

Chemical Analysis Report

SW-DIST-2017-03-01-01

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

Event Description: **SMP RUN 3**
Request ID: **RQ-2017-02-27-21**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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Certified by: Colin Wright, Program Administrator

Date Certified: 28-MAR-2017 16:50

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on 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: BEAR CREEK @ BEACON

Collection Date/Time: 02/28/2017 10:45

Field ID: G5SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876338	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P321454	
		Sulfate	32		mg SO4/L	P321622	
	SM 2120 B	Color (true)	21		PCU	P320756	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P321208	
	SM 2540 C-97	TDS	402		mg/L	P321280	
	SM 2540 D-97	TSS	6	I	mg/L	P321217	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P321043	
1876343	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P321127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P320900	
1876348	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P320762	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: The result was confirmed on 03/03/2017.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 03/09/2017.

Sample Location: LAKE THOMAS

Collection Date/Time: 02/28/2017 13:30

Field ID: G5SW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876339	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P321454	
		Sulfate	9.2		mg SO4/L	P321623	
	SM 2120 B	Color (true)	27		PCU	P320756	
	SM 2320 B-97	Total Alkalinity	0.87	I	mg CaCO3/L	P321208	
	SM 2540 C-97	TDS	65		mg/L	P321280	
	SM 2540 D-97	TSS	4	I	mg/L	P321217	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P321043	
1876344	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P320815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P320900	
1876349	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320762	

Sample Location: HANCOCK LAKE

Collection Date/Time: 02/28/2017 12:12

Field ID: G5SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876340	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P321454	
		Sulfate	1.6		mg SO4/L	P321623	

Field ID: G5SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876340	SM 2120 B	Color (true)	36	A	PCU	P320756	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P321208	
	SM 2540 C-97	TDS	74		mg/L	P321280	
	SM 2540 D-97	TSS	9	I	mg/L	P321217	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P321043	
1876345	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P320815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P320900	
1876350	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320762	

Sample Location: BEAR CREEK (DUPLICATE)

Collection Date/Time: 02/28/2017 10:50

Field ID: G5SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876341	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P321454	
		Sulfate	32		mg SO4/L	P321623	
	SM 2120 B	Color (true)	19		PCU	P320756	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P321208	
	SM 2540 C-97	TDS	416		mg/L	P321280	
	SM 2540 D-97	TSS	4	I	mg/L	P321217	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P321043	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P321127	
1876346	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P320900	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P320762	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: The result was confirmed on 03/03/2017.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 03/09/2017.

Sample Location: BLANK

Collection Date/Time: 02/28/2017 10:58

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876342	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P321454	
		Sulfate	0.20	U	mg SO4/L	P321623	
	SM 2120 B	Color (true)	2.5	U	PCU	P320756	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P321208	
	SM 2540 C-97	TDS	15	U	mg/L	P321277	
	SM 2540 D-97	TSS	2	U	mg/L	P321214	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P321043	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876347	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321259	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P320815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320991	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320900	
1876352	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320762	

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: P320746

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321454

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321622

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321623

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321049

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321259

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320815

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: P321127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320991

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320927

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320762

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

Reference Method: SM 2120 B
Batch ID: P320756

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P321208

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

Reference Method: SM 2540 C-97
Batch ID: P321277

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P321280

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P321214

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P321217

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P321043

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P320900

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: P321454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321622

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321623

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321049

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: P321259

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: P321259

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320815

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320990

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: P320991

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: P320927

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320762

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.5		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P321208

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P321043

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P320900

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876339	Chloride	92.8		P	90 - 110
1876711	Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876211	Sulfate	100		P	90 - 110
1876300	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876340	Sulfate	103		P	90 - 110
1876407	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876265	Ammonia-N	100	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877170	Ammonia-N	98.4	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876346	Kjeldahl Nitrogen	109	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877673	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876265	NO2NO3-N	108	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876389	NO2NO3-N	107	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876305	Total-P	105	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876310	O-Phosphate-P	96.3	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P321043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876211	Fluoride	104	105	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876265	Organic Carbon	101	99.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876302	Turbidity	2.89	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876711	Chloride	0.187	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876211	Sulfate	0.0989	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876407	Sulfate	0.0284	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876265	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877170	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876346	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877673	Kjeldahl Nitrogen	2.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876265	NO2NO3-N	0.587	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876389	NO2NO3-N	1.89	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876305	Total-P	4.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876310	O-Phosphate-P	1.80	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P320756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876340	Color (true)	1.60	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P321208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876212	Total Alkalinity	1.49	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P321277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876159	TDS	7.69	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P321280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876302	TDS	4.23	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P321217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876302	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P321043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876211	Fluoride	0.503	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P320900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876265	Organic Carbon	0.837	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: A74813
Included Lab Sample IDs: 1876338, 1876339, 1876340, 1876341, 1876342

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

Reference Method: SM 2120 B
Run ID: A74814
Included Lab Sample IDs: 1876338, 1876339, 1876340, 1876341, 1876342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.8	95.3	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74815
Included Lab Sample IDs: 1876348, 1876349, 1876350, 1876351, 1876352

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

Reference Method: SM 5310 B-00
Run ID: A74870
Included Lab Sample IDs: 1876343, 1876344, 1876345, 1876346, 1876347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	96.2	P/P	90 - 110
Organic Carbon	96.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74890
Included Lab Sample IDs: 1876344, 1876345, 1876347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	99.7	P/P	90 - 110
Kjeldahl Nitrogen	99.7	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74901

Included Lab Sample IDs: 1876343, 1876344, 1876345, 1876346, 1876347

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74902

Included Lab Sample IDs: 1876343, 1876345, 1876346

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74910

Included Lab Sample IDs: 1876344, 1876347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.2	P/P	90 - 110
Total-P	98.2	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74917

Included Lab Sample IDs: 1876338, 1876339, 1876340, 1876341, 1876342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74921

Included Lab Sample IDs: 1876343, 1876344, 1876345, 1876346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	98.3	P/P	90 - 110
Ammonia-N	98.3	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74976

Included Lab Sample IDs: 1876338, 1876339, 1876340, 1876341, 1876342

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74977

Included Lab Sample IDs: 1876338, 1876339, 1876340, 1876341, 1876342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	93.9	94.0	P/P	90 - 110
Chloride	94.0	94.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74980
Included Lab Sample IDs: 1876343, 1876346

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74986
Included Lab Sample IDs: 1876347

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75123
Included Lab Sample IDs: 1876338, 1876339, 1876340, 1876341, 1876342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	101	103	P/P	90 - 110
Sulfate	102	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.89	
EPA 300.0 Rev. 2.1	Chloride	94.8	94.2	92.8		0.187	
	Sulfate	101	100	100		0.0989	
	Sulfate	103	102	103		0.0284	
EPA 350.1 Rev. 2.0	Ammonia-N	103	100	98.0			1.23
	Ammonia-N	100	98.4	96.5			1.69
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	109	104			2.90
	Kjeldahl Nitrogen	109	105	102			2.62
EPA 353.2 Rev. 2.0	NO2NO3-N	106	108	107			0.587
	NO2NO3-N	106	107	105			1.89
EPA 365.1 Rev. 2.0	Total-P	104	105	100			4.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	96.3	98.5			1.80
SM 2120 B	Color (true)					1.60	
SM 2320 B-97	Total Alkalinity	104				1.49	
SM 2540 C-97	TDS					7.69	
	TDS					4.23	
SM 2540 D-97	TSS					7.41	
SM 4500 F-C-97	Fluoride	97.3	104	105			0.503
SM 5310 B-00	Organic Carbon	101	101	99.5			0.837

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1876338, 1876339, 1876340, 1876341, 1876342
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1876338, 1876339, 1876340, 1876341, 1876342
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1876338, 1876339, 1876340, 1876341, 1876342
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1876343, 1876344, 1876345, 1876346, 1876347
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1876343, 1876344, 1876345, 1876346, 1876347
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1876343, 1876344, 1876345, 1876346, 1876347
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1876343, 1876344, 1876345, 1876346, 1876347
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1876348, 1876349, 1876350, 1876351, 1876352
SM 2120 B / E31780	True Color measured at 450 nm	1876338, 1876339, 1876340, 1876341, 1876342
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1876338, 1876339, 1876340, 1876341, 1876342
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1876338, 1876339, 1876340, 1876341, 1876342
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1876338, 1876339, 1876340, 1876341, 1876342
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1876338, 1876339, 1876340, 1876341, 1876342
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1876343, 1876344, 1876345, 1876346, 1876347

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	03/01/2017			03/01/2017 15:14	Sima Feizi	1876338, 1876339, 1876340, 1876341, 1876342
EPA 300.0 Rev. 2.1	03/01/2017			03/11/2017	Elisa J Lutz	1876338, 1876339, 1876340, 1876341, 1876342
	03/01/2017			03/15/2017	Elisa J Lutz	1876338, 1876339, 1876340, 1876341, 1876342
EPA 350.1 Rev. 2.0	03/01/2017			03/06/2017	Sofia Elnemr	1876343, 1876344, 1876345, 1876346
	03/01/2017			03/08/2017	Sofia Elnemr	1876347
EPA 351.2 Rev. 2.0	03/01/2017	03/02/2017	Adrian Shelby	03/03/2017	Joseph Suarez	1876344, 1876345, 1876347
	03/01/2017	03/08/2017	Adrian Shelby	03/09/2017	Joseph Suarez	1876343, 1876346
EPA 353.2 Rev. 2.0	03/01/2017			03/06/2017	Beverly Y. Sanders	1876343, 1876344, 1876345, 1876346, 1876347
EPA 365.1 Rev. 2.0	03/01/2017	03/03/2017	Vijayalakshmi Reddy	03/06/2017	Lipi Saha	1876343, 1876344, 1876345, 1876346, 1876347
EPA 365.1 Rev. 2.0 dissolved	03/01/2017			03/01/2017 14:54	Julia Storbeck	1876352
	03/01/2017			03/01/2017 14:56	Julia Storbeck	1876348
	03/01/2017			03/01/2017 14:57	Julia Storbeck	1876351
	03/01/2017			03/01/2017 15:13	Julia Storbeck	1876349
	03/01/2017			03/01/2017 15:14	Julia Storbeck	1876350
SM 2120 B	03/01/2017			03/01/2017 16:38	Julie Michelle Frank	1876338
	03/01/2017			03/01/2017 16:39	Julie Michelle Frank	1876339
	03/01/2017			03/01/2017 16:41	Julie Michelle Frank	1876340, 1876341
	03/01/2017			03/01/2017 16:42	Julie Michelle Frank	1876342
SM 2320 B-97	03/01/2017			03/09/2017	Dale L. Simmons	1876338, 1876339, 1876340, 1876341, 1876342
SM 2540 C-97	03/01/2017			03/03/2017	Yijie Li	1876338, 1876339, 1876340, 1876341, 1876342
SM 2540 D-97	03/01/2017			03/03/2017	Yijie Li	1876338, 1876339, 1876340, 1876341, 1876342
SM 4500 F-C-97	03/01/2017			03/04/2017	Dale L. Simmons	1876338, 1876339, 1876340, 1876341, 1876342
SM 5310 B-00	03/01/2017			03/02/2017	Julie Michelle Frank	1876343, 1876344, 1876345, 1876346, 1876347