

Chemical Analysis Report

SW-DIST-2016-03-02-01

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

Event Description: **1348A,1361B,1382C**

Request ID: **RQ-2016-02-29-26**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

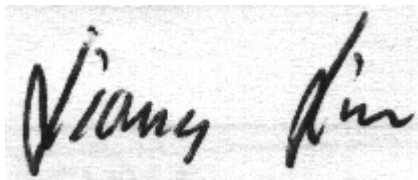
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Stephen Clingerman

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-MAR-2016 15:48

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: G5SW0123

Collection Date/Time: 03/01/2016 10:05

Field ID: G5SW0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776099	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P299615	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P299819	
		Sulfate	14		mg SO4/L	P299821	
	SM 2120 B	Color (true)	5.8	I	PCU	P299603	
	SM 2320 B-97	Total Alkalinity	178	A	mg CaCO3/L	P300124	
	SM 2540 C-97	TDS	261		mg/L	P300121	
	SM 2540 D-97	TSS	2	U	mg/L	P300002	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P300257	
1776103	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300155	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P299902	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P299803	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P300001	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P299916	
1776107	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P299608	

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: G5SW0028

Collection Date/Time: 03/01/2016 12:25

Field ID: G5SW0028

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776100	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P299615	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P299819	
		Sulfate	18		mg SO4/L	P299821	
	SM 2120 B	Color (true)	4.4	I	PCU	P299603	
	SM 2320 B-97	Total Alkalinity	132		mg CaCO3/L	P300124	
	SM 2540 C-97	TDS	308	A	mg/L	P300122	
	SM 2540 D-97	TSS	2	I	mg/L	P300003	
	SM 4500 F-C-97	Fluoride	0.099	I	mg F/L	P300257	
1776104	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300155	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P299902	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.58		mg N/L	P299803	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P300001	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P299916	
1776108	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P299608	

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: G5SW0121

Collection Date/Time: 03/01/2016 13:30

Field ID: G5SW0121

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776101	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P299615	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P299819	
		Sulfate	3.8		mg SO4/L	P299821	

Field ID: G5SW0121

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776101	SM 2120 B	Color (true)	16		PCU	P299603	
	SM 2320 B-97	Total Alkalinity	6.5		mg CaCO3/L	P300244	
	SM 2540 C-97	TDS	44		mg/L	P300122	
	SM 2540 D-97	TSS	2	U	mg/L	P300003	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P300248	
1776105	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P300155	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P299902	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299803	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P300001	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P299916	
1776109	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299609	

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: G5SW0122

Collection Date/Time: 03/01/2016 13:40

Field ID: G5SW0122

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776102	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P299615	
	EPA 300.0 Rev. 2.1	Chloride	6.7		mg Cl/L	P299819	
		Sulfate	3.7		mg SO4/L	P299821	
	SM 2120 B	Color (true)	16		PCU	P299603	
	SM 2320 B-97	Total Alkalinity	6.5		mg CaCO3/L	P300244	
	SM 2540 C-97	TDS	46		mg/L	P300122	
	SM 2540 D-97	TSS	2	I	mg/L	P300003	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P300248	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P300155	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P299902	
1776106	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299803	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P300001	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P299916	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299609	

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: P299615

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299819

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299819

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299821

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300155

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299902

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299803

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300001

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299608

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299609

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

Reference Method: SM 2120 B
Batch ID: P299603

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P300124

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

Reference Method: SM 2320 B-97
Batch ID: P300244

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

Reference Method: SM 2540 C-97
Batch ID: P300121

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P300122

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300002

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300003

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300248

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P300257

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299916

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: P299819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299821

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300155

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299803

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300001

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299608

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299609

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

Reference Method: SM 2320 B-97
Batch ID: P300124

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P300244

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

Reference Method: SM 4500 F-C-97
Batch ID: P300248

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P300257

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299916

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776131	Chloride	104		P	90 - 110
1776132	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776131	Sulfate	101		P	90 - 110
1776132	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776105	Ammonia-N	97.3	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776103	Kjeldahl Nitrogen	93.2	94.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776052	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776052	Total-P	97.8	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776107	O-Phosphate-P	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776110	O-Phosphate-P	96.9	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776219	Fluoride	97.4	96.2	P/P	94 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P300257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776099	Fluoride	96.6	99.8	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776049	Organic Carbon	92.9	93.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776010	Turbidity	3.08	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776131	Chloride	0.924	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776131	Sulfate	4.05	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776105	Ammonia-N	0.566	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776103	Kjeldahl Nitrogen	0.888	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776052	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776052	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776107	O-Phosphate-P	0.944	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776110	O-Phosphate-P	0.617	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P299603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776009	Color (true)	1.03	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776099	Total Alkalinity	0.212	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P300244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776219	Total Alkalinity	0.743	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776012	TDS	5.39	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P300122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776100	TDS	5.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776219	Fluoride	1.02	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P300257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776099	Fluoride	2.28	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776049	Organic Carbon	0.312	Spike	P	0 - 20

Quality Assurance Report Precision

* 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 300.0 Rev. 2.1

Run ID: A67933

Included Lab Sample IDs: 1776099, 1776100, 1776101, 1776102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	100	96.8	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A67948

Included Lab Sample IDs: 1776099, 1776100, 1776101, 1776102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	98.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67950

Included Lab Sample IDs: 1776107, 1776108, 1776109, 1776110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.3	P/P	90 - 110
O-Phosphate-P	99.1	98.5	P/P	90 - 110
O-Phosphate-P	99.3	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67951

Included Lab Sample IDs: 1776099, 1776100, 1776101, 1776102

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68011

Included Lab Sample IDs: 1776103, 1776104, 1776105, 1776106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A68073

Included Lab Sample IDs: 1776103, 1776104, 1776105, 1776106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	94.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A68136

Included Lab Sample IDs: 1776099, 1776100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.2	P/P	90 - 110
Total Alkalinity	98.2	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68141

Included Lab Sample IDs: 1776103, 1776104, 1776105, 1776106

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68144

Included Lab Sample IDs: 1776103, 1776104, 1776105, 1776106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68179

Included Lab Sample IDs: 1776101, 1776102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.9	P/P	90 - 110
Total Alkalinity	98.5	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68179

Included Lab Sample IDs: 1776101, 1776102

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

Reference Method: SM 4500 F-C-97

Run ID: A68180

Included Lab Sample IDs: 1776099, 1776100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	102	P/P	90 - 110
Fluoride	99.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68196

Included Lab Sample IDs: 1776103, 1776104, 1776105, 1776106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	96.5	P/P	90 - 110
Kjeldahl Nitrogen	96.5	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.08	
EPA 300.0 Rev. 2.1	Chloride	106	104	106		0.924	
	Sulfate	102	101	101		4.05	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	97.3	98.0			0.566
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.2	93.2	94.2			0.888
EPA 353.2 Rev. 2.0	NO2NO3-N	105	105	105			0.0
EPA 365.1 Rev. 2.0	Total-P	95.5	97.8	96.8			1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.7	101			0.944
	O-Phosphate-P	101	96.9	97.5			0.617
SM 2120 B	Color (true)					1.03	
SM 2320 B-97	Total Alkalinity	101				0.212	
	Total Alkalinity	101				0.743	
SM 2540 C-97	TDS					5.39	
	TDS					5.19	
SM 4500 F-C-97	Fluoride	97.0	97.4	96.2			1.02
	Fluoride	100	96.6	99.8			2.28
SM 5310 B-00	Organic Carbon	93.7	92.9	93.2			0.312

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1776099, 1776100, 1776101, 1776102
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1776099, 1776100, 1776101, 1776102
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1776099, 1776100, 1776101, 1776102
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1776103, 1776104, 1776105, 1776106
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1776103, 1776104, 1776105, 1776106
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1776103, 1776104, 1776105, 1776106
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1776103, 1776104, 1776105, 1776106
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1776107, 1776108, 1776109, 1776110
SM 2120 B / E31780	True Color measured at 450 nm	1776099, 1776100, 1776101, 1776102
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1776099, 1776100, 1776101, 1776102
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1776099, 1776100, 1776101, 1776102
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1776099, 1776100, 1776101, 1776102
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1776099, 1776100, 1776101, 1776102
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1776103, 1776104, 1776105, 1776106

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	03/02/2016			03/02/2016 15:05	Sima Feizi	1776099, 1776100, 1776101, 1776102
EPA 300.0 Rev. 2.1	03/02/2016			03/04/2016	Ping Hua	1776099, 1776100, 1776101
	03/02/2016			03/05/2016	Ping Hua	1776102
EPA 350.1 Rev. 2.0	03/02/2016			03/10/2016	Diana M. Turner	1776103, 1776104, 1776105, 1776106
EPA 351.2 Rev. 2.0	03/02/2016	03/08/2016	Sofia Elnemr	03/14/2016	Rochelle Y Jackson	1776103, 1776104, 1776105, 1776106
EPA 353.2 Rev. 2.0	03/02/2016			03/04/2016	Virginia P. Brown	1776103, 1776104, 1776105, 1776106
EPA 365.1 Rev. 2.0	03/02/2016	03/09/2016	Christopher Armour	03/10/2016	Lipi Saha	1776103, 1776104, 1776105, 1776106
EPA 365.1 Rev. 2.0 dissolved	03/02/2016			03/02/2016 14:00	Julia Storbeck	1776107
	03/02/2016			03/02/2016 14:08	Julia Storbeck	1776110
	03/02/2016			03/02/2016 14:51	Julia Storbeck	1776108
	03/02/2016			03/02/2016 14:52	Julia Storbeck	1776109
SM 2120 B	03/02/2016			03/02/2016 14:31	Rochelle Y Jackson	1776099
	03/02/2016			03/02/2016 14:32	Rochelle Y Jackson	1776100
	03/02/2016			03/02/2016 14:33	Rochelle Y Jackson	1776101, 1776102
SM 2320 B-97	03/02/2016			03/08/2016	Dale L. Simmons	1776099, 1776100
	03/02/2016			03/10/2016	Dale L. Simmons	1776101, 1776102
SM 2540 C-97	03/02/2016			03/04/2016	Yijie Li	1776099, 1776100, 1776101, 1776102
SM 2540 D-97	03/02/2016			03/04/2016	Yijie Li	1776099, 1776100, 1776101, 1776102
SM 4500 F-C-97	03/02/2016			03/10/2016	Dale L. Simmons	1776101, 1776102
	03/02/2016			03/11/2016	Dale L. Simmons	1776099, 1776100
SM 5310 B-00	03/02/2016			03/05/2016	Sofia Elnemr	1776103, 1776104, 1776105, 1776106