

Chemical Analysis Report

SO-DIST-2016-06-01-04

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

Event Description: **SMP: Phillipi Cr, Tidal, Trib, Elligraw**

Request ID: **RQ-2016-05-30-08**

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
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Date Certified: 22-JUN-2016 15:17



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: PHILLIPI CREEK @ PINECRAFT PARK

Collection Date/Time: 05/31/2016 10:40

Field ID: G3SD05312016-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803335	EPA 180.1 Rev. 2.0	Turbidity	2.8	A	NTU	P305413	
	EPA 300.0 Rev. 2.1	Chloride	58		mg Cl/L	P305621	
		Sulfate	92		mg SO4/L	P305624	
	SM 2120 B	Color (true)	49		PCU	P305378	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P305750	
	SM 2540 C-97	TDS	396		mg/L	P306102	
	SM 2540 D-97	TSS	3	I	mg/L	P305838	
	SM 4500 F-C-97	Fluoride	0.51		mg F/L	P305753	
1803337	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P305665	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P305588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P305445	
	EPA 365.1 Rev. 2.0	Total-P	0.44		mg P/L	P305792	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P306095	
1803339	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.33		mg P/L	P305384	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: PHILLIPI CREEK @ TUTTLE AVE.

Collection Date/Time: 05/31/2016 11:25

Field ID: G3SD05312016-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803341	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P305413	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P305750	
	SM 2540 D-97	TSS	20		mg/L	P305842	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P305753	
1803343	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P305865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P305554	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P305640	
	EPA 365.1 Rev. 2.0	Total-P	0.64		mg P/L	P305788	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P306095	
1803345	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.48		mg P/L	P305388	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ELLIGRAW BAYOU @ US 41

Collection Date/Time: 05/31/2016 11:55

Field ID: G3SD05312016-3

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803342	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P305413	
	SM 2320 B-97	Total Alkalinity	206		mg CaCO3/L	P305935	
	SM 2540 D-97	TSS	3	U	mg/L	P305843	
	SM 4500 F-C-97	Fluoride	0.91		mg F/L	P306037	
1803344	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P305865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P305554	

Field ID: G3SD05312016-3

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803344	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P305640	
	EPA 365.1 Rev. 2.0	Total-P	0.45		mg P/L	P305788	
	SM 5310 B-00	Organic Carbon	9.0		mg C/L	P306096	
1803346	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.34		mg P/L	P305388	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: PHILLIPI CREEK TRIBUTARY

Collection Date/Time: 05/31/2016 09:33

Field ID: G3SD05312016-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803336	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P305413	
	EPA 300.0 Rev. 2.1	Chloride	78		mg Cl/L	P305621	
		Sulfate	170		mg SO4/L	P305624	
	SM 2120 B	Color (true)	41	A	PCU	P305378	
	SM 2320 B-97	Total Alkalinity	194		mg CaCO3/L	P305750	
	SM 2540 C-97	TDS	599		mg/L	P306102	
	SM 2540 D-97	TSS	3	I	mg/L	P305838	
	SM 4500 F-C-97	Fluoride	0.52		mg F/L	P305753	
1803338	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P305868	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P305588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P305445	
	EPA 365.1 Rev. 2.0	Total-P	0.072		mg P/L	P305792	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P306095	
1803340	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P305384	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P305413

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P305621

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P305624

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305665

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305865

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305868

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305554

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305588

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305445

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305788

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305792

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305384

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305388

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

Reference Method: SM 2120 B
Batch ID: P305378

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305750

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

Reference Method: SM 2320 B-97
Batch ID: P305935

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

Reference Method: SM 2540 C-97
Batch ID: P306102

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305838

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305842

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305843

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P305753

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P306037

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306095

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

Reference Method: SM 5310 B-00
Batch ID: P306096

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: P305621

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305665

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305865

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305868

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: P305868

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305554

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: P305588

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305445

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305640

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305788

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305792

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305384

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305388

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P305750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P305935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P305753

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P306037

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P306096

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803141	Chloride	99.1		P	90 - 110
1803326	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803141	Sulfate	99.8		P	90 - 110
1803326	Sulfate	99.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803142	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803343	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803353	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802607	Kjeldahl Nitrogen	99.0	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305588

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803338	Kjeldahl Nitrogen	97.5	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803181	NO2NO3-N	94.0	93.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803343	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802604	Total-P	95.7	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803328	O-Phosphate-P	97.7	99.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803789	O-Phosphate-P	98.8	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P305753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803462	Fluoride	98.3	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P306095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803355	Organic Carbon	103	104	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P306096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802259	Organic Carbon	93.1	95.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803335	Turbidity	8.60	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803141	Chloride	0.180	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803141	Sulfate	1.94	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803142	Ammonia-N	0.254	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803343	Ammonia-N	0.0732	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803353	Ammonia-N	1.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802607	Kjeldahl Nitrogen	5.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803338	Kjeldahl Nitrogen	5.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803181	NO2NO3-N	1.04	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803343	NO2NO3-N	0.881	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802604	Total-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803337	Total-P	0.0490	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803328	O-Phosphate-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803789	O-Phosphate-P	4.55	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803336	Color (true)	0.273	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803462	Total Alkalinity	0.570	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P305935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1804788	Total Alkalinity	1.14	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P306102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803150	TDS	2.82	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803462	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P306037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803342	Fluoride	0.927	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P306095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803355	Organic Carbon	0.153	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P306096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802259	Organic Carbon	2.77	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: SM 2120 B
Run ID: A69787
Included Lab Sample IDs: 1803335, 1803336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69788
Included Lab Sample IDs: 1803339, 1803340, 1803345, 1803346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.6	P/P	90 - 110
O-Phosphate-P	98.6	99.2	P/P	90 - 110
O-Phosphate-P	99.8	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69802
Included Lab Sample IDs: 1803335, 1803336, 1803341, 1803342

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69804
Included Lab Sample IDs: 1803337, 1803338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69814
Included Lab Sample IDs: 1803335, 1803336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69814

Included Lab Sample IDs: 1803335, 1803336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	99.8	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69857

Included Lab Sample IDs: 1803343, 1803344

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69862

Included Lab Sample IDs: 1803337

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69882

Included Lab Sample IDs: 1803343, 1803344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69899

Included Lab Sample IDs: 1803337, 1803338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	98.8	P/P	90 - 110
Kjeldahl Nitrogen	98.8	98.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69906

Included Lab Sample IDs: 1803335, 1803336, 1803341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110
Total Alkalinity	99.1	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69906

Included Lab Sample IDs: 1803335, 1803336, 1803341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69924

Included Lab Sample IDs: 1803336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	97.8	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69935

Included Lab Sample IDs: 1803338, 1803343, 1803344

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

Reference Method: SM 2320 B-97

Run ID: A69953

Included Lab Sample IDs: 1803342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69962

Included Lab Sample IDs: 1803337, 1803343, 1803344

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69972

Included Lab Sample IDs: 1803338

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

Reference Method: SM 4500 F-C-97

Run ID: A69989

Included Lab Sample IDs: 1803342

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

Reference Method: SM 5310 B-00

Run ID: A70009

Included Lab Sample IDs: 1803337, 1803338, 1803343, 1803344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	101	P/P	90 - 110
Organic Carbon	95.5	98.6	P/P	90 - 110
Organic Carbon	99.8	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					8.60	
EPA 300.0 Rev. 2.1	Chloride	101	102	99.1		0.180	
	Sulfate	99.9	99.8	99.7		1.94	
EPA 350.1 Rev. 2.0	Ammonia-N	101	102	102			0.254
	Ammonia-N	101	102	102			0.0732
	Ammonia-N	103	102	103			1.15
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	99.0	107			5.84
	Kjeldahl Nitrogen	104	97.5	107			5.48
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	94.0	93.0			1.04
	NO2NO3-N	102	100	101			0.881
EPA 365.1 Rev. 2.0	Total-P	97.6	95.7	97.3			1.53
	Total-P	105					0.0490
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.7	99.6			1.36
	O-Phosphate-P	99.8	98.8	103			4.55
SM 2120 B	Color (true)					0.273	
SM 2320 B-97	Total Alkalinity	102				0.570	
	Total Alkalinity	103				1.14	
SM 2540 C-97	TDS					2.82	
SM 4500 F-C-97	Fluoride	97.2	98.3	97.6			0.480
	Fluoride	100					0.927
SM 5310 B-00	Organic Carbon	105	103	104			0.153
	Organic Carbon	103	93.1	95.9			2.77

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1803335, 1803336, 1803341, 1803342
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1803335, 1803336
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1803335, 1803336
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1803337, 1803338, 1803343, 1803344
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1803337, 1803338, 1803343, 1803344
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1803337, 1803338, 1803343, 1803344
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1803337, 1803338, 1803343, 1803344
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1803339, 1803340, 1803345, 1803346
SM 2120 B / E31780	True Color measured at 450 nm	1803335, 1803336
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1803335, 1803336, 1803341, 1803342
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1803335, 1803336
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1803335, 1803336, 1803341, 1803342
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1803335, 1803336, 1803341, 1803342

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1803337, 1803338, 1803343, 1803344

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	06/01/2016			06/01/2016 18:53	Blanca Fach	1803335, 1803336, 1803341, 1803342
EPA 300.0 Rev. 2.1	06/01/2016			06/03/2016	Elisa J Lutz	1803335
	06/01/2016			06/08/2016	Elisa J Lutz	1803336
EPA 350.1 Rev. 2.0	06/01/2016			06/06/2016	Diana M. Turner	1803337
	06/01/2016			06/08/2016	Diana M. Turner	1803338, 1803343, 1803344
EPA 351.2 Rev. 2.0	06/01/2016	06/03/2016	Sofia Elnemr	06/07/2016	Christopher Armour	1803343, 1803344
	06/01/2016	06/06/2016	Sofia Elnemr	06/07/2016	Christopher Armour	1803337, 1803338
EPA 353.2 Rev. 2.0	06/01/2016			06/02/2016	Peter D. Kaus	1803337, 1803338
	06/01/2016			06/06/2016	Peter D. Kaus	1803343, 1803344
EPA 365.1 Rev. 2.0	06/01/2016	06/08/2016	Vijayalakshmi Reddy	06/09/2016	Peter D. Kaus	1803337, 1803343, 1803344
	06/01/2016	06/08/2016	Vijayalakshmi Reddy	06/10/2016	Peter D. Kaus	1803338
EPA 365.1 Rev. 2.0 dissolved	06/01/2016			06/01/2016 17:37	Julia Storbeck	1803340
	06/01/2016			06/01/2016 18:09	Julia Storbeck	1803339
	06/01/2016			06/01/2016 18:19	Julia Storbeck	1803346
	06/01/2016			06/01/2016 18:22	Julia Storbeck	1803345
SM 2120 B	06/01/2016			06/01/2016 17:50	Chrisoulla Rakowski	1803335
	06/01/2016			06/01/2016 17:52	Chrisoulla Rakowski	1803336
SM 2320 B-97	06/01/2016			06/07/2016	Dale L. Simmons	1803335, 1803336, 1803341
	06/01/2016			06/09/2016	Dale L. Simmons	1803342
SM 2540 C-97	06/01/2016			06/03/2016	Yijie Li	1803335, 1803336
SM 2540 D-97	06/01/2016			06/03/2016	Yijie Li	1803335, 1803336, 1803341, 1803342
SM 4500 F-C-97	06/01/2016			06/07/2016	Dale L. Simmons	1803335, 1803336, 1803341
	06/01/2016			06/11/2016	Dale L. Simmons	1803342
SM 5310 B-00	06/01/2016			06/11/2016	Diana M. Turner	1803337, 1803338, 1803343, 1803344