Chemical Analysis Report

WQAP-2017-01-31-02

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

Event Description: **Melrose Lakes**
Request ID: **RQ-2017-01-23-10**
Customer: **WQAP**
Project ID: **SMP**

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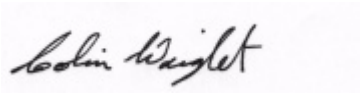
Certified by: Colin Wright, Program Administrator

Date Certified: 21-FEB-2017 13:13



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: South Bull Pond Center **Collection Date/Time: 01/30/2017 10:20**

Field ID: G1NE0861 01302017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868180	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P319020	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P319325	
		Sulfate	6.3		mg SO4/L	P319328	
	SM 2120 B	Color (true)	29	A	PCU	P319000	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	55		mg/L	P319425	
	SM 2540 D-97	TSS	3	I	mg/L	P319175	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P319276	
1868184	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319258	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P319098	
	SM 5310 B-00	Organic Carbon	9.7		mg C/L	P319074	
1868188	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319014	

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 Rowan Center **Collection Date/Time: 01/30/2017 11:30**

Field ID: G2NE0931 01302017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868181	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P319020	
	EPA 300.0 Rev. 2.1	Chloride	12	A	mg Cl/L	P319325	
		Sulfate	1.9	A	mg SO4/L	P319328	
	SM 2120 B	Color (true)	79		PCU	P319000	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	93		mg/L	P319425	
	SM 2540 D-97	TSS	6	I	mg/L	P319175	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P319276	
1868185	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P319030	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319258	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P319098	
	SM 5310 B-00	Organic Carbon	34		mg C/L	P319074	
1868189	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P319014	

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 Rosa Center **Collection Date/Time: 01/30/2017 12:30**

Field ID: G2NE1130 01302017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868182	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P319020	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P319325	
		Sulfate	8.9		mg SO4/L	P319328	

Field ID: G2NE1130 01302017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868182	SM 2120 B	Color (true)	3.1	I	PCU	P319000	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	40		mg/L	P319425	
	SM 2540 D-97	TSS	2	U	mg/L	P319175	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P319276	
1868186	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P319122	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P319258	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P319098	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P319074	
1868190	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319014	

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: FIELD BLANK **Collection Date/Time: 01/30/2017 12:45**

Field ID: FIELD BLANK Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868183	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P319020	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P319326	
		Sulfate	0.20	U	mg SO4/L	P319329	
	SM 2120 B	Color (true)	2.5	U	PCU	P319000	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	15	U	mg/L	P319426	
	SM 2540 D-97	TSS	2	U	mg/L	P319175	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319276	
1868187	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319340	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P319210	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319470	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P319098	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P319074	
1868191	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319014	

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: P319020

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319326

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319329

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319340

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319122

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319210

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319258

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319470

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

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

Reference Method: SM 2120 B
Batch ID: P319000

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P319273

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

Reference Method: SM 2540 C-97
Batch ID: P319425

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P319426

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319175

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319074

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: P319325

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319326

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319329

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

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: P319340

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: P319030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319122

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319210

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319258

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319470

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

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

Reference Method: SM 2320 B-97
Batch ID: P319273

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

Reference Method: SM 4500 F-C-97
Batch ID: P319276

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P319074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868181	Chloride	102		P	90 - 110
1868205	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868301	Chloride	105		P	90 - 110
1868315	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868181	Sulfate	97.3		P	90 - 110
1868205	Sulfate	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868301	Sulfate	97.7		P	90 - 110
1868315	Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868028	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868166	Ammonia-N	107	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868166	Kjeldahl Nitrogen	93.5	99.4	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868216	Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868545	Kjeldahl Nitrogen	98.7	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868185	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867226	NO2NO3-N	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868193	Total-P	97.4	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868190	O-Phosphate-P	98.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868301	Fluoride	96.6	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868166	Organic Carbon	96.1	96.6	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868169	Turbidity	3.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868181	Chloride	0.0417	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868315	Chloride	0.329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868181	Sulfate	3.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868315	Sulfate	0.0448	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868028	Ammonia-N	1.08	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868166	Ammonia-N	1.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868166	Kjeldahl Nitrogen	3.88	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868216	Kjeldahl Nitrogen	0.170	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868545	Kjeldahl Nitrogen	1.91	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868185	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867226	NO2NO3-N	0.939	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868193	Total-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868190	O-Phosphate-P	2.11	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P319000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868180	Color (true)	0.384	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868301	Total Alkalinity	0.234	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P319425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868012	TDS	0.217	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P319426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868192	TDS	2.21	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868301	Fluoride	1.50	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868166	Organic Carbon	0.308	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: SM 2120 B
Run ID: A74192
Included Lab Sample IDs: 1868180, 1868181, 1868182, 1868183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	100	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74194
Included Lab Sample IDs: 1868188, 1868189, 1868190, 1868191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	103	P/P	90 - 110
O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74195
Included Lab Sample IDs: 1868180, 1868181, 1868182, 1868183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.0	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A74206
Included Lab Sample IDs: 1868180, 1868181, 1868182, 1868183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	93.4	98.2	P/P	90 - 110
Sulfate	95.7	97.3	P/P	90 - 110
Sulfate	97.1	93.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A74208
Included Lab Sample IDs: 1868184, 1868185, 1868186, 1868187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74218
Included Lab Sample IDs: 1868184, 1868185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74243
Included Lab Sample IDs: 1868184, 1868185, 1868186, 1868187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74250
Included Lab Sample IDs: 1868186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74255
Included Lab Sample IDs: 1868184, 1868185, 1868186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A74269
Included Lab Sample IDs: 1868180, 1868181, 1868182, 1868183

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A74269
Included Lab Sample IDs: 1868180, 1868181, 1868182, 1868183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74289
Included Lab Sample IDs: 1868184, 1868185, 1868186, 1868187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	99.4	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74293
Included Lab Sample IDs: 1868187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74335
Included Lab Sample IDs: 1868187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.52	
EPA 300.0 Rev. 2.1	Chloride	102	102	99.3		0.0417	
	Chloride	104	104	105		0.329	
	Sulfate	96.4	97.3	92.7		3.85	
	Sulfate	97.9	97.3	97.7		0.0448	
EPA 350.1 Rev. 2.0	Ammonia-N	102	100	102			1.08
	Ammonia-N	102	107	104			1.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	93.5	99.4			3.88
	Kjeldahl Nitrogen	102	101	100			0.170
	Kjeldahl Nitrogen	104	98.7	102			1.91
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	104			0.966
	NO2NO3-N	105	107	106			0.939
EPA 365.1 Rev. 2.0	Total-P	92.8	97.4	95.8			1.36
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	98.3	100			2.11
SM 2120 B	Color (true)					0.384	
SM 2320 B-97	Total Alkalinity	103				0.234	
SM 2540 C-97	TDS					0.217	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 2540 C-97	TDS					2.21	
SM 4500 F-C-97	Fluoride	97.9	96.6	98.3			1.50
SM 5310 B-00	Organic Carbon	96.4	96.1	96.6			0.308

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1868180, 1868181, 1868182, 1868183
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1868180, 1868181, 1868182, 1868183
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1868180, 1868181, 1868182, 1868183
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1868184, 1868185, 1868186, 1868187
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1868184, 1868185, 1868186, 1868187
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1868184, 1868185, 1868186, 1868187
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1868184, 1868185, 1868186, 1868187
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1868188, 1868189, 1868190, 1868191
SM 2120 B / E31780	True Color measured at 450 nm	1868180, 1868181, 1868182, 1868183
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1868180, 1868181, 1868182, 1868183
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1868180, 1868181, 1868182, 1868183
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1868180, 1868181, 1868182, 1868183
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1868180, 1868181, 1868182, 1868183
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1868184, 1868185, 1868186, 1868187

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	01/31/2017			01/31/2017 16:45	Julie Michelle Frank	1868180, 1868181, 1868182, 1868183
EPA 300.0 Rev. 2.1	01/31/2017			02/03/2017	Ping Hua	1868180, 1868181, 1868182
	01/31/2017			02/04/2017	Ping Hua	1868183
EPA 350.1 Rev. 2.0	01/31/2017			02/02/2017	Sofia Elnemr	1868184, 1868185, 1868186, 1868187
EPA 351.2 Rev. 2.0	01/31/2017	02/01/2017	Adrian Shelby	02/01/2017	Joseph Suarez	1868184, 1868185
	01/31/2017	02/02/2017	Adrian Shelby	02/03/2017	Joseph Suarez	1868186
	01/31/2017	02/03/2017	Adrian Shelby	02/06/2017	Joseph Suarez	1868187
EPA 353.2 Rev. 2.0	01/31/2017			02/03/2017	Beverly Y. Sanders	1868184, 1868185, 1868186
	01/31/2017			02/07/2017	Virginia P. Brown	1868187
EPA 365.1 Rev. 2.0	01/31/2017	02/01/2017	Vijayalakshmi Reddy	02/02/2017	Lipi Saha	1868184, 1868185, 1868186, 1868187
EPA 365.1 Rev. 2.0 dissolved	01/31/2017			01/31/2017 14:29	Julie Michelle Frank	1868190
	01/31/2017			01/31/2017 15:17	Julie Michelle Frank	1868188
	01/31/2017			01/31/2017 15:18	Julie Michelle Frank	1868189
	01/31/2017			01/31/2017 15:19	Julie Michelle Frank	1868191
SM 2120 B	01/31/2017			01/31/2017 15:02	Jared I. Manley	1868180
	01/31/2017			01/31/2017 15:05	Jared I. Manley	1868181
	01/31/2017			01/31/2017 15:06	Jared I. Manley	1868182, 1868183
SM 2320 B-97	01/31/2017			02/02/2017	Dale L. Simmons	1868180, 1868181, 1868182, 1868183
SM 2540 C-97	01/31/2017			02/03/2017	Blanca Fach	1868180, 1868181, 1868182, 1868183
SM 2540 D-97	01/31/2017			02/01/2017	Christopher Armour	1868180, 1868181, 1868182, 1868183
SM 4500 F-C-97	01/31/2017			02/02/2017	Dale L. Simmons	1868180, 1868181, 1868182, 1868183
SM 5310 B-00	01/31/2017			01/31/2017	Julie Michelle Frank	1868184, 1868185, 1868186, 1868187