

Chemical Analysis Report

NE-DIST-2017-11-06-02

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

Event Description: **Ichetucknee**
Request ID: **RQ-2017-11-06-16**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 29-NOV-2017 14:14

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Ichetucknee R @ US Hwy 27

Collection Date/Time: 11/06/2017 10:10

Field ID: G1NE0531 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943204	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P334900	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P335055	
		Sulfate	11		mg SO4/L	P335058	
	SM 2120 B	Color (true)	2.5	U	PCU	P334879	
	SM 2540 C-97	TDS	181		mg/L	P335253	
	SM 2540 D-97	TSS	2	I	mg/L	P335258	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P335168	
1943209	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P335188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P335107	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.54		mg N/L	P335454	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P334968	
	SM 5310 B-00	Organic Carbon	0.71	I	mg C/L	P335302	
1943214	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P334872	

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: 11/06/2017 11:20

Field ID: FB 11062017

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943205	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P334900	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P335055	
		Sulfate	0.20	U	mg SO4/L	P335058	
	SM 2120 B	Color (true)	2.5	U	PCU	P334879	
	SM 2540 C-97	TDS	15	U	mg/L	P335251	
	SM 2540 D-97	TSS	2	U	mg/L	P335256	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P335168	
1943210	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P335574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P335107	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P335454	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P334970	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P335302	
1943215	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P334872	

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

Collection Date/Time: 11/06/2017 10:40

Field ID: G1NE0532 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943206	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P334900	
	EPA 300.0 Rev. 2.1	Chloride	7.7		mg Cl/L	P335055	
		Sulfate	22		mg SO4/L	P335058	
	SM 2120 B	Color (true)	2.5	U	PCU	P334879	
	SM 2540 C-97	TDS	205		mg/L	P335253	

Field ID: G1NE0532 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943206	SM 2540 D-97	TSS	2	I	mg/L	P335258	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P335168	
1943211	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P335574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P335202	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.50		mg N/L	P335454	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P334970	
	SM 5310 B-00	Organic Carbon	0.62	I	mg C/L	P335302	
1943216	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P334872	

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: 11/06/2017 11:20

Field ID: G1NE0583 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943207	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P334900	
	EPA 300.0 Rev. 2.1	Chloride	4.0	A	mg Cl/L	P335055	
		Sulfate	9.5	A	mg SO4/L	P335058	
	SM 2120 B	Color (true)	2.5	U	PCU	P334879	
	SM 2540 C-97	TDS	154		mg/L	P335253	
	SM 2540 D-97	TSS	2	U	mg/L	P335258	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P335168	
1943212	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P335574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P335202	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.51		mg N/L	P335454	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P334970	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P335302	
1943217	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P334873	

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: 11/06/2017 11:40

Field ID: G1NE0561 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943208	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P334900	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P335055	
		Sulfate	14		mg SO4/L	P335058	
	SM 2120 B	Color (true)	2.5	U	PCU	P334879	
	SM 2540 C-97	TDS	195		mg/L	P335253	
	SM 2540 D-97	TSS	2	I	mg/L	P335258	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P335168	
1943213	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P335574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P335202	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P335454	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P334970	

Field ID: G1NE0561 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943213	SM 5310 B-00	Organic Carbon	0.69	I	mg C/L	P335235	
1943218	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P334872	

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: P334900

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335055

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335058

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335188

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335574

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335107

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335202

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335454

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334968

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

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

Reference Method: SM 2120 B
Batch ID: P334879

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 C-97
Batch ID: P335251

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P335253

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335256

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335258

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P335168

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P335235

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P335302

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: P335055

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335058

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335188

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: P335574

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335107

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335202

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: P335202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335454

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334968

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

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: P334873

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

Reference Method: SM 4500 F-C-97
Batch ID: P335168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335235

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P335302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943207	Chloride	95.1		P	90 - 110
1943482	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943207	Sulfate	93.0		P	90 - 110
1943482	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943174	Ammonia-N	93.3	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943173	Ammonia-N	98.4	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943209	Kjeldahl Nitrogen	102	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943211	Kjeldahl Nitrogen	99.7	93.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943172	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943174	Total-P	102	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943225	Total-P	95.7	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943214	O-Phosphate-P	105	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943217	O-Phosphate-P	103	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943504	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P335235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942482	Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P335302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943159	Organic Carbon	99.1	98.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P334900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943170	Turbidity	2.95	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943207	Chloride	5.21	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943207	Sulfate	5.26	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943174	Ammonia-N	6.00	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943173	Ammonia-N	1.87	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943209	Kjeldahl Nitrogen	5.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943211	Kjeldahl Nitrogen	6.06	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943172	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943174	Total-P	4.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943225	Total-P	1.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943214	O-Phosphate-P	1.97	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943217	O-Phosphate-P	5.16	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P334879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943171	Color (true)	1.78	Sample	P	0 - 20

Reference Method: SM 2540 C-97
Batch ID: P335251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942957	TDS	2.02	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P335253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943171	TDS	2.82	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943504	Fluoride	0.484	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942482	Organic Carbon	0.353	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P335302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943159	Organic Carbon	0.181	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A80109

Included Lab Sample IDs: 1943214, 1943215, 1943216, 1943217, 1943218

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	103	99.5	P/P	90 - 110
O-Phosphate-P	98.3	102	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A80112

Included Lab Sample IDs: 1943204, 1943205, 1943206, 1943207, 1943208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.6	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A80117

Included Lab Sample IDs: 1943204, 1943205, 1943206, 1943207, 1943208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80134

Included Lab Sample IDs: 1943204, 1943205, 1943206, 1943207, 1943208

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80172

Included Lab Sample IDs: 1943209, 1943211, 1943213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	97.8	P/P	90 - 110
Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80199

Included Lab Sample IDs: 1943210, 1943212

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

Reference Method: SM 4500 F-C-97

Run ID: A80224

Included Lab Sample IDs: 1943204, 1943205, 1943206, 1943207, 1943208

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80229

Included Lab Sample IDs: 1943209

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

Reference Method: SM 5310 B-00

Run ID: A80250

Included Lab Sample IDs: 1943213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.9	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80258

Included Lab Sample IDs: 1943211, 1943212, 1943213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80265

Included Lab Sample IDs: 1943209, 1943210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.4	97.7	P/P	90 - 110
Kjeldahl Nitrogen	97.7	92.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A80269

Included Lab Sample IDs: 1943209, 1943210, 1943211, 1943212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	99.7	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80277

Included Lab Sample IDs: 1943209, 1943210, 1943211, 1943212, 1943213

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80368

Included Lab Sample IDs: 1943210, 1943211, 1943212, 1943213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				2.95	
EPA 300.0 Rev. 2.1	Chloride	102	95.1	102	5.21	
	Sulfate	102	93.0	101	5.26	
EPA 350.1 Rev. 2.0	Ammonia-N	103	93.3	101		6.00
	Ammonia-N	110	98.4	102		1.87
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.3	102	96.3		5.47
	Kjeldahl Nitrogen	98.0	99.7	93.3		6.06
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	100	100		0.0
EPA 365.1 Rev. 2.0	Total-P	100	102	97.5		4.18
	Total-P	99.2	95.7	97.6		1.54
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	105	108		1.97
	O-Phosphate-P	108	103	96.2		5.16
SM 2120 B	Color (true)				1.78	
SM 2540 C-97	TDS				2.02	
	TDS				2.82	
SM 4500 F-C-97	Fluoride	99.2	101	100		0.484
SM 5310 B-00	Organic Carbon	94.6	96.6			0.353
	Organic Carbon	99.6	99.1	98.9		0.181

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1943204, 1943205, 1943206, 1943207, 1943208
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1943204, 1943205, 1943206, 1943207, 1943208
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1943204, 1943205, 1943206, 1943207, 1943208
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1943209, 1943210, 1943211, 1943212, 1943213
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1943209, 1943210, 1943211, 1943212, 1943213
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1943209, 1943210, 1943211, 1943212, 1943213
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1943209, 1943210, 1943211, 1943212, 1943213
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1943214, 1943215, 1943216, 1943217, 1943218
SM 2120 B / E31780	True Color measured at 450 nm	1943204, 1943205, 1943206, 1943207, 1943208
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1943204, 1943205, 1943206, 1943207, 1943208
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1943204, 1943205, 1943206, 1943207, 1943208
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1943204, 1943205, 1943206, 1943207, 1943208
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1943209, 1943210, 1943211, 1943212, 1943213

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	11/06/2017			11/07/2017 17:16	DeAsia Armster	1943204, 1943205, 1943206, 1943207, 1943208
EPA 300.0 Rev. 2.1	11/06/2017			11/08/2017	Julia Storbeck	1943204, 1943205, 1943206, 1943207
	11/06/2017			11/09/2017	Julia Storbeck	1943208
EPA 350.1 Rev. 2.0	11/06/2017			11/13/2017	Sofia Elnemr	1943209
	11/06/2017			11/17/2017	Sofia Elnemr	1943210, 1943211, 1943212, 1943213
EPA 351.2 Rev. 2.0	11/06/2017	11/13/2017	Adrian Shelby	11/14/2017	Tanya Welborn	1943209, 1943210
	11/06/2017	11/14/2017	Adrian Shelby	11/14/2017	Joseph Suarez	1943211, 1943212, 1943213
EPA 353.2 Rev. 2.0	11/06/2017			11/15/2017	Beverly Y. Sanders	1943209, 1943210, 1943211, 1943212, 1943213
EPA 365.1 Rev. 2.0	11/06/2017	11/08/2017	Sima Feizi	11/09/2017	Lipi Saha	1943209, 1943211, 1943213
	11/06/2017	11/08/2017	Sima Feizi	11/13/2017	Lipi Saha	1943210, 1943212
EPA 365.1 Rev. 2.0 dissolved	11/06/2017			11/07/2017 14:26	Megan Treadwell	1943214
	11/06/2017			11/07/2017 14:30	Megan Treadwell	1943217
	11/06/2017			11/07/2017 15:03	Megan Treadwell	1943215
	11/06/2017			11/07/2017 15:08	Megan Treadwell	1943216
	11/06/2017			11/07/2017 15:09	Megan Treadwell	1943218
SM 2120 B	11/06/2017			11/07/2017 14:38	Tanya Welborn	1943204
	11/06/2017			11/07/2017 14:39	Tanya Welborn	1943205
	11/06/2017			11/07/2017 14:40	Tanya Welborn	1943206, 1943207
	11/06/2017			11/07/2017 14:41	Tanya Welborn	1943208
SM 2540 C-97	11/06/2017			11/08/2017	Yijie Li	1943204, 1943205, 1943206, 1943207, 1943208
SM 2540 D-97	11/06/2017			11/08/2017	Yijie Li	1943204, 1943205, 1943206, 1943207, 1943208
SM 4500 F-C-97	11/06/2017			11/10/2017	Dale L. Simmons	1943204, 1943205, 1943206, 1943207, 1943208
SM 5310 B-00	11/06/2017			11/13/2017	Ping Hua	1943213
	11/06/2017			11/14/2017	Ping Hua	1943209, 1943210, 1943211, 1943212