

Chemical Analysis Report

SO-DIST-2017-08-01-01

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

Event Description: **SMP: Fenceline, Bowlegs, Josephine, Grassy, Arb Br**
Request ID: **RQ-2017-06-05-11**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Colin Wright, Program Administrator

Date Certified: 18-AUG-2017 13:41

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: Little Charley Bowlegs Ck, HHSP

Collection Date/Time: 07/31/2017 12:20

Field ID: G4SD073117-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917709	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P329513	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P329622	
		Sulfate	6.4		mg SO4/L	P329620	
	SM 2120 B	Color (true)	590		PCU	P329497	
	SM 2320 B-97	Total Alkalinity	9.8		mg CaCO3/L	P329655	
	SM 2540 C-97	TDS	172		mg/L	P329916	
	SM 2540 D-97	TSS	2	I	mg/L	P330145	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P329657	
1917713	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P329572	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P329551	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P329517	
	EPA 365.1 Rev. 2.0	Total-P	0.80		mg P/L	P329556	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P329793	
1917717	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.76		mg P/L	P329487	

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: Josephine Creek just East of CR 17

Collection Date/Time: 07/31/2017 10:40

Field ID: G4SD073117-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917710	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P329513	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P329622	
		Sulfate	22		mg SO4/L	P329620	
	SM 2120 B	Color (true)	150		PCU	P329497	
	SM 2320 B-97	Total Alkalinity	9.7		mg CaCO3/L	P329655	
	SM 2540 C-97	TDS	115		mg/L	P329916	
	SM 2540 D-97	TSS	3	I	mg/L	P330145	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P329657	
1917714	EPA 350.1 Rev. 2.0	Ammonia-N	0.086		mg N/L	P329572	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P329551	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.39		mg N/L	P329517	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P329556	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P329793	
1917718	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P329487	

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 Creek site 3 on 621 East

Collection Date/Time: 07/31/2017 10:10

Field ID: G4SD073117-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917711	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P329513	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P329622	
		Sulfate	24		mg SO4/L	P329620	

Field ID: G4SD073117-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917711	SM 2120 B	Color (true)	18		PCU	P329497	
	SM 2320 B-97	Total Alkalinity	22	A	mg CaCO3/L	P329655	
	SM 2540 C-97	TDS	115	A	mg/L	P329915	
	SM 2540 D-97	TSS	3	IA	mg/L	P330144	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P329657	
1917715	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P329572	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P329551	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P329517	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P329556	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P329793	
1917719	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329487	

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: Arbuckle Branch @ Arbuckle Creek Rd.

Collection Date/Time: 07/31/2017 11:20

Field ID: G4SD073117-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917712	EPA 180.1 Rev. 2.0	Turbidity	8.8	A	NTU	P329513	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P329622	
		Sulfate	13		mg SO4/L	P329620	
	SM 2120 B	Color (true)	460		PCU	P329497	
	SM 2320 B-97	Total Alkalinity	7.8		mg CaCO3/L	P329656	
	SM 2540 C-97	TDS	155		mg/L	P329915	
	SM 2540 D-97	TSS	16		mg/L	P330144	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P329658	
1917716	EPA 350.1 Rev. 2.0	Ammonia-N	0.084		mg N/L	P329572	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P329552	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P329517	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P329556	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P329793	
1917720	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P329487	

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: P329513

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P329620

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329620

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329622

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329572

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329551

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329552

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329517

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329556

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

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

Reference Method: SM 2120 B
Batch ID: P329497

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P329655

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

Reference Method: SM 2320 B-97
Batch ID: P329656

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

Reference Method: SM 2540 C-97
Batch ID: P329915

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P329916

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330144

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330145

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329657

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329793

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: P329620

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329622

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329572

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329551

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

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

Reference Method: SM 2320 B-97
Batch ID: P329655

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P329656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P329657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P329658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.0		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P329793

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P329620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917729	Sulfate	94.6		P	90 - 110
1917735	Sulfate	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P329622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917729	Chloride	93.3		P	90 - 110
1917735	Chloride	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P329572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917683	Ammonia-N	99.5	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P329551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917485	Kjeldahl Nitrogen	97.3	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917730	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917682	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917682	Total-P	94.8	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917719	O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P329657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917711	Fluoride	97.1	94.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917818	Fluoride	94.2	95.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917684	Organic Carbon	96.4	96.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917712	Turbidity	3.07	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917729	Sulfate	3.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917729	Chloride	1.97	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917683	Ammonia-N	0.163	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917485	Kjeldahl Nitrogen	0.652	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917730	Kjeldahl Nitrogen	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917682	NO2NO3-N	0.617	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917682	Total-P	4.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917719	O-Phosphate-P	1.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P329497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917729	Color (true)	1.13	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P329655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917711	Total Alkalinity	0.794	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P329656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917818	Total Alkalinity	0.0793	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P329915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917711	TDS	1.74	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P329916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917744	TDS	4.21	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917711	Fluoride	2.04	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917818	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917684	Organic Carbon	0.151	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A78088

Included Lab Sample IDs: 1917717, 1917718, 1917719, 1917720

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	97.7	P/P	90 - 110
O-Phosphate-P	98.2	99.3	P/P	90 - 110
O-Phosphate-P	98.5	98.2	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A78090

Included Lab Sample IDs: 1917709, 1917710, 1917711, 1917712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115
Color (true)	101	101	P/P	85 - 115
Color (true)	100	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78096

Included Lab Sample IDs: 1917709, 1917710, 1917711, 1917712

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78098

Included Lab Sample IDs: 1917713, 1917714, 1917715, 1917716

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: A78129

Included Lab Sample IDs: 1917713, 1917714, 1917715, 1917716

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78143

Included Lab Sample IDs: 1917713, 1917716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78155
Included Lab Sample IDs: 1917714, 1917715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78163
Included Lab Sample IDs: 1917709, 1917710, 1917711, 1917712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	96.1	P/P	90 - 110
Sulfate	102	96.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A78171
Included Lab Sample IDs: 1917709, 1917710, 1917711, 1917712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	102	P/P	90 - 110
Total Alkalinity	99.9	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A78171
Included Lab Sample IDs: 1917709, 1917710, 1917711, 1917712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	94.8	95.5	P/P	90 - 110
Fluoride	99.5	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A78174
Included Lab Sample IDs: 1917713, 1917714, 1917715, 1917716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.4	94.2	P/P	90 - 110
Kjeldahl Nitrogen	94.6	90.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A78233
Included Lab Sample IDs: 1917713, 1917714, 1917715, 1917716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.4	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	MS
				LCS	SMP

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.07	
EPA 300.0 Rev. 2.1	Chloride	99.8	93.3	98.6		1.97	
	Sulfate	102	94.6	99.8		3.64	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	99.5	99.7			0.163
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.4	97.3	98.5			0.652
	Kjeldahl Nitrogen	92.7	103	104			1.01
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	105	104			0.617
EPA 365.1 Rev. 2.0	Total-P	95.8	94.8	99.5			4.71
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	99.3	100			1.00
SM 2120 B	Color (true)					1.13	
SM 2320 B-97	Total Alkalinity	103				0.794	
	Total Alkalinity	102				0.0793	
SM 2540 C-97	TDS					1.74	
	TDS					4.21	
SM 4500 F-C-97	Fluoride	95.9	97.1	94.9			2.04
	Fluoride	94.0	94.2	95.4			1.00
SM 5310 B-00	Organic Carbon	96.4	96.4	96.5			0.151

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1917709, 1917710, 1917711, 1917712
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1917709, 1917710, 1917711, 1917712
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1917709, 1917710, 1917711, 1917712
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1917713, 1917714, 1917715, 1917716
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1917713, 1917714, 1917715, 1917716
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1917713, 1917714, 1917715, 1917716
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1917713, 1917714, 1917715, 1917716
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1917717, 1917718, 1917719, 1917720
SM 2120 B / E31780	True Color measured at 450 nm	1917709, 1917710, 1917711, 1917712
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1917709, 1917710, 1917711, 1917712
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1917709, 1917710, 1917711, 1917712
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1917709, 1917710, 1917711, 1917712
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1917709, 1917710, 1917711, 1917712
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1917713, 1917714, 1917715, 1917716

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	08/01/2017			08/01/2017 15:13	Tanya Welborn	1917709, 1917710, 1917711, 1917712
EPA 300.0 Rev. 2.1	08/01/2017			08/02/2017	Julia Storbeck	1917709, 1917710, 1917711, 1917712
EPA 350.1 Rev. 2.0	08/01/2017			08/02/2017	Sofia Elnemr	1917713, 1917714, 1917715, 1917716
EPA 351.2 Rev. 2.0	08/01/2017	08/02/2017	Adrian Shelby	08/03/2017	Joseph Suarez	1917713, 1917714, 1917715, 1917716
EPA 353.2 Rev. 2.0	08/01/2017			08/02/2017	Beverly Y. Sanders	1917713, 1917714, 1917715, 1917716
EPA 365.1 Rev. 2.0	08/01/2017	08/02/2017	Sima Feizi	08/03/2017	Lipi Saha	1917713, 1917714, 1917715, 1917716
EPA 365.1 Rev. 2.0 dissolved	08/01/2017			08/01/2017 14:46	Anthony C. Onicha	1917719
	08/01/2017			08/01/2017 14:55	Anthony C. Onicha	1917718
	08/01/2017			08/01/2017 14:56	Anthony C. Onicha	1917720
	08/01/2017			08/01/2017 15:19	Anthony C. Onicha	1917717
	08/01/2017			08/01/2017 15:49	Tanya Welborn	1917711
SM 2120 B	08/01/2017			08/01/2017 16:16	Tanya Welborn	1917712
	08/01/2017			08/01/2017 16:17	Tanya Welborn	1917709
	08/01/2017			08/01/2017 16:30	Tanya Welborn	1917710
SM 2320 B-97	08/01/2017			08/02/2017	Dale L. Simmons	1917711
	08/01/2017			08/03/2017	Dale L. Simmons	1917709, 1917710, 1917712
SM 2540 C-97	08/01/2017			08/04/2017	Yijie Li	1917709, 1917710, 1917711, 1917712
SM 2540 D-97	08/01/2017			08/04/2017	Yijie Li	1917709, 1917710, 1917711, 1917712
SM 4500 F-C-97	08/01/2017			08/02/2017	Dale L. Simmons	1917711
	08/01/2017			08/03/2017	Dale L. Simmons	1917709, 1917710, 1917712
SM 5310 B-00	08/01/2017			08/05/2017	Sofia Elnemr	1917713, 1917714, 1917715, 1917716