

Chemical Analysis Report

TLH-ROC-2017-10-05-01

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

Event Description: **SMP 2017 Freshwater Kit A**
Request ID: **RQ-2017-09-25-37**
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: 23-OCT-2017 11:18

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored 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: EIGHTMILE CREEK

Collection Date/Time: 10/04/2017 11:10

Field ID: G1TLHR0078-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934307	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P332811	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P332942	
	SM 2120 B	Color (true)	470		PCU	P332832	
	SM 2320 B-97	Total Alkalinity	81		mg CaCO3/L	P333073	
	SM 2540 C-97	TDS	166		mg/L	P333143	
	SM 2540 D-97	TSS	2	I	mg/L	P333003	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P333077	
1934310	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P333396	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P333308	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P333165	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P333012	
	SM 5310 B-00	Organic Carbon	42		mg C/L	P333155	
1934313	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P332846	

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: EIGHTMILE CREEK

Collection Date/Time: 10/04/2017 11:10

Field ID: G1TLHR0078-2017-01_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934308	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P332811	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P332942	
	SM 2120 B	Color (true)	460		PCU	P332832	
	SM 2320 B-97	Total Alkalinity	80		mg CaCO3/L	P333073	
	SM 2540 C-97	TDS	168		mg/L	P333143	
	SM 2540 D-97	TSS	2	I	mg/L	P333003	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P333077	
1934311	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P333303	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P933298	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P333165	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P333013	
	SM 5310 B-00	Organic Carbon	42		mg C/L	P333155	
1934314	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P332846	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BLANK QA/QC FIELD BLANK

Collection Date/Time: 10/04/2017 11:20

Field ID: QA/QC FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934309	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P332811	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P332942	
	SM 2120 B	Color (true)	2.5	U	PCU	P332832	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333073	

Field ID: QA/QC FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934309	SM 2540 C-97	TDS	15	U	mg/L	P333143	
	SM 2540 D-97	TSS	2	U	mg/L	P333003	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333077	
1934312	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P333172	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P933298	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333165	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P333013	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P333155	
1934315	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332846	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332811

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P332942

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P333172

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P333303

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P333396

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P333308

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P9332981

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333165

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333012

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333013

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

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

Reference Method: SM 2120 B
Batch ID: P332832

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333073

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P333143

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333003

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
 Batch ID: P333077

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P333155

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: P332942

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333172

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333303

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333396

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P333308

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P9332981

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P333165

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333165

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: P333012

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333013

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

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

Reference Method: SM 2320 B-97
Batch ID: P333073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P333077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P333155

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934034	Chloride	102		P	90 - 110
1934036	Chloride	103		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934205	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934747	Ammonia-N	95.5	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935318	Ammonia-N	97.8	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934650	Kjeldahl Nitrogen	101	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P9332981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934206	Kjeldahl Nitrogen	95.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934207	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934208	Total-P	96.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934342	O-Phosphate-P	96.4	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P333077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934204	Fluoride	97.0	97.8	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P333155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934039	Organic Carbon	95.5	96.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P332811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934297	Turbidity	3.66	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934034	Chloride	0.831	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934205	Ammonia-N	0.824	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934747	Ammonia-N	2.02	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935318	Ammonia-N	1.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P333308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934650	Kjeldahl Nitrogen	3.21	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P9332981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934206	Kjeldahl Nitrogen	3.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P333165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934207	NO2NO3-N	0.747	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P333012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934208	Total-P	2.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P333013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934325	Total-P	0.160	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934342	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P332832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934340	Color (true)	4.06	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P333073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934204	Total Alkalinity	0.311	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P333143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934340	TDS	2.44	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P333077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934204	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P333155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934039	Organic Carbon	0.727	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: A79366
 Included Lab Sample IDs: 1934307, 1934308, 1934309

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

Reference Method: SM 2120 B
 Run ID: A79372
 Included Lab Sample IDs: 1934307, 1934308, 1934309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	93.3	99.4	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A79378
 Included Lab Sample IDs: 1934313, 1934314, 1934315

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

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A79401
 Included Lab Sample IDs: 1934307, 1934308, 1934309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A79457
 Included Lab Sample IDs: 1934310, 1934311

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79460

Included Lab Sample IDs: 1934312

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

Reference Method: SM 2320 B-97

Run ID: A79462

Included Lab Sample IDs: 1934307, 1934308, 1934309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79462

Included Lab Sample IDs: 1934307, 1934308, 1934309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79465

Included Lab Sample IDs: 1934311, 1934312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.2	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79483

Included Lab Sample IDs: 1934310, 1934311, 1934312

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

Reference Method: SM 5310 B-00

Run ID: A79484

Included Lab Sample IDs: 1934310, 1934311, 1934312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	96.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79488

Included Lab Sample IDs: 1934312

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79523

Included Lab Sample IDs: 1934311

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79555

Included Lab Sample IDs: 1934310

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79564

Included Lab Sample IDs: 1934310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	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				3.66	
EPA 300.0 Rev. 2.1	Chloride	103	102 103		0.831	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101 102			0.824
	Ammonia-N	98.1	95.5 97.6			2.02
	Ammonia-N	101	97.8 99.7			1.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101 95.2			3.21
	Kjeldahl Nitrogen	98.2	95.3 100			3.54
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102 104			0.747
EPA 365.1 Rev. 2.0	Total-P	98.8	96.8 100			2.79
	Total-P	101				0.160
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	96.4 98.2			1.29
SM 2120 B	Color (true)				4.06	
SM 2320 B-97	Total Alkalinity	102			0.311	
SM 2540 C-97	TDS				2.44	
SM 4500 F-C-97	Fluoride	96.9	97.0 97.8			0.470
SM 5310 B-00	Organic Carbon	99.0	95.5 96.7			0.727

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1934307, 1934308, 1934309
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1934307, 1934308, 1934309
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1934310, 1934311, 1934312
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1934310, 1934311, 1934312
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1934310, 1934311, 1934312
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1934310, 1934311, 1934312

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1934313, 1934314, 1934315
SM 2120 B / E31780	True Color measured at 450 nm	1934307, 1934308, 1934309
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1934307, 1934308, 1934309
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1934307, 1934308, 1934309
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1934307, 1934308, 1934309
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1934307, 1934308, 1934309
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1934310, 1934311, 1934312

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	10/04/2017			10/05/2017 15:12	DeAsia Armster	1934307, 1934308, 1934309
EPA 300.0 Rev. 2.1	10/04/2017			10/07/2017	Julia Storbeck	1934307, 1934308, 1934309
EPA 350.1 Rev. 2.0	10/04/2017			10/10/2017	Sofia Elnemr	1934312
	10/04/2017			10/12/2017	Sofia Elnemr	1934311
	10/04/2017			10/13/2017	Sofia Elnemr	1934310
EPA 351.2 Rev. 2.0	10/04/2017	10/09/2017	Adrian Shelby	10/10/2017	Virginia P. Brown	1934311, 1934312
	10/04/2017	10/12/2017	Adrian Shelby	10/13/2017	Virginia P. Brown	1934310
EPA 353.2 Rev. 2.0	10/04/2017			10/11/2017	Beverly Y. Sanders	1934310, 1934311, 1934312
EPA 365.1 Rev. 2.0	10/04/2017	10/09/2017	Sima Feizi	10/10/2017	Lipi Saha	1934310, 1934311, 1934312
EPA 365.1 Rev. 2.0 dissolved	10/04/2017			10/05/2017 15:18	Megan Treadwell	1934313
	10/04/2017			10/05/2017 15:19	Megan Treadwell	1934314, 1934315
SM 2120 B	10/04/2017			10/05/2017 14:58	Tanya Welborn	1934309
	10/04/2017			10/05/2017 15:43	Tanya Welborn	1934307
	10/04/2017			10/05/2017 15:44	Tanya Welborn	1934308
SM 2320 B-97	10/04/2017			10/10/2017	Dale L. Simmons	1934307, 1934308, 1934309
SM 2540 C-97	10/04/2017			10/06/2017	DeAsia Armster	1934307, 1934308, 1934309
SM 2540 D-97	10/04/2017			10/06/2017	DeAsia Armster	1934307, 1934308, 1934309
SM 4500 F-C-97	10/04/2017			10/10/2017	Dale L. Simmons	1934307, 1934308, 1934309
SM 5310 B-00	10/04/2017			10/11/2017	Ping Hua	1934310, 1934311, 1934312