

Chemical Analysis Report

SO-DIST-2016-03-30-02

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

Event Description: **SMP: Philippi, Philippi Tidal, Elligrow Bay**

Request ID: **RQ-2016-03-21-21**

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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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 22-APR-2016 15:32



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: 03/29/2016 09:45

Field ID: G3SD03292016-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1784371	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P301293	
	SM 2320 B-97	Total Alkalinity	178		mg CaCO3/L	P301700	
	SM 2540 D-97	TSS	2	I	mg/L	P301791	
	SM 4500 F-C-97	Fluoride	0.57		mg F/L	P301705	
1784375	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P301689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P302023	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P301532	
	EPA 365.1 Rev. 2.0	Total-P	0.39		mg P/L	P301653	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P301502	
1784379	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P301298	

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: PHILLIPPI CREEK @ TUTTLE AVE.

Collection Date/Time: 03/29/2016 10:15

Field ID: G3SD03292016-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1784372	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P301293	
	SM 2320 B-97	Total Alkalinity	177		mg CaCO3/L	P301700	
	SM 2540 D-97	TSS	3	I	mg/L	P301791	
	SM 4500 F-C-97	Fluoride	0.56		mg F/L	P301705	
1784376	EPA 350.1 Rev. 2.0	Ammonia-N	0.065		mg N/L	P301689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P302023	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P301532	
	EPA 365.1 Rev. 2.0	Total-P	0.44		mg P/L	P301653	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P301502	
1784380	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.32		mg P/L	P301298	

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: 03/29/2016 11:15

Field ID: G3SD03292016-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1784373	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P301293	
	SM 2320 B-97	Total Alkalinity	226	A	mg CaCO3/L	P301703	
	SM 2540 D-97	TSS	3	U	mg/L	P301792	
	SM 4500 F-C-97	Fluoride	0.80		mg F/L	P301937	
1784377	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P302132	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P301798	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P301803	
	EPA 365.1 Rev. 2.0	Total-P	0.55		mg P/L	P301460	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P301822	
1784381	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P301299	

Field ID: G3SD03292016-3

Matrix: W-SURF-SLT

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

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: PHILLIPPI CREEK TRIBUTARY

Collection Date/Time: 03/29/2016 10:45

Field ID: G3SD03292016-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1784374	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P301293	
	SM 2320 B-97	Total Alkalinity	200		mg CaCO3/L	P301700	
	SM 2540 D-97	TSS	3	I	mg/L	P301791	
	SM 4500 F-C-97	Fluoride	0.51		mg F/L	P301705	
1784378	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P301689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P302023	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P301533	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P301653	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P301502	
1784382	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.028		mg P/L	P301298	
	dissolved						

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P301293

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P301689

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P302132

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P301798

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P302023

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302023

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301532

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: P301533

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: P301803

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: P301460

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301653

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301298

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301299

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

Reference Method: SM 2320 B-97
Batch ID: P301700

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P301703

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

Reference Method: SM 2540 D-97
 Batch ID: P301791

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P301792

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P301705

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P301937

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P301502

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

Reference Method: SM 5310 B-00
 Batch ID: P301822

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: P301689

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P302132

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: P302132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301798

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302023

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301532

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301460

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301298

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301299

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

Reference Method: SM 2320 B-97
Batch ID: P301700

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

Reference Method: SM 2320 B-97
Batch ID: P301703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P301705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P301937

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P301502

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

Reference Method: SM 5310 B-00
Batch ID: P301822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784375	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301798

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784426	Kjeldahl Nitrogen	88.3	93.7	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784376	Kjeldahl Nitrogen	93.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784328	NO2NO3-N	98.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784448	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784377	NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1783698	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784375	Total-P	94.3	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301298

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784452	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784381	O-Phosphate-P	99.3	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P301705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784758	Fluoride	96.3	97.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P301937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786477	Fluoride	98.5	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P301502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784360	Organic Carbon	94.3	93.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P301822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784377	Organic Carbon	93.4	92.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P301293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784355	Turbidity	2.60	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784375	Ammonia-N	1.12	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1785828	Ammonia-N	0.271	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784426	Kjeldahl Nitrogen	5.05	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784376	Kjeldahl Nitrogen	2.37	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784328	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784448	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784377	NO2NO3-N	0.399	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1783698	Total-P	2.29	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784375	Total-P	0.0261	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784452	O-Phosphate-P	1.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784381	O-Phosphate-P	0.577	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P301700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784758	Total Alkalinity	1.00	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P301703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784373	Total Alkalinity	0.0760	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P301705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784758	Fluoride	1.03	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P301937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786477	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P301502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784360	Organic Carbon	0.418	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P301822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784377	Organic Carbon	0.639	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: A68538
Included Lab Sample IDs: 1784379, 1784380, 1784381, 1784382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.2	P/P	90 - 110
O-Phosphate-P	99.2	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68539

Included Lab Sample IDs: 1784371, 1784372, 1784373, 1784374

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

Reference Method: SM 5310 B-00

Run ID: A68615

Included Lab Sample IDs: 1784375, 1784376, 1784378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	93.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68624

Included Lab Sample IDs: 1784375, 1784376, 1784378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68661

Included Lab Sample IDs: 1784377

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68662

Included Lab Sample IDs: 1784375, 1784376, 1784378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	98.9	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68687

Included Lab Sample IDs: 1784371, 1784372, 1784373, 1784374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68687

Included Lab Sample IDs: 1784371, 1784372, 1784374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68722

Included Lab Sample IDs: 1784377

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68724

Included Lab Sample IDs: 1784375, 1784376, 1784378

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

Reference Method: SM 5310 B-00

Run ID: A68728

Included Lab Sample IDs: 1784377

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.6	92.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68748

Included Lab Sample IDs: 1784377

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

Reference Method: SM 4500 F-C-97

Run ID: A68768

Included Lab Sample IDs: 1784373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68841

Included Lab Sample IDs: 1784377

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68850

Included Lab Sample IDs: 1784375, 1784376, 1784378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110
Kjeldahl Nitrogen	105	102	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.60	
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	104			1.12
	Ammonia-N	98.4					0.271
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.0	88.3	93.7			5.05
	Kjeldahl Nitrogen	95.0	93.8	97.8			2.37
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.5	97.0			1.53
	NO2NO3-N	100	101	100			0.496
	NO2NO3-N	99.5	96.0				0.399
EPA 365.1 Rev. 2.0	Total-P	105	101	103			2.29
	Total-P	96.9	94.3	94.3			0.0261
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	100	102			1.48
	O-Phosphate-P	103	99.3	100			0.577
SM 2320 B-97	Total Alkalinity	103				1.00	
	Total Alkalinity	104				0.0760	
SM 4500 F-C-97	Fluoride	96.7	96.3	97.5			1.03
	Fluoride	98.3	98.5	98.5			0.0
SM 5310 B-00	Organic Carbon	95.4	94.3	93.8			0.418
	Organic Carbon	96.7	93.4	92.6			0.639

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1784371, 1784372, 1784373, 1784374
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1784375, 1784376, 1784377, 1784378
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1784375, 1784376, 1784377, 1784378
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1784375, 1784376, 1784377, 1784378
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1784375, 1784376, 1784377, 1784378
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1784379, 1784380, 1784381, 1784382
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1784371, 1784372, 1784373, 1784374
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1784371, 1784372, 1784373, 1784374
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1784371, 1784372, 1784373, 1784374
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1784375, 1784376, 1784377, 1784378

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	03/30/2016			03/30/2016 14:45	Sima Feizi	1784371, 1784372, 1784373, 1784374
EPA 350.1 Rev. 2.0	03/30/2016			04/05/2016	Diana M. Turner	1784375, 1784376, 1784378
	03/30/2016			04/12/2016	Diana M. Turner	1784377
EPA 351.2 Rev. 2.0	03/30/2016	04/07/2016	Sofia Elnemr	04/08/2016	Christopher Armour	1784377
	03/30/2016	04/12/2016	Sofia Elnemr	04/13/2016	Christopher Armour	1784375, 1784376, 1784378
EPA 353.2 Rev. 2.0	03/30/2016			04/04/2016	Diana M. Turner	1784375, 1784376, 1784378
	03/30/2016			04/07/2016	Peter D. Kaus	1784377
EPA 365.1 Rev. 2.0	03/30/2016	04/04/2016	Christopher Armour	04/05/2016	Rochelle Y Jackson	1784377
	03/30/2016	04/06/2016	Christopher Armour	04/07/2016	Lipi Saha	1784375, 1784376, 1784378
EPA 365.1 Rev. 2.0 dissolved	03/30/2016			03/30/2016 13:58	Julia Storbeck	1784382
	03/30/2016			03/30/2016 14:04	Julia Storbeck	1784381
	03/30/2016			03/30/2016 14:14	Julia Storbeck	1784379
	03/30/2016			03/30/2016 14:15	Julia Storbeck	1784380
SM 2320 B-97	03/30/2016			04/06/2016	Dale L. Simmons	1784371, 1784372, 1784373, 1784374
SM 2540 D-97	03/30/2016			04/01/2016	Yijie Li	1784371, 1784372, 1784373, 1784374
SM 4500 F-C-97	03/30/2016			04/06/2016	Dale L. Simmons	1784371, 1784372, 1784374
	03/30/2016			04/08/2016	Dale L. Simmons	1784373
SM 5310 B-00	03/30/2016			04/02/2016	Sofia Elnemr	1784375, 1784376, 1784378
	03/30/2016			04/07/2016	Sofia Elnemr	1784377