

Chemical Analysis Report

SW-DIST-2016-04-13-01

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-2016-04-11-39**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 05-MAY-2016 16:19

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: G4SW0020

Collection Date/Time: 04/12/2016 10:50

Field ID: G4SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788900	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P302177	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P302546	
		Sulfate	2.2		mg SO4/L	P302549	
	SM 2120 B	Color (true)	15		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P302424	
	SM 2540 C-97	TDS	132		mg/L	P302840	
	SM 2540 D-97	TSS	21		mg/L	P302827	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P302427	
1788904	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P302655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P302938	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P302542	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P302686	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P302726	
1788908	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P302165	

Ref. Method and Comment:

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.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 04/13/2016.

Sample Location: G4SW0020 DUPLICATE

Collection Date/Time: 04/12/2016 10:55

Field ID: G4SW0020 DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788901	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P302177	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P302546	
		Sulfate	2.1		mg SO4/L	P302549	
	SM 2120 B	Color (true)	16		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P302424	
	SM 2540 C-97	TDS	142		mg/L	P302840	
	SM 2540 D-97	TSS	19		mg/L	P302827	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P302427	
1788905	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P302655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P302938	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P302542	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P302686	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P302726	
1788909	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P302165	

Ref. Method and Comment:

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.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 04/13/2016.

Sample Location: G4SW0032

Collection Date/Time: 04/12/2016 11:55

Field ID: G4SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788902	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P302177	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P302546	
		Sulfate	0.20	U	mg SO4/L	P302549	
	SM 2120 B	Color (true)	52		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P302424	
	SM 2540 C-97	TDS	37		mg/L	P302840	
	SM 2540 D-97	TSS	3	I	mg/L	P302827	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P302427	
1788906	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P302655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P302938	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P302542	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P302686	
	SM 5310 B-00	Organic Carbon	9.1		mg C/L	P302726	
1788910	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302165	

Ref. Method and Comment:

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: BLANK

Collection Date/Time: 04/12/2016 12:05

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788903	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P302178	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P302546	
		Sulfate	0.20	U	mg SO4/L	P302549	
	SM 2120 B	Color (true)	2.5	U	PCU	P302147	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P302424	
	SM 2540 C-97	TDS	15	U	mg/L	P302835	
	SM 2540 D-97	TSS	2	U	mg/L	P302822	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302427	
1788907	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P302655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P302938	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P302542	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P302687	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P302726	
1788911	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302165	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 04/28/2016.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P302177

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302178

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302546

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302549

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302655

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302938

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302542

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: P302686

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302165

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: P302147

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302424

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

Reference Method: SM 2540 C-97
Batch ID: P302835

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P302840

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302822

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302827

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P302726

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: P302546

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: P302546

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302549

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302655

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302542

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: P302686

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302165

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

Reference Method: SM 2320 B-97
Batch ID: P302424

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P302726

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788900	Chloride	101		P	90 - 110
1788989	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788900	Sulfate	99.1		P	90 - 110
1788989	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788906	Ammonia-N	99.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788857	NO2NO3-N	99.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788837	Total-P	98.0	91.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788927	Total-P	93.5	94.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788910	O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788668	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P302726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788847	Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788791	Turbidity	1.39	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788926	Turbidity	12.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788989	Chloride	0.352	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788989	Sulfate	0.692	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788906	Ammonia-N	1.01	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788904	Kjeldahl Nitrogen	0.314	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788857	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788837	Total-P	3.52	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788927	Total-P	0.943	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788910	O-Phosphate-P	1.51	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788856	Color (true)	1.77	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788668	Total Alkalinity	0.0639	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788249	TDS	3.17	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P302840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788856	TDS	6.70	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P302822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788249	TSS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788668	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P302726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788847	Organic Carbon	0.938	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: A68846
Included Lab Sample IDs: 1788900, 1788901, 1788902, 1788903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68851
Included Lab Sample IDs: 1788908, 1788909, 1788910, 1788911

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68854
Included Lab Sample IDs: 1788900, 1788901, 1788902, 1788903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A68927

Included Lab Sample IDs: 1788900, 1788901, 1788902, 1788903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68927

Included Lab Sample IDs: 1788900, 1788901, 1788902, 1788903

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68939

Included Lab Sample IDs: 1788900, 1788901, 1788902, 1788903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	100	101	P/P	90 - 110
Sulfate	99.5	99.7	P/P	90 - 110
Sulfate	99.7	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68976

Included Lab Sample IDs: 1788904, 1788905, 1788906, 1788907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.0	95.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69001

Included Lab Sample IDs: 1788904, 1788905, 1788906, 1788907

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

Reference Method: SM 5310 B-00

Run ID: A69024

Included Lab Sample IDs: 1788904, 1788905, 1788906, 1788907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69030

Included Lab Sample IDs: 1788904, 1788905

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69073
Included Lab Sample IDs: 1788906, 1788907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69136
Included Lab Sample IDs: 1788904, 1788905, 1788906, 1788907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.8	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.39	
	Turbidity				12.0	
EPA 300.0 Rev. 2.1	Chloride	101	101 101		0.352	
	Sulfate	99.5	100 99.1		0.692	
EPA 350.1 Rev. 2.0	Ammonia-N	104	99.3 100			1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.9				0.314
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.0 97.5			1.53
EPA 365.1 Rev. 2.0	Total-P	103	98.0 91.9			3.52
	Total-P	100	93.5 94.4			0.943
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.5 100			1.51
SM 2120 B	Color (true)				1.77	
SM 2320 B-97	Total Alkalinity	103			0.0639	
SM 2540 C-97	TDS				3.17	
	TDS				6.70	
SM 2540 D-97	TSS				8.00	
SM 4500 F-C-97	Fluoride	97.6	97.6 97.6			0.0
SM 5310 B-00	Organic Carbon	98.5	98.1			0.938

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1788900, 1788901, 1788902, 1788903
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1788900, 1788901, 1788902, 1788903
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1788900, 1788901, 1788902, 1788903
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1788904, 1788905, 1788906, 1788907
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1788904, 1788905, 1788906, 1788907
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1788904, 1788905, 1788906, 1788907

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1788904, 1788905, 1788906, 1788907
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1788908, 1788909, 1788910, 1788911
SM 2120 B / E31780	True Color measured at 450 nm	1788900, 1788901, 1788902, 1788903
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1788900, 1788901, 1788902, 1788903
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1788900, 1788901, 1788902, 1788903
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1788900, 1788901, 1788902, 1788903
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1788900, 1788901, 1788902, 1788903
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1788904, 1788905, 1788906, 1788907

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	04/13/2016			04/13/2016 13:03	Sima Feizi	1788900, 1788901, 1788902, 1788903
EPA 300.0 Rev. 2.1	04/13/2016			04/19/2016	Julia Storbeck	1788900, 1788901, 1788902, 1788903
EPA 350.1 Rev. 2.0	04/13/2016			04/20/2016	Diana M. Turner	1788904, 1788905, 1788906, 1788907
EPA 351.2 Rev. 2.0	04/13/2016	04/26/2016	Sofia Elnemr	04/27/2016	Rochelle Y Jackson	1788904, 1788905, 1788906, 1788907
EPA 353.2 Rev. 2.0	04/13/2016			04/19/2016	Virginia P. Brown	1788904, 1788905, 1788906, 1788907
EPA 365.1 Rev. 2.0	04/13/2016	04/21/2016	Christopher Armour	04/21/2016	Lipi Saha	1788904, 1788905
	04/13/2016	04/21/2016	Christopher Armour	04/22/2016	Lipi Saha	1788906, 1788907
EPA 365.1 Rev. 2.0 dissolved	04/13/2016			04/13/2016 12:45	Julia Storbeck	1788910
	04/13/2016			04/13/2016 12:48	Julia Storbeck	1788908
	04/13/2016			04/13/2016 12:49	Julia Storbeck	1788909
	04/13/2016			04/13/2016 12:51	Julia Storbeck	1788911
SM 2120 B	04/13/2016			04/13/2016 10:46	Rochelle Y Jackson	1788900
	04/13/2016			04/13/2016 10:47	Rochelle Y Jackson	1788901, 1788902
	04/13/2016			04/13/2016 10:48	Rochelle Y Jackson	1788903
SM 2320 B-97	04/13/2016			04/16/2016	Dale L. Simmons	1788900, 1788901, 1788902, 1788903
SM 2540 C-97	04/13/2016			04/15/2016	Yijie Li	1788900, 1788901, 1788902, 1788903
SM 2540 D-97	04/13/2016			04/15/2016	Yijie Li	1788900, 1788901, 1788902, 1788903
SM 4500 F-C-97	04/13/2016			04/16/2016	Dale L. Simmons	1788900, 1788901, 1788902, 1788903
SM 5310 B-00	04/13/2016			04/21/2016	Sofia Elnemr	1788904, 1788905, 1788906, 1788907