

Chemical Analysis Report

SW-DIST-2016-03-31-01

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-2016-03-28-20**
Customer: **SW-DIST**
Project ID: **SMP**

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13051 N. Telecom Parkway
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 27-APR-2016 16:31



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: Withlacoochee River

Collection Date/Time: 03/30/2016 12:25

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1784949	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P301372	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P301452	
		Sulfate	0.22	I	mg SO4/L	P301555	
	SM 2120 B	Color (true)	580		PCU	P301345	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301700	
	SM 2540 C-97	TDS	84		mg/L	P302096	
	SM 2540 D-97	TSS	16		mg/L	P301871	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P301705	
1784952	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P301769	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P301802	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301608	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P301873	
	SM 5310 B-00	Organic Carbon	56		mg C/L	P301503	
1784955	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P301348	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 04/01//2016.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. The result was confirmed on 04/15/2016.

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

Sample Location: Withlacoochee River - Duplicate

Collection Date/Time: 03/30/2016 12:30

Field ID: DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1784950	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P301372	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P301553	
		Sulfate	0.23	I	mg SO4/L	P301555	
	SM 2120 B	Color (true)	570		PCU	P301345	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301701	
	SM 2540 C-97	TDS	82		mg/L	P302096	
	SM 2540 D-97	TSS	2	U	mg/L	P301871	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P301706	
1784953	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P301769	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P301802	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301608	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P301873	
	SM 5310 B-00	Organic Carbon	56		mg C/L	P301503	
1784956	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P301348	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 04/01//2016.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. The result was confirmed on 04/15/2016.

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

Sample Location: Field Blank - Withlacoochee River

Collection Date/Time: 03/30/2016 12:40

Field ID: BLANK

Matrix: W-FIELD-BK

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

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1784951	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P301372	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P301553	
		Sulfate	0.20	U	mg SO4/L	P301555	
		Color (true)	2.5	U	PCU	P301345	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301701	
	SM 2540 C-97	TDS	15	U	mg/L	P302096	
	SM 2540 D-97	TSS	2	U	mg/L	P301871	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P301706	
1784954	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P301769	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P301802	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301608	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P302145	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P301503	
1784957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P301348	

Ref. Method and Comment:

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

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P301372

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301452

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301553

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301555

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P301769

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301802

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301608

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: P301873

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302145

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301348

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

Reference Method: SM 2120 B
Batch ID: P301345

Component	Result	Code	Units
Color (true)	2.5	U	PCU

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

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

Reference Method: SM 2320 B-97
Batch ID: P301701

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

Reference Method: SM 2540 C-97
Batch ID: P302096

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P301871

Component	Result	Code	Units
TSS	2	U	mg/L

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

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P301706

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P301503

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: P301452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301553

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301555

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301769

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301802

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

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301608

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: P301873

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302145

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301348

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

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

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

Reference Method: SM 2320 B-97
Batch ID: P301701

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

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

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

Reference Method: SM 4500 F-C-97
Batch ID: P301706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P301503

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784445	Chloride	94.7		P	90 - 110
1784446	Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784446	Chloride	100		P	90 - 110
1784785	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784446	Sulfate	99.1		P	90 - 110
1784785	Sulfate	95.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784919	Kjeldahl Nitrogen	92.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784760	NO2NO3-N	97.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784762	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786948	Total-P	101	96.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P301348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784766	O-Phosphate-P	97.4	98.3	P/P	90 - 110

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

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

Reference Method: SM 4500 F-C-97
 Batch ID: P301706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1785300	Fluoride	95.7	96.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P301503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784762	Organic Carbon	97.9	96.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P301372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784917	Turbidity	1.18	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784445	Chloride	0.0213	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784446	Chloride	0.156	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784446	Sulfate	0.438	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784989	Ammonia-N	0.506	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784919	Kjeldahl Nitrogen	4.78	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784760	NO2NO3-N	2.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784762	Total-P	1.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786948	Total-P	4.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784766	O-Phosphate-P	0.730	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P301345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784984	Color (true)	2.13	Sample	P	0 - 20

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

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

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P301701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1785300	Total Alkalinity	0.202	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784984	TDS	0.645	Sample	P	0 - 10

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

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

Reference Method: SM 4500 F-C-97
Batch ID: P301706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1785300	Fluoride	1.03	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P301503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784762	Organic Carbon	0.542	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 300.0 Rev. 2.1
Run ID: A68546
Included Lab Sample IDs: 1784949

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

Reference Method: SM 2120 B
Run ID: A68549
Included Lab Sample IDs: 1784949, 1784950, 1784951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.9	P/P	90 - 115
Color (true)	99.9	102	P/P	90 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A68550

Included Lab Sample IDs: 1784955, 1784956, 1784957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68563

Included Lab Sample IDs: 1784949, 1784950, 1784951

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

Reference Method: SM 5310 B-00

Run ID: A68615

Included Lab Sample IDs: 1784952, 1784953, 1784954

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68637

Included Lab Sample IDs: 1784950, 1784951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	101	P/P	90 - 110
Sulfate	98.6	100	P/P	90 - 110
Sulfate	99.1	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68658

Included Lab Sample IDs: 1784952, 1784953, 1784954

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

Reference Method: SM 2320 B-97

Run ID: A68687

Included Lab Sample IDs: 1784949, 1784950, 1784951

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

Reference Method: SM 4500 F-C-97

Run ID: A68687

Included Lab Sample IDs: 1784949, 1784950, 1784951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68711
Included Lab Sample IDs: 1784952, 1784953, 1784954

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68796
Included Lab Sample IDs: 1784952, 1784953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68819
Included Lab Sample IDs: 1784952, 1784953, 1784954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68881
Included Lab Sample IDs: 1784954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.2	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				1.18	
EPA 300.0 Rev. 2.1	Chloride	97.9	94.7 99.0		0.0213	
	Chloride	100	100 100		0.156	
	Sulfate	98.4	99.1 95.9		0.438	
EPA 350.1 Rev. 2.0	Ammonia-N	103				0.506
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.3	92.8 101			4.78
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.5 99.5			2.03
EPA 365.1 Rev. 2.0	Total-P	102	103 101			1.97
	Total-P	98.9	101 96.5			4.24
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.4 98.3			0.730
SM 2120 B	Color (true)				2.13	
SM 2320 B-97	Total Alkalinity	103			1.00	
	Total Alkalinity	103			0.202	
SM 2540 C-97	TDS				0.645	
SM 4500 F-C-97	Fluoride	96.7	96.3 97.5			1.03
	Fluoride	97.7	95.7 96.9			1.03
SM 5310 B-00	Organic Carbon	94.5	97.9 96.9			0.542

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1784949, 1784950, 1784951
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1784949, 1784950, 1784951
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1784949, 1784950, 1784951
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1784952, 1784953, 1784954
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1784952, 1784953, 1784954
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1784952, 1784953, 1784954
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1784952, 1784953, 1784954
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1784955, 1784956, 1784957
SM 2120 B / E31780	True Color measured at 450 nm	1784949, 1784950, 1784951
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1784949, 1784950, 1784951
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1784949, 1784950, 1784951
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1784949, 1784950, 1784951
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1784949, 1784950, 1784951
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1784952, 1784953, 1784954

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	03/31/2016			03/31/2016 11:57	Sima Feizi	1784949, 1784950, 1784951
EPA 300.0 Rev. 2.1	03/31/2016			04/02/2016	Ping Hua	1784949
	03/31/2016			04/04/2016	Julia Storbeck	1784950, 1784951
EPA 350.1 Rev. 2.0	03/31/2016			04/06/2016	Diana M. Turner	1784952, 1784953, 1784954
EPA 351.2 Rev. 2.0	03/31/2016	04/07/2016	Sofia Elnemr	04/12/2016	Christopher Armour	1784952, 1784953, 1784954
EPA 353.2 Rev. 2.0	03/31/2016			04/05/2016	Peter D. Kaus	1784952, 1784953, 1784954
EPA 365.1 Rev. 2.0	03/31/2016	04/08/2016	Christopher Armour	04/11/2016	Lipi Saha	1784952, 1784953
	03/31/2016	04/13/2016	Christopher Armour	04/14/2016	Lipi Saha	1784954
EPA 365.1 Rev. 2.0 dissolved	03/31/2016			03/31/2016 13:41	Julia Storbeck	1784955
	03/31/2016			03/31/2016 13:42	Julia Storbeck	1784956
	03/31/2016			03/31/2016 13:44	Julia Storbeck	1784957
SM 2120 B	03/31/2016			03/31/2016 13:58	Rochelle Y Jackson	1784951
	03/31/2016			03/31/2016 14:06	Rochelle Y Jackson	1784949
	03/31/2016			03/31/2016 14:07	Rochelle Y Jackson	1784950
SM 2320 B-97	03/31/2016			04/06/2016	Dale L. Simmons	1784949, 1784950, 1784951
SM 2540 C-97	03/31/2016			04/04/2016	Sima Feizi	1784949, 1784950, 1784951
SM 2540 D-97	03/31/2016			04/04/2016	Sima Feizi	1784949, 1784950, 1784951
SM 4500 F-C-97	03/31/2016			04/06/2016	Dale L. Simmons	1784949, 1784950, 1784951
SM 5310 B-00	03/31/2016			04/02/2016	Sofia Elnemr	1784952, 1784953, 1784954