

Chemical Analysis Report

SO-DIST-2016-07-21-01

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

Event Description: **SMP: Philippi: Cr, Tidal, Trib, Elligraw Bayou**

Request ID: **RQ-2016-07-18-10**

Customer: **SO-DIST**

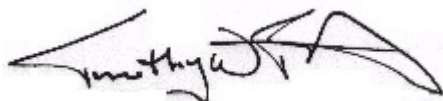
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 15-AUG-2016 10:51

A handwritten signature in black ink, appearing to read "Timothy Fitzpatrick", with a stylized flourish at the end.

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: PHILLIPPI CREEK @ PINECRAFT PARK

Collection Date/Time: 07/20/2016 11:25

Field ID: G3SD07202016-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1817802	EPA 180.1 Rev. 2.0	Turbidity	6.7	A	NTU	P308444	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P309180	
		Sulfate	68		mg SO4/L	P309183	
	SM 2120 B	Color (true)	69		PCU	P308383	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P308752	
	SM 2540 C-97	TDS	335	A	mg/L	P309151	
	SM 2540 D-97	TSS	11	A	mg/L	P308904	
	SM 4500 F-C-97	Fluoride	0.42		mg F/L	P308756	
1817804	EPA 350.1 Rev. 2.0	Ammonia-N	0.066		mg N/L	P308504	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P308784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P308889	
	EPA 365.1 Rev. 2.0	Total-P	0.41		mg P/L	P308462	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P308689	
1817806	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.25		mg P/L	P308378	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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: PHILLIPPI CREEK @ TUTTLE AVE.

Collection Date/Time: 07/20/2016 11:00

Field ID: G3SD07202016-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1817808	EPA 180.1 Rev. 2.0	Turbidity	7.3	A	NTU	P308448	
	SM 2320 B-97	Total Alkalinity	109		mg CaCO3/L	P308752	
	SM 2540 D-97	TSS	10	I	mg/L	P308907	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P308756	
1817810	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P308505	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P308784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P308889	
	EPA 365.1 Rev. 2.0	Total-P	0.43		mg P/L	P308462	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P308689	
1817812	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P308378	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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: ELLIGRAW BAYOU @ US 41

Collection Date/Time: 07/20/2016 09:27

Field ID: G3SD07202016-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1817809	EPA 180.1 Rev. 2.0	Turbidity	7.5		NTU	P308448	
	SM 2320 B-97	Total Alkalinity	173		mg CaCO3/L	P308758	
	SM 2540 D-97	TSS	4	I	mg/L	P308909	
	SM 4500 F-C-97	Fluoride	0.79		mg F/L	P308989	

Field ID: G3SD07202016-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1817811	EPA 350.1 Rev. 2.0	Ammonia-N	0.25		mg N/L	P308510	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P308785	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P308947	
	EPA 365.1 Rev. 2.0	Total-P	0.77		mg P/L	P308415	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P309108	
1817813	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.38		mg P/L	P308376	

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: PHILLIPPI CREEK TRIBUTARY

Collection Date/Time: 07/20/2016 10:00

Field ID: G3SD07202016-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1817803	EPA 180.1 Rev. 2.0	Turbidity	31		NTU	P308444	
	EPA 300.0 Rev. 2.1	Chloride	69		mg Cl/L	P309180	
		Sulfate	120		mg SO4/L	P309183	
		Color (true)	33	A	PCU	P308384	
	SM 2320 B-97	Total Alkalinity	167		mg CaCO3/L	P308752	
	SM 2540 C-97	TDS	469		mg/L	P309151	
	SM 2540 D-97	TSS	26		mg/L	P308904	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P308756	
1817805	EPA 350.1 Rev. 2.0	Ammonia-N	1.3		mg N/L	P308505	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P308784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P308889	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P308462	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P308689	
1817807	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P308378	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high 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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P308444

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P308448

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309180

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309183

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308504

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308505

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308510

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308784

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308785

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308889

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308947

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: P308415

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308462

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308376

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308378

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

Reference Method: SM 2120 B
Batch ID: P308383

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P308384

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P308752

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

Reference Method: SM 2320 B-97
Batch ID: P308758

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

Reference Method: SM 2540 C-97
Batch ID: P309151

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P308904

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P308907

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P308909

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P308756

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P308989

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P308689

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

Reference Method: SM 5310 B-00
Batch ID: P309108

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: P309180

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309183

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309183

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308505

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308784

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308785

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308889

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: P308947

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: P308415

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308462

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308378

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

Reference Method: SM 2320 B-97
Batch ID: P308752

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

Reference Method: SM 2320 B-97
Batch ID: P308758

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

Reference Method: SM 4500 F-C-97
Batch ID: P308756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P308989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P308689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P309108

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817651	Chloride	97.7		P	90 - 110
1817654	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817651	Sulfate	93.3		P	90 - 110
1817654	Sulfate	93.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817855	Ammonia-N	96.9	94.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817826	Ammonia-N	100	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817892	Kjeldahl Nitrogen	95.0	113	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817804	NO2NO3-N	97.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817444	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817134	Total-P	98.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817834	O-Phosphate-P	98.3	98.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P308378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817723	O-Phosphate-P	94.7	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P308756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817588	Fluoride	96.2	96.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P308989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817809	Fluoride	95.9	95.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P308689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817804	Organic Carbon	99.0	98.0	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P309108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817444	Organic Carbon	92.1	92.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P308444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817802	Turbidity	0.741	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P308448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817808	Turbidity	2.88	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817654	Chloride	0.0366	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817654	Sulfate	0.164	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817804	Ammonia-N	0.886	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817855	Ammonia-N	1.70	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817826	Ammonia-N	1.88	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817805	Kjeldahl Nitrogen	16.3	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817892	Kjeldahl Nitrogen	14.5	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817804	NO2NO3-N	0.767	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817444	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817134	Total-P	1.75	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817810	Total-P	0.430	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817834	O-Phosphate-P	0.389	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817723	O-Phosphate-P	1.36	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817930	Color (true)	0.262	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817803	Color (true)	4.59	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P308752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817588	Total Alkalinity	0.265	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P308758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818873	Total Alkalinity	0.0779	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P309151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817802	TDS	0.597	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P308904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817802	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P308756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817588	Fluoride	0.482	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P308989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817809	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P308689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817804	Organic Carbon	0.610	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P309108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817444	Organic Carbon	0.0	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: A70684
Included Lab Sample IDs: 1817806, 1817807, 1817812, 1817813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A70685

Included Lab Sample IDs: 1817802, 1817803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.3	95.1	P/P	90 - 115
Color (true)	95.1	95.4	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70697

Included Lab Sample IDs: 1817802, 1817803, 1817808, 1817809

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70718

Included Lab Sample IDs: 1817804, 1817805, 1817810, 1817811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	97.2	98.5	P/P	90 - 110
Ammonia-N	98.8	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70737

Included Lab Sample IDs: 1817804, 1817805, 1817810, 1817811

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

Reference Method: SM 2320 B-97

Run ID: A70797

Included Lab Sample IDs: 1817802, 1817803, 1817808

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70797

Included Lab Sample IDs: 1817802, 1817803, 1817808

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

Reference Method: SM 2320 B-97

Run ID: A70798

Included Lab Sample IDs: 1817809

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70838

Included Lab Sample IDs: 1817804, 1817805, 1817810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70863

Included Lab Sample IDs: 1817811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70877

Included Lab Sample IDs: 1817804, 1817805, 1817810, 1817811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	93.7	P/P	90 - 110
Kjeldahl Nitrogen	96.6	95.0	P/P	90 - 110
Kjeldahl Nitrogen	96.8	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70881

Included Lab Sample IDs: 1817809

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70885

Included Lab Sample IDs: 1817802, 1817803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	101	P/P	90 - 110
Sulfate	96.4	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70922

Included Lab Sample IDs: 1817811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	93.6	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity			0.741	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				2.88	
EPA 300.0 Rev. 2.1	Chloride	98.2	97.7	97.7	0.0366	
	Sulfate	95.1	93.4	93.3	0.164	
EPA 350.1 Rev. 2.0	Ammonia-N	97.7				0.886
	Ammonia-N	97.9	96.9	94.4		1.70
	Ammonia-N	96.5	100	97.9		1.88
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102				16.3
	Kjeldahl Nitrogen	101	95.0	113		14.5
EPA 353.2 Rev. 2.0	NO2NO3-N	104	97.5	99.0		0.767
	NO2NO3-N	102	104	104		0.0
EPA 365.1 Rev. 2.0	Total-P	102	98.4	100		1.75
	Total-P	98.9				0.430
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	98.3	98.7		0.389
	O-Phosphate-P	101	94.7	96.0		1.36
SM 2120 B	Color (true)				0.262	
	Color (true)				4.59	
SM 2320 B-97	Total Alkalinity	104			0.265	
	Total Alkalinity	103			0.0779	
SM 2540 C-97	TDS				0.597	
SM 2540 D-97	TSS				0.0	
SM 4500 F-C-97	Fluoride	99.8	96.2	96.8		0.482
	Fluoride	96.8	95.9	95.9		0.0
SM 5310 B-00	Organic Carbon	95.4	99.0	98.0		0.610
	Organic Carbon	101	92.1	92.1		0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1817802, 1817803, 1817808, 1817809
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1817802, 1817803
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1817802, 1817803
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1817804, 1817805, 1817810, 1817811
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1817804, 1817805, 1817810, 1817811
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1817804, 1817805, 1817810, 1817811
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1817804, 1817805, 1817810, 1817811
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1817806, 1817807, 1817812, 1817813
SM 2120 B / E31780	True Color measured at 450 nm	1817802, 1817803
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1817802, 1817803, 1817808, 1817809
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1817802, 1817803
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1817802, 1817803, 1817808, 1817809
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1817802, 1817803, 1817808, 1817809
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1817804, 1817805, 1817810, 1817811

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	07/21/2016			07/21/2016 16:17	Blanca Fach	1817802, 1817803, 1817808, 1817809
EPA 300.0 Rev. 2.1	07/21/2016			08/03/2016	Ping Hua	1817802, 1817803
EPA 350.1 Rev. 2.0	07/21/2016			07/22/2016	Diana M. Turner	1817804, 1817805, 1817810, 1817811
EPA 351.2 Rev. 2.0	07/21/2016	07/28/2016	Sofia Elnemr	08/01/2016	Christopher Armour	1817804, 1817805, 1817810, 1817811
EPA 353.2 Rev. 2.0	07/21/2016			07/29/2016	Peter D. Kaus	1817804, 1817805, 1817810
	07/21/2016			08/01/2016	Beverly Y. Sanders	1817811
EPA 365.1 Rev. 2.0	07/21/2016	07/22/2016	Vijayalakshmi Reddy	07/25/2016	Lipi Saha	1817804, 1817805, 1817810, 1817811
EPA 365.1 Rev. 2.0 dissolved	07/21/2016			07/21/2016 13:43	Julia Storbeck	1817806
	07/21/2016			07/21/2016 13:44	Julia Storbeck	1817812
	07/21/2016			07/21/2016 13:45	Julia Storbeck	1817813
	07/21/2016			07/21/2016 13:46	Julia Storbeck	1817807
SM 2120 B	07/21/2016			07/21/2016 15:08	Rochelle Y Jackson	1817802
	07/21/2016			07/21/2016 15:27	Rochelle Y Jackson	1817803
SM 2320 B-97	07/21/2016			07/27/2016	Dale L. Simmons	1817802, 1817803, 1817808
	07/21/2016			07/28/2016	Dale L. Simmons	1817809
SM 2540 C-97	07/21/2016			07/25/2016	Sima Feizi	1817802, 1817803
SM 2540 D-97	07/21/2016			07/25/2016	Sima Feizi	1817802, 1817803, 1817808, 1817809
SM 4500 F-C-97	07/21/2016			07/27/2016	Dale L. Simmons	1817802, 1817803, 1817808
	07/21/2016			08/01/2016	Dale L. Simmons	1817809
SM 5310 B-00	07/21/2016			07/26/2016	Sofia Elnemr	1817804, 1817805, 1817810
	07/21/2016			08/02/2016	Sofia Elnemr	1817811