

Chemical Analysis Report

NE-DIST-2017-03-01-02

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

Event Description: **Ichetucknee**
Request ID: **RQ-2017-02-27-10**
Customer: **NE-DIST**
Project ID: **SMP**

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8800 Baymeadows Way West
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 28-MAR-2017 11:50



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: Grassy Hole Spring

Collection Date/Time: 02/28/2017 11:15

Field ID: G1NE0532 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876298	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P320745	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P321453	
		Sulfate	20		mg SO4/L	P321622	
	SM 2120 B	Color (true)	2.5	U	PCU	P320756	
	SM 2540 C-97	TDS	202		mg/L	P321279	
	SM 2540 D-97	TSS	2	I	mg/L	P321216	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P321209	
1876303	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P320814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.57		mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P320917	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320900	
1876308	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P320761	

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: Grassy Hole Spring dup

Collection Date/Time: 02/28/2017 11:20

Field ID: G1NE0532 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876299	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P320745	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P321453	
		Sulfate	20		mg SO4/L	P321622	
	SM 2120 B	Color (true)	2.5	U	PCU	P320756	
	SM 2540 C-97	TDS	193		mg/L	P321279	
	SM 2540 D-97	TSS	2	I	mg/L	P321216	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P321209	
1876304	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P320814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.57		mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320900	
1876309	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P320761	

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: Ichetucknee R @ Coffee Springs

Collection Date/Time: 02/28/2017 12:45

Field ID: G1NE0583 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876300	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P320745	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P321454	
		Sulfate	10		mg SO4/L	P321622	
	SM 2120 B	Color (true)	2.5	U	PCU	P320756	
	SM 2540 C-97	TDS	153		mg/L	P321279	

Field ID: G1NE0583 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876300	SM 2540 D-97	TSS	3	I	mg/L	P321216	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P321209	
1876305	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.090	I	mg N/L	P320814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320900	
1876310	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		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.

Sample Location: Devil's Eye Spring

Collection Date/Time: 02/28/2017 12:20

Field ID: G1NE0561 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876301	EPA 180.1 Rev. 2.0	Turbidity	0.10		NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P321454	
		Sulfate	12		mg SO4/L	P321622	
	SM 2120 B	Color (true)	2.5	U	PCU	P320756	
	SM 2540 C-97	TDS	180		mg/L	P321279	
	SM 2540 D-97	TSS	2	I	mg/L	P321216	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P321209	
1876306	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P320815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.61		mg N/L	P320990	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P320927	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320900	
1876311	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		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.

Sample Location: Rose Creek @ Brookwood

Collection Date/Time: 02/28/2017 10:00

Field ID: G1NE019 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876302	EPA 180.1 Rev. 2.0	Turbidity	5.5	A	NTU	P320746	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P321454	
		Sulfate	0.44	I	mg SO4/L	P321622	
	SM 2120 B	Color (true)	310		PCU	P320756	
	SM 2540 C-97	TDS	142	A	mg/L	P321280	
	SM 2540 D-97	TSS	11	A	mg/L	P321217	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P321324	
1876307	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P321049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		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	0.41		mg P/L	P320927	

Field ID: G1NE019 02272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876307	SM 5310 B-00	Organic Carbon	44		mg C/L	P320900	
1876312	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.27	Y	mg P/L	P320762	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Sample was filtered in lab as it appeared to have not been filtered in the field.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P320745

Component	Result	Code	Units
Turbidity	0.10	U	NTU

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: P321453

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

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 350.1 Rev. 2.0
 Batch ID: P321049

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320814

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	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 353.2 Rev. 2.0
Batch ID: P320990

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320917

Component	Result	Code	Units
Total-P	0.002	U	mg P/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: P320761

Component	Result	Code	Units
O-Phosphate-P	0.004	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 2540 C-97
Batch ID: P321279

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

Reference Method: SM 2540 D-97
Batch ID: P321216

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

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: P321209

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P321324

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: P321453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	93.7		P	90 - 110

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 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 351.2 Rev. 2.0
Batch ID: P320814

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320814

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

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

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	101		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 365.1 Rev. 2.0
Batch ID: P320917

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	104		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: P320761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.5		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 4500 F-C-97
Batch ID: P321209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P321324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		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: P321453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876208	Chloride	93.6		P	90 - 110
1876213	Chloride	94.1		P	90 - 110

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 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 351.2 Rev. 2.0
 Batch ID: P320814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876305	Kjeldahl Nitrogen	103	99.8	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 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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P320917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876175	Total-P	104	98.2	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: P320761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876227	O-Phosphate-P	98.0	99.5	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: P321209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876840	Fluoride	97.0	97.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P321324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876994	Fluoride	101	99.4	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: P320745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876214	Turbidity	9.94	Sample	P	0 - 20

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: P321453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876213	Chloride	0.000880	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

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 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 351.2 Rev. 2.0
Batch ID: P320814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876305	Kjeldahl Nitrogen	3.15	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 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

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876175	Total-P	5.05	Spike	P	0 - 20

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: P320761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876227	O-Phosphate-P	1.52	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 2540 C-97
Batch ID: P321279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876241	TDS	4.64	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

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P321209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876840	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P321324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876994	Fluoride	0.953	Spike	P	0 - 3.0

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: 1876298, 1876299, 1876300, 1876301, 1876302

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

Reference Method: SM 2120 B
Run ID: A74814
Included Lab Sample IDs: 1876298, 1876299, 1876300, 1876301, 1876302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.8	95.3	P/P	85 - 115
Color (true)	95.0	97.8	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74815
Included Lab Sample IDs: 1876308, 1876309, 1876310, 1876311, 1876312

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
O-Phosphate-P	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A74870

Included Lab Sample IDs: 1876303, 1876304, 1876305, 1876306, 1876307

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74890

Included Lab Sample IDs: 1876303, 1876304, 1876305, 1876306, 1876307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	96.9	P/P	90 - 110
Kjeldahl Nitrogen	97.4	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74901

Included Lab Sample IDs: 1876303, 1876304, 1876305, 1876306, 1876307

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: 1876303, 1876304, 1876306, 1876307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	100	P/P	90 - 110
Total-P	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74910

Included Lab Sample IDs: 1876305

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74921

Included Lab Sample IDs: 1876303, 1876304, 1876305, 1876306, 1876307

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

Reference Method: SM 4500 F-C-97

Run ID: A74976

Included Lab Sample IDs: 1876298, 1876299, 1876300, 1876301

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.5	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74977

Included Lab Sample IDs: 1876298, 1876299, 1876300, 1876301, 1876302

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74977

Included Lab Sample IDs: 1876298, 1876299, 1876300, 1876301, 1876302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	92.9	93.9	P/P	90 - 110
Chloride	93.9	94.0	P/P	90 - 110
Chloride	94.0	94.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75009

Included Lab Sample IDs: 1876302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	97.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75123

Included Lab Sample IDs: 1876298, 1876299, 1876300, 1876301, 1876302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	102	101	P/P	90 - 110
Sulfate	99.8	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					9.94	
	Turbidity					2.89	
EPA 300.0 Rev. 2.1	Chloride	93.7	94.1	93.6		0.0008	
	Chloride	94.8	94.2	92.8		0.187	
	Sulfate	101	100	100		0.0989	
EPA 350.1 Rev. 2.0	Ammonia-N	103	100	98.0			1.23
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	103	99.8			3.15
	Kjeldahl Nitrogen	101	109	104			2.90
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	106	108	107			0.587
EPA 365.1 Rev. 2.0	Total-P	104	104	98.2			5.05
	Total-P	104	105	100			4.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	98.0	99.5			1.52
	O-Phosphate-P	99.5	96.3	98.5			1.80
SM 2120 B	Color (true)					1.60	
SM 2540 C-97	TDS					4.64	
	TDS					4.23	
SM 2540 D-97	TSS					7.41	
SM 4500 F-C-97	Fluoride	95.3	97.0	97.0			0.0
	Fluoride	97.4	101	99.4			0.953
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	1876298, 1876299, 1876300, 1876301, 1876302
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1876298, 1876299, 1876300, 1876301, 1876302
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1876298, 1876299, 1876300, 1876301, 1876302
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1876303, 1876304, 1876305, 1876306, 1876307
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1876303, 1876304, 1876305, 1876306, 1876307
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1876303, 1876304, 1876305, 1876306, 1876307
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1876303, 1876304, 1876305, 1876306, 1876307
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1876308, 1876309, 1876310, 1876311, 1876312
SM 2120 B / E31780	True Color measured at 450 nm	1876298, 1876299, 1876300, 1876301, 1876302
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1876298, 1876299, 1876300, 1876301, 1876302
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1876298, 1876299, 1876300, 1876301, 1876302
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1876298, 1876299, 1876300, 1876301, 1876302
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1876303, 1876304, 1876305, 1876306, 1876307

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	1876298, 1876299, 1876300, 1876301, 1876302
EPA 300.0 Rev. 2.1	03/01/2017			03/11/2017	Elisa J Lutz	1876298, 1876299, 1876300, 1876301, 1876302
	03/01/2017			03/15/2017	Elisa J Lutz	1876298, 1876299, 1876300, 1876301, 1876302
EPA 350.1 Rev. 2.0	03/01/2017			03/06/2017	Sofia Elnemr	1876303, 1876304, 1876305, 1876306, 1876307
EPA 351.2 Rev. 2.0	03/01/2017	03/02/2017	Adrian Shelby	03/03/2017	Joseph Suarez	1876303, 1876304, 1876305, 1876306, 1876307
EPA 353.2 Rev. 2.0	03/01/2017			03/06/2017	Beverly Y. Sanders	1876303, 1876304, 1876305, 1876306, 1876307
EPA 365.1 Rev. 2.0	03/01/2017	03/03/2017	Vijayalakshmi Reddy	03/06/2017	Lipi Saha	1876303, 1876304, 1876305, 1876306, 1876307
EPA 365.1 Rev. 2.0 dissolved	03/01/2017			03/01/2017 14:30	Julia Storbeck	1876310
	03/01/2017			03/01/2017 14:55	Julia Storbeck	1876308
	03/01/2017			03/01/2017 14:56	Julia Storbeck	1876309
	03/01/2017			03/01/2017 14:58	Julia Storbeck	1876312
	03/01/2017			03/01/2017 15:13	Julia Storbeck	1876311
SM 2120 B	03/01/2017			03/01/2017 16:34	Julie Michelle Frank	1876298
	03/01/2017			03/01/2017 16:35	Julie Michelle Frank	1876299
	03/01/2017			03/01/2017 16:36	Julie Michelle Frank	1876300
	03/01/2017			03/01/2017 16:37	Julie Michelle Frank	1876301
	03/01/2017			03/01/2017 17:11	Julie Michelle Frank	1876302
SM 2540 C-97	03/01/2017			03/03/2017	Yijie Li	1876298, 1876299, 1876300, 1876301, 1876302
SM 2540 D-97	03/01/2017			03/03/2017	Yijie Li	1876298, 1876299, 1876300, 1876301, 1876302
SM 4500 F-C-97	03/01/2017			03/08/2017	Dale L. Simmons	1876298, 1876299, 1876300, 1876301
	03/01/2017			03/09/2017	Dale L. Simmons	1876302
SM 5310 B-00	03/01/2017			03/02/2017	Julie Michelle Frank	1876303, 1876304, 1876305, 1876306, 1876307