Chemical Analysis Report

SW-DIST-2016-06-01-01

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

Event Description: **1329W, 1329L**
Request ID: **RQ-2016-05-30-40**
Customer: **SW-DIST**
Project ID: **SMP**

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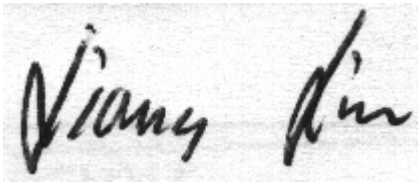
Certified by: Liang Lin, Environmental Administrator

Date Certified: 22-JUN-2016 10:38



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: G4SW0020 **Collection Date/Time: 05/31/2016 09:35**

Field ID: G4SW0020 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803488	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P305415	
	EPA 300.0 Rev. 2.1	Chloride	8.9		mg Cl/L	P305622	
		Sulfate	1.8		mg SO4/L	P305625	
	SM 2120 B	Color (true)	23	A	PCU	P305383	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P305781	
	SM 2540 C-97	TDS	118		mg/L	P306104	
	SM 2540 D-97	TSS	48	I	mg/L	P305840	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P305784	
1803492	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P305870	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P305590	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P305534	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P305921	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P306131	
1803496	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P305386	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.
SM 2540 D-97: The PQL was elevated due to sample matrix interference.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Duplicate **Collection Date/Time: 05/31/2016 09:40**

Field ID: Duplicate Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803489	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P305415	
	EPA 300.0 Rev. 2.1	Chloride	8.9		mg Cl/L	P305622	
		Sulfate	1.7		mg SO4/L	P305625	
	SM 2120 B	Color (true)	23		PCU	P305383	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P305781	
	SM 2540 C-97	TDS	114		mg/L	P306104	
	SM 2540 D-97	TSS	52		mg/L	P305840	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P305784	
1803493	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P305870	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P305590	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P305534	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P305921	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P306131	
1803497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P305386	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Blank **Collection Date/Time: 05/31/2016 10:00**

Field ID: Blank Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803490	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P305415	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P305622	
		Sulfate	0.20	U	mg SO4/L	P305625	
	SM 2120 B	Color (true)	2.5	U	PCU	P305380	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P305781	
	SM 2540 C-97	TDS	15	U	mg/L	P306101	
	SM 2540 D-97	TSS	2	U	mg/L	P305837	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305784	
1803494	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P305870	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305590	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P305534	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P305921	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P306131	
1803498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305386	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4SW0032 **Collection Date/Time: 05/31/2016 10:50**

Field ID: G4SW0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803491	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P305415	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P305622	
		Sulfate	0.20	U	mg SO4/L	P305625	
	SM 2120 B	Color (true)	49		PCU	P305380	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P305781	
	SM 2540 C-97	TDS	36		mg/L	P306104	
	SM 2540 D-97	TSS	2	U	mg/L	P305840	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P305784	
1803495	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P305871	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P305590	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P305534	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P305921	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P306131	
1803499	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305386	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305415

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305622

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305625

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305870

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305871

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305590

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305534

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305386

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P305380

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P305383

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305781

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

Reference Method: SM 2540 C-97
Batch ID: P306101

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P306104

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305837

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305840

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306131

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: P305622

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305625

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305870

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305871

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305590

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: P305534

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: P305921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305386

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

Reference Method: SM 2320 B-97
Batch ID: P305781

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306131

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: P305622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803409	Chloride	99.6		P	90 - 110
1803524	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803409	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803493	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803529	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803466	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803493	Total-P	97.4	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803499	O-Phosphate-P	97.7	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803691	Fluoride	99.4	99.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P306131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803412	Organic Carbon	108		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803459	Turbidity	3.66	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803409	Chloride	0.523	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803409	Sulfate	3.81	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803493	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803529	Ammonia-N	1.02	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305590

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803465	Kjeldahl Nitrogen	0.0981	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305534

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803466	NO2NO3-N	0.936	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305921

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803493	Total-P	2.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305386

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803499	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305380

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803461	Color (true)	1.42	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305383

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803488	Color (true)	1.39	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305781

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803691	Total Alkalinity	0.146	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P306101

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803136	TDS	4.64	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P306104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803463	TDS	3.14	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P305840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803463	TSS	6.67	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803691	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P306131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803412	Organic Carbon	1.40	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: 1803488, 1803489, 1803490, 1803491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	102	96.0	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69788
Included Lab Sample IDs: 1803496, 1803497, 1803498, 1803499

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69802
Included Lab Sample IDs: 1803488, 1803489, 1803490, 1803491

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69814
Included Lab Sample IDs: 1803488, 1803489, 1803490, 1803491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Sulfate	97.9	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69831
Included Lab Sample IDs: 1803492, 1803493, 1803494, 1803495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69899
Included Lab Sample IDs: 1803492, 1803493, 1803494, 1803495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69913
Included Lab Sample IDs: 1803488, 1803489, 1803490, 1803491

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

Reference Method: SM 4500 F-C-97
Run ID: A69913
Included Lab Sample IDs: 1803488, 1803489, 1803490, 1803491

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69935
Included Lab Sample IDs: 1803492, 1803493, 1803494, 1803495

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	103	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69972
Included Lab Sample IDs: 1803492, 1803493

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70005
Included Lab Sample IDs: 1803494, 1803495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110
Total-P	99.0	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A70017
Included Lab Sample IDs: 1803492, 1803493, 1803494, 1803495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	98.6	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		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.66	
EPA 300.0 Rev. 2.1	Chloride	101	99.6	100		0.523	
	Sulfate	99.0	100			3.81	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	103			1.37
	Ammonia-N	101	101	102			1.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101					0.0981
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	105			0.936
EPA 365.1 Rev. 2.0	Total-P	103	97.4	101			2.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	97.7	98.9			1.22
SM 2120 B	Color (true)					1.42	
	Color (true)					1.39	
SM 2320 B-97	Total Alkalinity	102				0.146	
SM 2540 C-97	TDS					4.64	
	TDS					3.14	
SM 2540 D-97	TSS					6.67	
SM 4500 F-C-97	Fluoride	99.0	99.4	99.4			0.0
SM 5310 B-00	Organic Carbon	103	108				1.40

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1803488, 1803489, 1803490, 1803491

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1803488, 1803489, 1803490, 1803491
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1803488, 1803489, 1803490, 1803491
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1803492, 1803493, 1803494, 1803495
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1803492, 1803493, 1803494, 1803495
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1803492, 1803493, 1803494, 1803495
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1803492, 1803493, 1803494, 1803495
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1803496, 1803497, 1803498, 1803499
SM 2120 B / E31780	True Color measured at 450 nm	1803488, 1803489, 1803490, 1803491
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1803488, 1803489, 1803490, 1803491
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1803488, 1803489, 1803490, 1803491
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1803488, 1803489, 1803490, 1803491
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1803488, 1803489, 1803490, 1803491
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1803492, 1803493, 1803494, 1803495

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	1803488, 1803489, 1803490, 1803491
EPA 300.0 Rev. 2.1	06/01/2016			06/04/2016	Elisa J Lutz	1803488, 1803489, 1803490, 1803491
EPA 350.1 Rev. 2.0	06/01/2016			06/08/2016	Diana M. Turner	1803492, 1803493, 1803494, 1803495
EPA 351.2 Rev. 2.0	06/01/2016	06/06/2016	Sofia Elnemr	06/07/2016	Christopher Armour	1803492, 1803493, 1803494, 1803495
EPA 353.2 Rev. 2.0	06/01/2016			06/03/2016	Peter D. Kaus	1803492, 1803493, 1803494, 1803495
EPA 365.1 Rev. 2.0	06/01/2016	06/09/2016	Vijayalakshmi Reddy	06/10/2016	Peter D. Kaus	1803492, 1803493
	06/01/2016	06/09/2016	Vijayalakshmi Reddy	06/13/2016	Virginia P. Brown	1803494, 1803495
EPA 365.1 Rev. 2.0 dissolved	06/01/2016			06/01/2016 17:00	Julia Storbeck	1803499
	06/01/2016			06/01/2016 17:16	Julia Storbeck	1803498
	06/01/2016			06/01/2016 17:24	Julia Storbeck	1803496
	06/01/2016			06/01/2016 17:25	Julia Storbeck	1803497
SM 2120 B	06/01/2016			06/01/2016 18:17	Chrisoulla Rakowski	1803490
	06/01/2016			06/01/2016 18:18	Chrisoulla Rakowski	1803491
	06/01/2016			06/01/2016 18:43	Chrisoulla Rakowski	1803488
	06/01/2016			06/01/2016 18:44	Chrisoulla Rakowski	1803489
SM 2320 B-97	06/01/2016			06/08/2016	Dale L. Simmons	1803488, 1803489, 1803490, 1803491
SM 2540 C-97	06/01/2016			06/03/2016	Yijie Li	1803488, 1803489, 1803490, 1803491
SM 2540 D-97	06/01/2016			06/03/2016	Yijie Li	1803488, 1803489, 1803490, 1803491
SM 4500 F-C-97	06/01/2016			06/08/2016	Dale L. Simmons	1803488, 1803489, 1803490, 1803491
SM 5310 B-00	06/01/2016			06/13/2016	Diana M. Turner	1803492, 1803493, 1803494, 1803495