

Chemical Analysis Report

WQAP-2017-11-07-04

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

Event Description: **RUN 13/14**
Request ID: **RQ-2017-11-06-33**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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Certified by: Colin Wright, Program Administrator

Date Certified: 29-NOV-2017 14:29

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over 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: New River

Collection Date/Time: 11/06/2017 09:00

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943614	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P334907	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P335091	
		Sulfate	10		mg SO4/L	P335094	
	SM 2120 B	Color (true)	240		PCU	P334892	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P335164	
	SM 2540 C-97	TDS	156		mg/L	P335255	
	SM 2540 D-97	TSS	8	I	mg/L	P335260	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P335168	
1943617	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P335576	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P335799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P335646	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P334972	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P335303	
1943620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P334874	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mustang Ranch

Collection Date/Time: 11/06/2017 12:10

Field ID: G2SW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943615	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P334907	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P335091	
		Sulfate	34		mg SO4/L	P335094	
	SM 2120 B	Color (true)	96		PCU	P334892	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P335376	
	SM 2540 C-97	TDS	176		mg/L	P335255	
	SM 2540 D-97	TSS	3	I	mg/L	P335260	
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P335380	
1943618	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P335578	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P335799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.0		mg N/L	P335646	
	EPA 365.1 Rev. 2.0	Total-P	0.69		mg P/L	P335218	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P335303	
1943621	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.65		mg P/L	P334874	

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: Turkey Crk

Collection Date/Time: 11/06/2017 12:40

Field ID: G2SW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943616	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P334907	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P335091	

Field ID: G2SW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943616	EPA 300.0 Rev. 2.1	Sulfate	19		mg SO4/L	P335094	
	SM 2120 B	Color (true)	130		PCU	P334892	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P335376	
	SM 2540 C-97	TDS	187	A	mg/L	P335255	
	SM 2540 D-97	TSS	3	IA	mg/L	P335260	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P335380	
1943619	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P335578	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P335799	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P335646	
	EPA 365.1 Rev. 2.0	Total-P	0.55		mg P/L	P335218	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P335511	
1943622	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.48		mg P/L	P334874	

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: P334907

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335091

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335094

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P335576

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P335578

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P335799

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335799

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335646

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334972

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335218

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334874

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

Reference Method: SM 2120 B
Batch ID: P334892

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335164

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

Reference Method: SM 2320 B-97
Batch ID: P335376

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

Reference Method: SM 2540 C-97
Batch ID: P335255

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P335260

Component	Result	Code	Units
TSS	2	U	mg/L

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

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P335380

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P335303

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

Reference Method: SM 5310 B-00
Batch ID: P335511

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: P335091

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335578

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: P335578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P335799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P335646

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: P334972

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P335218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P334874

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

Reference Method: SM 2320 B-97
 Batch ID: P335164

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

Reference Method: SM 2320 B-97
 Batch ID: P335376

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

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P335380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335303

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P335511

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943821	Chloride	101		P	90 - 110
1943886	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943821	Sulfate	100		P	90 - 110
1943886	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943532	Ammonia-N	103	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943711	Ammonia-N	99.1	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943712	Kjeldahl Nitrogen	103	95.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P335646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943588	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P335218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943711	Total-P	99.8	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P334874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943593	O-Phosphate-P	98.0	97.1	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 4500 F-C-97
 Batch ID: P335380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944925	Fluoride	102	103	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P335303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943505	Organic Carbon	97.4	98.2	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P335511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943619	Organic Carbon	96.3	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P334907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943567	Turbidity	3.19	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943886	Chloride	0.516	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943886	Sulfate	0.0979	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943532	Ammonia-N	2.25	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943711	Ammonia-N	2.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943712	Kjeldahl Nitrogen	6.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943588	NO2NO3-N	0.151	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943532	Total-P	3.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943711	Total-P	1.86	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943593	O-Phosphate-P	0.923	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P334892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943584	Color (true)	1.59	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943504	Total Alkalinity	0.321	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P335376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944925	Total Alkalinity	0.705	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943616	TDS	5.35	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 4500 F-C-97
Batch ID: P335380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944925	Fluoride	1.01	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943505	Organic Carbon	0.455	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P335511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943619	Organic Carbon	0.605	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80109
Included Lab Sample IDs: 1943620, 1943621, 1943622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	98.8	P/P	90 - 110
O-Phosphate-P	103	99.5	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A80114
Included Lab Sample IDs: 1943614, 1943615, 1943616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	85 - 115
Color (true)	104	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80117
Included Lab Sample IDs: 1943614, 1943615, 1943616

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80134
Included Lab Sample IDs: 1943614, 1943615, 1943616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	103	P/P	90 - 110
Sulfate	99.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80172
Included Lab Sample IDs: 1943617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A80224
Included Lab Sample IDs: 1943614

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

Reference Method: SM 4500 F-C-97
Run ID: A80224
Included Lab Sample IDs: 1943614

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

Reference Method: SM 5310 B-00
Run ID: A80269
Included Lab Sample IDs: 1943617, 1943618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80280
Included Lab Sample IDs: 1943618, 1943619

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

Reference Method: SM 2320 B-97
Run ID: A80294
Included Lab Sample IDs: 1943615, 1943616

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

Reference Method: SM 4500 F-C-97
Run ID: A80294
Included Lab Sample IDs: 1943615, 1943616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A80341
Included Lab Sample IDs: 1943619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.9	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80369
Included Lab Sample IDs: 1943617, 1943618, 1943619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80369

Included Lab Sample IDs: 1943617, 1943618, 1943619

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80390

Included Lab Sample IDs: 1943617, 1943618, 1943619

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80473

Included Lab Sample IDs: 1943617, 1943618, 1943619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.1	99.1	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				3.19	
EPA 300.0 Rev. 2.1	Chloride	100	100 101		0.516	
	Sulfate	98.9	97.8 100		0.0979	
EPA 350.1 Rev. 2.0	Ammonia-N	106	103 99.7			2.25
	Ammonia-N	97.2	99.1 102			2.86
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5	103 95.2			6.56
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102 101			0.151
EPA 365.1 Rev. 2.0	Total-P	102				3.28
	Total-P	99.8	99.8 102			1.86
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.0 97.1			0.923
SM 2120 B	Color (true)				1.59	
SM 2320 B-97	Total Alkalinity	104			0.321	
	Total Alkalinity	103			0.705	
SM 2540 C-97	TDS				5.35	
SM 4500 F-C-97	Fluoride	99.2	101 100			0.484
	Fluoride	97.1	102 103			1.01
SM 5310 B-00	Organic Carbon	99.4	97.4 98.2			0.455
	Organic Carbon	96.8	96.3 97.3			0.605

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1943614, 1943615, 1943616

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1943614, 1943615, 1943616
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1943614, 1943615, 1943616
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1943617, 1943618, 1943619
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1943617, 1943618, 1943619
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1943617, 1943618, 1943619
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1943617, 1943618, 1943619
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1943620, 1943621, 1943622
SM 2120 B / E31780	True Color measured at 450 nm	1943614, 1943615, 1943616
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1943614, 1943615, 1943616
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1943614, 1943615, 1943616
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1943614, 1943615, 1943616
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1943614, 1943615, 1943616
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1943617, 1943618, 1943619

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	11/07/2017			11/07/2017 17:16	DeAsia Armster	1943614, 1943615, 1943616
EPA 300.0 Rev. 2.1	11/07/2017			11/09/2017	Julia Storbeck	1943614, 1943615, 1943616
EPA 350.1 Rev. 2.0	11/07/2017			11/17/2017	Sofia Elnemr	1943617, 1943618, 1943619
EPA 351.2 Rev. 2.0	11/07/2017	11/21/2017	Adrian Shelby	11/22/2017	Tanya Welborn	1943617, 1943618, 1943619
EPA 353.2 Rev. 2.0	11/07/2017			11/20/2017	Beverly Y. Sanders	1943617, 1943618, 1943619
EPA 365.1 Rev. 2.0	11/07/2017	11/08/2017	Sima Feizi	11/09/2017	Lipi Saha	1943617
	11/07/2017	11/14/2017	Sima Feizi	11/15/2017	Lipi Saha	1943618, 1943619
EPA 365.1 Rev. 2.0 dissolved	11/07/2017			11/07/2017 15:07	Megan Treadwell	1943620
	11/07/2017			11/07/2017 15:32	Megan Treadwell	1943621
	11/07/2017			11/07/2017 15:33	Megan Treadwell	1943622
SM 2120 B	11/07/2017			11/07/2017 16:30	Tanya Welborn	1943615
	11/07/2017			11/07/2017 16:31	Tanya Welborn	1943616
	11/07/2017			11/07/2017 16:37	Tanya Welborn	1943614
SM 2320 B-97	11/07/2017			11/10/2017	Dale L. Simmons	1943614
	11/07/2017			11/15/2017	Dale L. Simmons	1943615, 1943616
SM 2540 C-97	11/07/2017			11/08/2017	Yijie Li	1943614, 1943615, 1943616
SM 2540 D-97	11/07/2017			11/08/2017	Yijie Li	1943614, 1943615, 1943616
SM 4500 F-C-97	11/07/2017			11/10/2017	Dale L. Simmons	1943614
	11/07/2017			11/15/2017	Dale L. Simmons	1943615, 1943616
SM 5310 B-00	11/07/2017			11/15/2017	Ping Hua	1943617, 1943618
	11/07/2017			11/16/2017	Ping Hua	1943619