

Chemical Analysis Report

WQAP-2017-08-08-01

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

Event Description: **SMP 2016 Freshwater Kit A**
Request ID: **RQ-2017-06-26-38**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-AUG-2017 12:16

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Weaver (middle) Warrior Creek @ US 98

Collection Date/Time: 08/08/2017 10:10

Field ID: G1TLHR0007-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919793	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P329898	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P329985	
	SM 2120 B	Color (true)	120	A	PCU	P329952	
	SM 2320 B-97	Total Alkalinity	166		mg CaCO3/L	P330090	
	SM 2540 C-97	TDS	210		mg/L	P330169	
	SM 2540 D-97	TSS	2	U	mg/L	P330571	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P330092	
1919797	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P330138	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P330072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330101	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P330036	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P330165	
1919801	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P329848	

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: Fenholloway @ US 27

Collection Date/Time: 08/08/2017 10:10

Field ID: G1TLHR0002-2017-03

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919794	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P329898	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P329985	
	SM 2120 B	Color (true)	1.0E+03		PCU	P329952	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P330090	
	SM 2540 C-97	TDS	173		mg/L	P330169	
	SM 2540 D-97	TSS	2	U	mg/L	P330571	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330092	
1919798	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P330138	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P330074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P330101	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P330036	
	SM 5310 B-00	Organic Carbon	94		mg C/L	P330165	
1919802	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P329848	

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: Pimple Creek @ Julia St.

Collection Date/Time: 08/08/2017 11:15

Field ID: G1TLHR0011-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919795	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P329898	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P329985	
	SM 2120 B	Color (true)	18		PCU	P329952	
	SM 2320 B-97	Total Alkalinity	192	A	mg CaCO3/L	P330090	

Field ID: G1TLHR0011-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919795	SM 2540 C-97	TDS	194		mg/L	P330169	
	SM 2540 D-97	TSS	2	U	mg/L	P330571	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P330092	
1919799	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P330139	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P330074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P330102	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P330036	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P330165	
1919803	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P329848	

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: Fenholloway River @ CR 356

Collection Date/Time: 08/08/2017 11:55

Field ID: G1TLHR0003-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919796	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P329898	
	EPA 300.0 Rev. 2.1	Chloride	91		mg Cl/L	P329985	
	SM 2120 B	Color (true)	650		PCU	P329952	
	SM 2320 B-97	Total Alkalinity	157		mg CaCO3/L	P330090	
	SM 2540 C-97	TDS	728		mg/L	P330169	
	SM 2540 D-97	TSS	4	I	mg/L	P330571	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P330092	
1919800	EPA 350.1 Rev. 2.0	Ammonia-N	1.3		mg N/L	P330368	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P330074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P330102	
	EPA 365.1 Rev. 2.0	Total-P	0.47		mg P/L	P330036	
	SM 5310 B-00	Organic Carbon	52		mg C/L	P330165	
1919804	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P329848	

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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P329898

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P329985

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330138

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330139

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330368

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330072

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330074

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330101

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330102

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330036

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329848

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: P329952

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
 Batch ID: P330090

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

Reference Method: SM 2540 C-97
 Batch ID: P330169

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P330571

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P330092

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P330165

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: P329985

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P330138

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P330139

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330139

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330368

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330101

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: P330102

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: P330036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329848

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

Reference Method: SM 2320 B-97
Batch ID: P330090

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P330092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919548	Chloride	99.0		P	90 - 110
1919711	Chloride	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919561	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919799	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920644	Ammonia-N	98.5	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919733	Kjeldahl Nitrogen	102	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919559	NO2NO3-N	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919826	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919797	Total-P	96.1	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919801	O-Phosphate-P	95.3	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P330092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919795	Fluoride	99.1	103	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P330165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919562	Organic Carbon	99.3	99.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919711	Turbidity	1.58	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919711	Chloride	6.48	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919561	Ammonia-N	0.882	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919799	Ammonia-N	1.47	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920644	Ammonia-N	3.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919733	Kjeldahl Nitrogen	4.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919901	Kjeldahl Nitrogen	5.03	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919559	NO2NO3-N	0.443	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919826	NO2NO3-N	0.300	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919797	Total-P	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919801	O-Phosphate-P	0.905	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P329952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919793	Color (true)	0.757	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919795	Total Alkalinity	0.115	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P330169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919825	TDS	3.98	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919795	Fluoride	2.40	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P330165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919562	Organic Carbon	0.194	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 365.1 Rev. 2.0 dissolved
Run ID: A78260
Included Lab Sample IDs: 1919801, 1919802, 1919803, 1919804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	99.2	P/P	90 - 110
O-Phosphate-P	99.3	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78270
Included Lab Sample IDs: 1919793, 1919794, 1919795, 1919796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78275

Included Lab Sample IDs: 1919793, 1919794, 1919795, 1919796

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

Reference Method: SM 2120 B

Run ID: A78299

Included Lab Sample IDs: 1919793, 1919794, 1919795, 1919796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.6	100	P/P	85 - 115
Color (true)	99.7	101	P/P	85 - 115

Reference Method: SM 2320 B-97

Run ID: A78343

Included Lab Sample IDs: 1919793, 1919794, 1919795, 1919796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78343

Included Lab Sample IDs: 1919793, 1919794, 1919795, 1919796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78345

Included Lab Sample IDs: 1919797, 1919798, 1919799, 1919800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78349

Included Lab Sample IDs: 1919797, 1919798, 1919799, 1919800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78366

Included Lab Sample IDs: 1919797, 1919798, 1919799

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

Reference Method: SM 5310 B-00

Run ID: A78375

Included Lab Sample IDs: 1919797, 1919798, 1919799, 1919800

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

Reference Method: SM 5310 B-00

Run ID: A78375

Included Lab Sample IDs: 1919797, 1919798, 1919799, 1919800

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78387

Included Lab Sample IDs: 1919797

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.2	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78402

Included Lab Sample IDs: 1919798, 1919799, 1919800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78450

Included Lab Sample IDs: 1919800

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
EPA 180.1 Rev. 2.0	Turbidity				1.58	
EPA 300.0 Rev. 2.1	Chloride	100	96.3	99.0	6.48	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	104		0.882
	Ammonia-N	101	102	101		1.47
	Ammonia-N	97.8	98.5	104		3.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	102	109		4.23
	Kjeldahl Nitrogen	107				5.03
EPA 353.2 Rev. 2.0	NO2NO3-N	106	104	103		0.443
	NO2NO3-N	106	105	104		0.300
EPA 365.1 Rev. 2.0	Total-P	97.0	96.1	97.9		1.62
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	95.3	96.5		0.905
SM 2120 B	Color (true)				0.757	
SM 2320 B-97	Total Alkalinity	102			0.115	
SM 2540 C-97	TDS				3.98	
SM 4500 F-C-97	Fluoride	97.9	99.1	103		2.40
SM 5310 B-00	Organic Carbon	98.3	99.3	99.5		0.194

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1919793, 1919794, 1919795, 1919796
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1919793, 1919794, 1919795, 1919796
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1919797, 1919798, 1919799, 1919800
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1919797, 1919798, 1919799, 1919800
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1919797, 1919798, 1919799, 1919800
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1919797, 1919798, 1919799, 1919800
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1919801, 1919802, 1919803, 1919804
SM 2120 B / E31780	True Color measured at 450 nm	1919793, 1919794, 1919795, 1919796
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1919793, 1919794, 1919795, 1919796
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1919793, 1919794, 1919795, 1919796
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1919793, 1919794, 1919795, 1919796
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1919793, 1919794, 1919795, 1919796
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1919797, 1919798, 1919799, 1919800

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	08/08/2017			08/08/2017 17:09	DeAsia Armster	1919793, 1919794, 1919795, 1919796
EPA 300.0 Rev. 2.1	08/08/2017			08/09/2017	Julia Storbeck	1919793, 1919794, 1919795, 1919796
EPA 350.1 Rev. 2.0	08/08/2017			08/10/2017	Sofia Elnemr	1919797, 1919798, 1919799
	08/08/2017			08/16/2017	Sofia Elnemr	1919800
EPA 351.2 Rev. 2.0	08/08/2017	08/11/2017	Adrian Shelby	08/14/2017	Joseph Suarez	1919797
	08/08/2017	08/11/2017	Adrian Shelby	08/15/2017	Joseph Suarez	1919798, 1919799, 1919800
EPA 353.2 Rev. 2.0	08/08/2017			08/11/2017	Beverly Y. Sanders	1919797, 1919798, 1919799, 1919800
EPA 365.1 Rev. 2.0	08/08/2017	08/10/2017	Sima Feizi	08/11/2017	Lipi Saha	1919797, 1919798, 1919799, 1919800
EPA 365.1 Rev. 2.0 dissolved	08/08/2017			08/08/2017 14:54	Ping Hua	1919801
	08/08/2017			08/08/2017 15:18	Ping Hua	1919803
	08/08/2017			08/08/2017 15:19	Ping Hua	1919802
	08/08/2017			08/08/2017 15:34	Ping Hua	1919804
SM 2120 B	08/08/2017			08/09/2017 15:23	Tanya Welborn	1919793
	08/08/2017			08/09/2017 15:24	Tanya Welborn	1919795
	08/08/2017			08/09/2017 15:49	Tanya Welborn	1919794
	08/08/2017			08/09/2017 15:50	Tanya Welborn	1919796
SM 2320 B-97	08/08/2017			08/11/2017	Dale L. Simmons	1919793, 1919794, 1919795, 1919796
SM 2540 C-97	08/08/2017			08/10/2017	Yijie Li	1919793, 1919794, 1919795, 1919796
SM 2540 D-97	08/08/2017			08/10/2017	Yijie Li	1919793, 1919794, 1919795, 1919796
SM 4500 F-C-97	08/08/2017			08/10/2017	Dale L. Simmons	1919795
	08/08/2017			08/11/2017	Dale L. Simmons	1919793, 1919794, 1919796
SM 5310 B-00	08/08/2017			08/12/2017	Sofia Elnemr	1919797, 1919798, 1919799, 1919800