

Chemical Analysis Report

WQAP-2017-03-23-02

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

Event Description: **RUN 2**
Request ID: **RQ-2017-03-20-45**
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: 17-APR-2017 13:50

A handwritten signature in black ink, appearing to read "Colin Wright", is written 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: Mud River

Collection Date/Time: 03/22/2017 10:20

Field ID: G5SW0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882441	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P322102	
	SM 2320 B-97	Total Alkalinity	157		mg CaCO3/L	P322241	
	SM 2540 D-97	TSS	3	I	mg/L	P322716	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P322245	
1882446	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P322189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P322081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P322374	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P322129	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P322166	
1882451	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322055	

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: Weeki Wachee

Collection Date/Time: 03/22/2017 10:45

Field ID: G5SW0020

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882442	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P322102	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P322241	
	SM 2540 D-97	TSS	4	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P322692	
1882447	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P322189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P322082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P322374	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P322129	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P322167	
1882452	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322055	

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: Weeki Wachee dup

Collection Date/Time: 03/22/2017 10:50

Field ID: G5SW0020

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882443	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P322102	
	SM 2320 B-97	Total Alkalinity	169		mg CaCO3/L	P322241	
	SM 2540 D-97	TSS	4	I	mg/L	P322742	
	SM 4500 F-C-97	Fluoride	0.46		mg F/L	P322692	
1882448	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P322189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P322082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P322374	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P322129	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P322167	
1882453	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322055	

Field ID: G5SW0020

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: Blank

Collection Date/Time: 03/22/2017 11:20

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882444	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P322102	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P322480	
	SM 2540 D-97	TSS	2	I	mg/L	P322716	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322483	
1882449	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P322078	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322235	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P322132	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P322166	
1882454	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322055	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample contains visible particles.

Sample Location: Mason Creek

Collection Date/Time: 03/22/2017 12:30

Field ID: G5SW0005

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882445	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P322102	
	SM 2320 B-97	Total Alkalinity	161		mg CaCO3/L	P322241	
	SM 2540 D-97	TSS	4	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	0.62		mg F/L	P322245	
1882450	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P322189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P322082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322374	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P322129	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P322167	
1882455	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322055	

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: P322102

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322189

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322081

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322082

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322374

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322129

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322055

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

Reference Method: SM 2320 B-97
Batch ID: P322241

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P322480

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P322716

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322741

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322742

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322245

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P322166

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

Reference Method: SM 5310 B-00
Batch ID: P322167

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322189

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

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: P322081

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: P322082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322374

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322374

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322129

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: P322132

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P322241

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

Reference Method: SM 2320 B-97
Batch ID: P322480

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

Reference Method: SM 4500 F-C-97
Batch ID: P322245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P322166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P322167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882304	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882446	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882350	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882432	Kjeldahl Nitrogen	98.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882447	Kjeldahl Nitrogen	96.6	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882403	NO2NO3-N	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322374

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882448	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882446	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882350	Total-P	102	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882318	O-Phosphate-P	96.0	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P322245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882599	Fluoride	95.6	97.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882334	Fluoride	102	105	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883858	Fluoride	94.3	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882446	Organic Carbon	93.5	94.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P322167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882428	Organic Carbon	95.5	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882402	Turbidity	3.65	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882304	Ammonia-N	0.714	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882446	Ammonia-N	1.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882350	Kjeldahl Nitrogen	2.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882432	Kjeldahl Nitrogen	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882447	Kjeldahl Nitrogen	0.333	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882403	NO2NO3-N	1.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882448	NO2NO3-N	0.601	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882446	Total-P	2.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882350	Total-P	5.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882318	O-Phosphate-P	5.47	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882599	Total Alkalinity	0.432	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P322480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Total Alkalinity	0.0435	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P322245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882599	Fluoride	1.42	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Fluoride	2.39	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883858	Fluoride	1.47	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P322166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882446	Organic Carbon	0.914	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P322167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882428	Organic Carbon	1.60	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: A75303
Included Lab Sample IDs: 1882451, 1882452, 1882453, 1882454, 1882455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.7	P/P	90 - 110
O-Phosphate-P	99.7	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75322
Included Lab Sample IDs: 1882441, 1882442, 1882443, 1882444, 1882445

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

Reference Method: SM 5310 B-00
Run ID: A75347
Included Lab Sample IDs: 1882446, 1882447, 1882448, 1882449, 1882450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	95.4	P/P	90 - 110
Organic Carbon	95.6	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75351
Included Lab Sample IDs: 1882446, 1882447, 1882448, 1882449, 1882450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75366

Included Lab Sample IDs: 1882449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75375

Included Lab Sample IDs: 1882449

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

Reference Method: SM 2320 B-97

Run ID: A75378

Included Lab Sample IDs: 1882441, 1882442, 1882443, 1882445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	101	P/P	90 - 110
Total Alkalinity	106	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75378

Included Lab Sample IDs: 1882441, 1882445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	97.2	P/P	90 - 110
Fluoride	97.2	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75381

Included Lab Sample IDs: 1882446, 1882447, 1882448, 1882449, 1882450

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75386

Included Lab Sample IDs: 1882446, 1882447, 1882448, 1882450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	93.5	P/P	90 - 110
Kjeldahl Nitrogen	97.8	96.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75429

Included Lab Sample IDs: 1882446, 1882447, 1882448, 1882450

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
 Run ID: A75466
 Included Lab Sample IDs: 1882444

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Run ID: A75466
 Included Lab Sample IDs: 1882444

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

Reference Method: SM 4500 F-C-97
 Run ID: A75542
 Included Lab Sample IDs: 1882442, 1882443

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	97.5	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				3.65	
EPA 350.1 Rev. 2.0	Ammonia-N	105	101 102			0.714
	Ammonia-N	105	105 102			1.71
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105 102			2.69
	Kjeldahl Nitrogen	101	98.7 101			1.70
	Kjeldahl Nitrogen	98.1	96.6 96.2			0.333
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105 103			1.08
	NO2NO3-N	102	104 104			0.601
EPA 365.1 Rev. 2.0	Total-P	104	104 106			2.31
	Total-P	108	102 109			5.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	96.0 101			5.47
SM 2320 B-97	Total Alkalinity	104			0.432	
	Total Alkalinity	104			0.0435	
SM 4500 F-C-97	Fluoride	94.3	95.6 97.6			1.42
	Fluoride	98.2	102 105			2.39
	Fluoride	96.4	94.3 96.7			1.47
SM 5310 B-00	Organic Carbon	98.4	93.5 94.5			0.914
	Organic Carbon	99.3	95.5 97.2			1.60

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1882441, 1882442, 1882443, 1882444, 1882445

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1882446, 1882447, 1882448, 1882449, 1882450
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1882446, 1882447, 1882448, 1882449, 1882450
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1882446, 1882447, 1882448, 1882449, 1882450
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1882446, 1882447, 1882448, 1882449, 1882450
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1882451, 1882452, 1882453, 1882454, 1882455
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1882441, 1882442, 1882443, 1882444, 1882445
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1882441, 1882442, 1882443, 1882444, 1882445
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1882441, 1882442, 1882443, 1882444, 1882445
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1882446, 1882447, 1882448, 1882449, 1882450

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	03/23/2017			03/23/2017 17:09	Sima Feizi	1882441, 1882442, 1882443, 1882444, 1882445
EPA 350.1 Rev. 2.0	03/23/2017			03/24/2017	Julie Michelle Frank	1882446, 1882447, 1882448, 1882449, 1882450
EPA 351.2 Rev. 2.0	03/23/2017	03/24/2017	Adrian Shelby	03/27/2017	Joseph Suarez	1882446, 1882447, 1882448, 1882449, 1882450
EPA 353.2 Rev. 2.0	03/23/2017			03/27/2017	Beverly Y. Sanders	1882449
	03/23/2017			03/29/2017	Beverly Y. Sanders	1882446, 1882447, 1882448, 1882450
EPA 365.1 Rev. 2.0	03/23/2017	03/24/2017	Vijayalakshmi Reddy	03/27/2017	Lipi Saha	1882446, 1882447, 1882448, 1882449, 1882450
EPA 365.1 Rev. 2.0 dissolved	03/23/2017			03/23/2017 12:10	Anthony C. Onicha	1882451
	03/23/2017			03/23/2017 12:11	Anthony C. Onicha	1882452
	03/23/2017			03/23/2017 12:16	Anthony C. Onicha	1882453
	03/23/2017			03/23/2017 12:17	Anthony C. Onicha	1882454
	03/23/2017			03/23/2017 12:18	Anthony C. Onicha	1882455
SM 2320 B-97	03/23/2017			03/25/2017	Dale L. Simmons	1882441, 1882442, 1882443, 1882445
	03/23/2017			03/30/2017	Dale L. Simmons	1882444
SM 2540 D-97	03/23/2017			03/28/2017	Yijie Li	1882441, 1882442, 1882443, 1882444, 1882445
SM 4500 F-C-97	03/23/2017			03/25/2017	Dale L. Simmons	1882441, 1882445
	03/23/2017			03/30/2017	Dale L. Simmons	1882442, 1882443, 1882444
SM 5310 B-00	03/23/2017			03/24/2017	Julie Michelle Frank	1882446, 1882447, 1882448, 1882449, 1882450