

Chemical Analysis Report

SW-DIST-2016-04-27-01

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

Event Description: **1348**
Request ID: **RQ-2016-04-25-59**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 24-MAY-2016 16:11



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: G5SW0005

Collection Date/Time: 04/26/2016 11:40

Field ID: G5SW0005

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793254	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P303118	
	SM 2320 B-97	Total Alkalinity	150		mg CaCO3/L	P303817	
	SM 2540 D-97	TSS	6	I	mg/L	P303757	
	SM 4500 F-C-97	Fluoride	0.58		mg F/L	P303822	
1793257	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P303782	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P303994	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P303636	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P303806	MS
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P304301	
1793260	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303103	

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: G5SW0005

Collection Date/Time: 04/26/2016 11:50

Field ID: DUPLICATE

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793255	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P303118	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P303817	
	SM 2540 D-97	TSS	5	I	mg/L	P303757	
	SM 4500 F-C-97	Fluoride	0.57		mg F/L	P303822	
1793258	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P303782	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P303994	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P303636	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P303806	MS
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P304301	
1793261	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303103	

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: BLANK

Collection Date/Time: 04/26/2016 12:25

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793256	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P303118	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303464	
	SM 2540 D-97	TSS	2	U	mg/L	P303755	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303280	
1793259	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P303783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P303998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303839	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P303813	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P304299	
1793262	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303103	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: P303118

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303782

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303783

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303994

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303998

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303636

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303839

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303806

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303813

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303103

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

Reference Method: SM 2320 B-97
Batch ID: P303464

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

Reference Method: SM 2320 B-97
Batch ID: P303817

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

Reference Method: SM 2540 D-97
Batch ID: P303755

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303757

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303280

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304299

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P304301

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: P303782

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: P303783

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P303994

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P303998

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P303636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P303839

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: P303806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P303813

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303813

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303103

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

Reference Method: SM 2320 B-97
Batch ID: P303464

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

Reference Method: SM 2320 B-97
Batch ID: P303817

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

Reference Method: SM 4500 F-C-97
Batch ID: P303280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304301

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303782

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793683	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793219	Ammonia-N	99.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792471	Kjeldahl Nitrogen	94.1	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793218	Kjeldahl Nitrogen	98.3	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793257	NO2NO3-N	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793217	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793244	Total-P	92.4	88.0	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793219	Total-P	96.1	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793260	O-Phosphate-P	104	107	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P303280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793320	Fluoride	98.2	98.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793834	Fluoride	97.5	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793071	Organic Carbon	98.8	98.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304301

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792614	Organic Carbon	94.1	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793210	Turbidity	1.60	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793683	Ammonia-N	1.61	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793219	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792471	Kjeldahl Nitrogen	2.54	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793218	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793257	NO2NO3-N	2.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793217	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793244	Total-P	4.70	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793219	Total-P	3.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793260	O-Phosphate-P	3.04	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P303464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793320	Total Alkalinity	0.236	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P303817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793834	Total Alkalinity	0.401	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P303280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793320	Fluoride	0.509	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793834	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793071	Organic Carbon	0.0630	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P304301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792614	Organic Carbon	2.03	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: A69135
Included Lab Sample IDs: 1793260, 1793261, 1793262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.7	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69141
Included Lab Sample IDs: 1793254, 1793255, 1793256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: SM 4500 F-C-97
Run ID: A69187
Included Lab Sample IDs: 1793256

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

Reference Method: SM 4500 F-C-97

Run ID: A69187

Included Lab Sample IDs: 1793256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69249

Included Lab Sample IDs: 1793256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69298

Included Lab Sample IDs: 1793257, 1793258

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69333

Included Lab Sample IDs: 1793257, 1793258, 1793259

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

Reference Method: SM 2320 B-97

Run ID: A69345

Included Lab Sample IDs: 1793254, 1793255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69345

Included Lab Sample IDs: 1793254, 1793255

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69353

Included Lab Sample IDs: 1793259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69412

Included Lab Sample IDs: 1793257, 1793258, 1793259

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A69412
 Included Lab Sample IDs: 1793257, 1793258, 1793259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A69442
 Included Lab Sample IDs: 1793257, 1793258, 1793259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.8	95.9	P/P	90 - 110
Kjeldahl Nitrogen	98.4	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A69474
 Included Lab Sample IDs: 1793257, 1793258, 1793259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	101	P/P	90 - 110
Organic Carbon	101	95.7	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				1.60	
EPA 350.1 Rev. 2.0	Ammonia-N	100	104 106			1.61
	Ammonia-N	99.9	99.6 101			1.69
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.8	94.1 97.1			2.54
	Kjeldahl Nitrogen	102	98.3 96.1			1.57
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101 103			2.36
	NO2NO3-N	102	100 100			0.499
EPA 365.1 Rev. 2.0	Total-P	93.7	92.4 88.0			4.70
	Total-P	102	96.1 99.4			3.20
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	104 107			3.04
SM 2320 B-97	Total Alkalinity	101			0.236	
	Total Alkalinity	101			0.401	
SM 4500 F-C-97	Fluoride	98.8	98.2 98.9			0.509
	Fluoride	96.5	97.5 98.2			0.483
SM 5310 B-00	Organic Carbon	102	98.8 98.6			0.0630
	Organic Carbon	101	94.1 96.4			2.03

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1793254, 1793255, 1793256

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1793257, 1793258, 1793259
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1793257, 1793258, 1793259
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1793257, 1793258, 1793259
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1793257, 1793258, 1793259
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1793260, 1793261, 1793262
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1793254, 1793255, 1793256
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1793254, 1793255, 1793256
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1793254, 1793255, 1793256
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1793257, 1793258, 1793259

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	04/27/2016			04/27/2016 16:13	Sima Feizi	1793254, 1793255, 1793256
EPA 350.1 Rev. 2.0	04/27/2016			05/06/2016	Diana M. Turner	1793257, 1793258, 1793259
EPA 351.2 Rev. 2.0	04/27/2016	05/11/2016	Sofia Elnemr	05/12/2016	Christopher Armour	1793257, 1793258, 1793259
EPA 353.2 Rev. 2.0	04/27/2016			05/05/2016	Peter D. Kaus	1793257, 1793258
	04/27/2016			05/09/2016	Peter D. Kaus	1793259
EPA 365.1 Rev. 2.0	04/27/2016	05/09/2016	Vijayalakshmi Reddy	05/10/2016	Lipi Saha	1793257, 1793258, 1793259
EPA 365.1 Rev. 2.0 dissolved	04/27/2016			04/27/2016 14:46	Julia Storbeck	1793260
	04/27/2016			04/27/2016 15:04	Julia Storbeck	1793262
	04/27/2016			04/27/2016 15:11	Julia Storbeck	1793261
SM 2320 B-97	04/27/2016			05/04/2016	Dale L. Simmons	1793256
	04/27/2016			05/07/2016	Dale L. Simmons	1793254, 1793255
SM 2540 D-97	04/27/2016			04/29/2016	Yijie Li	1793254, 1793255, 1793256
SM 4500 F-C-97	04/27/2016			04/30/2016	Dale L. Simmons	1793256
	04/27/2016			05/07/2016	Dale L. Simmons	1793254, 1793255
SM 5310 B-00	04/27/2016			05/14/2016	Diana M. Turner	1793257, 1793258, 1793259