11/13/2017	11/27/2017	Adrian Shelby	11/28/2017	Joseph Suarez	1945758
	11/13/2017	11/29/2017	Adrian Shelby	11/30/2017	Joseph Suarez	1945759
EPA 353.2 Rev. 2.0	11/13/2017			11/16/2017	Beverly Y. Sanders	1945757, 1945758, 1945759
EPA 365.1 Rev. 2.0	11/13/2017	11/16/2017	Sima Feizi	11/17/2017	Lipi Saha	1945757, 1945759
	11/13/2017	11/16/2017	Sima Feizi	11/20/2017	Lipi Saha	1945758
EPA 365.1 Rev. 2.0 dissolved	11/13/2017			11/14/2017 13:51	Megan Treadwell	1945760
	11/13/2017			11/14/2017 13:52	Megan Treadwell	1945761
	11/13/2017			11/14/2017 13:53	Megan Treadwell	1945762
SM 2120 B	11/13/2017			11/14/2017 16:22	Tanya Welborn	1945754
	11/13/2017			11/14/2017 16:25	Tanya Welborn	1945756
	11/13/2017			11/14/2017 16:34	Tanya Welborn	1945755
SM 2320 B-97	11/13/2017			11/18/2017	Dale L. Simmons	1945754, 1945755, 1945756
SM 2540 C-97	11/13/2017			11/17/2017	Yijie Li	1945754, 1945755, 1945756
SM 2540 D-97	11/13/2017			11/17/2017	Yijie Li	1945754, 1945755, 1945756
SM 4500 F-C-97	11/13/2017			11/18/2017	Dale L. Simmons	1945754, 1945755, 1945756
SM 5310 B-00	11/13/2017			11/18/2017	Ping Hua	1945757, 1945758, 1945759