

Chemical Analysis Report

SW-DIST-2016-03-04-01

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

Event Description: **1633A,1668B,1668C**

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

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

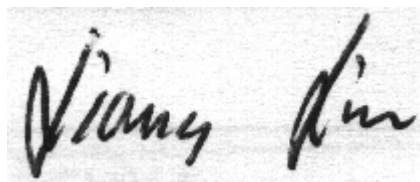
FL Dept. of Environmental Protection
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Stephen Clingerman

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-MAR-2016 15:55

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: G5SW0119

Collection Date/Time: 03/03/2016 09:35

Field ID: G5SW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777247	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P299784	
	EPA 300.0 Rev. 2.1	Chloride	76		mg Cl/L	P300100	
		Sulfate	13		mg SO4/L	P300103	
	SM 2120 B	Color (true)	65		PCU	P299860	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P300269	
	SM 2540 C-97	TDS	210		mg/L	P300376	
	SM 2540 D-97	TSS	33		mg/L	P300021	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P300256	
1777250	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P300437	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P300192	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300169	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P300322	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P300236	
1777253	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P299774	

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.

Sample Location: G5SW0047

Collection Date/Time: 03/03/2016 11:30

Field ID: G5SW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777248	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P299784	
	EPA 300.0 Rev. 2.1	Chloride	67		mg Cl/L	P300100	
		Sulfate	19		mg SO4/L	P300103	
	SM 2120 B	Color (true)	35	A	PCU	P299860	
	SM 2320 B-97	Total Alkalinity	86		mg CaCO3/L	P300269	
	SM 2540 C-97	TDS	252		mg/L	P300376	
	SM 2540 D-97	TSS	2	U	mg/L	P300021	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P300256	
1777251	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P300437	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P300192	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300170	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P300322	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P300236	
1777254	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299774	

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.

Sample Location: G5SW0118

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

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777249	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P299784	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P300102	
		Sulfate	49		mg SO4/L	P300105	

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777249	SM 2120 B	Color (true)	38		PCU	P299860	
	SM 2320 B-97	Total Alkalinity	194		mg CaCO3/L	P300269	
	SM 2540 C-97	TDS	488	A	mg/L	P300376	
	SM 2540 D-97	TSS	65	A	mg/L	P300021	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P300256	
1777252	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P300437	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P300192	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P300170	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P300322	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P300236	
1777255	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P299774	

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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299784

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300100

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300102

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300103

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300105

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300437

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: P300192

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300169

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300170

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: P300322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299774

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

Reference Method: SM 2120 B
Batch ID: P299860

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300269

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

Reference Method: SM 2540 C-97
Batch ID: P300376

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300021

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300236

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: P300100

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300102

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300103

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300105

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300192

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300169

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300169

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300170

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299774

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

Reference Method: SM 2320 B-97
Batch ID: P300269

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

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777174	Chloride	102		P	90 - 110
1777177	Chloride	103		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777288	Chloride	104		P	90 - 110
1777548	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777174	Sulfate	99.7		P	90 - 110
1777177	Sulfate	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777288	Sulfate	100		P	90 - 110
1777548	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777289	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777179	NO2NO3-N	96.6	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777251	NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777220	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777254	O-Phosphate-P	97.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777102	Fluoride	98.0	98.6	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P300236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777182	Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777218	Turbidity	0.504	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777174	Chloride	0.00245	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777288	Chloride	0.0687	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777174	Sulfate	0.908	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777288	Sulfate	0.916	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777289	Ammonia-N	0.424	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777221	Kjeldahl Nitrogen	1.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777179	NO2NO3-N	1.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777251	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777220	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777254	O-Phosphate-P	4.21	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777248	Color (true)	1.47	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777102	Total Alkalinity	0.347	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777249	TDS	7.16	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
Batch ID: P300021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777249	TSS	3.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777102	Fluoride	0.467	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777182	Organic Carbon	0.604	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: A68007
Included Lab Sample IDs: 1777253, 1777254, 1777255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	99.7	P/P	90 - 110
O-Phosphate-P	99.2	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68009
Included Lab Sample IDs: 1777247, 1777248, 1777249

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

Reference Method: SM 2120 B
Run ID: A68046
Included Lab Sample IDs: 1777247, 1777248, 1777249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	96.2	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68089
Included Lab Sample IDs: 1777247, 1777248, 1777249

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68089

Included Lab Sample IDs: 1777247, 1777248, 1777249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	100	P/P	90 - 110
Sulfate	100	99.1	P/P	90 - 110
Sulfate	98.2	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68145

Included Lab Sample IDs: 1777250, 1777251, 1777252

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

Reference Method: SM 5310 B-00

Run ID: A68174

Included Lab Sample IDs: 1777250, 1777251, 1777252

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

Reference Method: SM 4500 F-C-97

Run ID: A68180

Included Lab Sample IDs: 1777247, 1777248, 1777249

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

Reference Method: SM 2320 B-97

Run ID: A68185

Included Lab Sample IDs: 1777247, 1777248, 1777249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68216

Included Lab Sample IDs: 1777250, 1777252

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68219

Included Lab Sample IDs: 1777251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68230

Included Lab Sample IDs: 1777250, 1777251, 1777252

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68230

Included Lab Sample IDs: 1777250, 1777251, 1777252

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68273

Included Lab Sample IDs: 1777250, 1777251, 1777252

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	94.7	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				0.504	
EPA 300.0 Rev. 2.1	Chloride	103	102 103		0.0024	
	Chloride	104	104 103		0.0687	
	Sulfate	101	99.7 98.4		0.908	
	Sulfate	101	100 99.8		0.916	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	101 100			0.424
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.6				1.31
EPA 353.2 Rev. 2.0	NO2NO3-N	101	96.6 98.6			1.77
	NO2NO3-N	100	99.0 99.5			0.504
EPA 365.1 Rev. 2.0	Total-P	105	103 105			1.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.6 102			4.21
SM 2120 B	Color (true)				1.47	
SM 2320 B-97	Total Alkalinity	102			0.347	
SM 2540 C-97	TDS				7.16	
SM 2540 D-97	TSS				3.06	
SM 4500 F-C-97	Fluoride	101	98.0 98.6			0.467
SM 5310 B-00	Organic Carbon	96.1	99.2			0.604

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1777247, 1777248, 1777249
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1777247, 1777248, 1777249
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1777247, 1777248, 1777249
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1777250, 1777251, 1777252
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1777250, 1777251, 1777252
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1777250, 1777251, 1777252

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	1777250, 1777251, 1777252
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1777253, 1777254, 1777255
SM 2120 B / E31780	True Color measured at 450 nm	1777247, 1777248, 1777249
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1777247, 1777248, 1777249
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1777247, 1777248, 1777249
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1777247, 1777248, 1777249
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1777247, 1777248, 1777249
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1777250, 1777251, 1777252

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	03/04/2016			03/04/2016 14:17	Sima Feizi	1777247, 1777248, 1777249
EPA 300.0 Rev. 2.1	03/04/2016			03/09/2016	Julia Storbeck	1777247, 1777248
	03/04/2016			03/10/2016	Julia Storbeck	1777249
EPA 350.1 Rev. 2.0	03/04/2016			03/15/2016	Diana M. Turner	1777250, 1777251, 1777252
EPA 351.2 Rev. 2.0	03/04/2016	03/11/2016	Christopher Armour	03/16/2016	Rochelle Y Jackson	1777250, 1777251, 1777252
EPA 353.2 Rev. 2.0	03/04/2016			03/10/2016	Peter D. Kaus	1777250, 1777251, 1777252
EPA 365.1 Rev. 2.0	03/04/2016	03/14/2016	Lipi Saha	03/15/2016	Lipi Saha	1777250, 1777251, 1777252
EPA 365.1 Rev. 2.0 dissolved	03/04/2016			03/04/2016 12:56	Julia Storbeck	1777254
	03/04/2016			03/04/2016 13:22	Julia Storbeck	1777253
	03/04/2016			03/04/2016 13:23	Julia Storbeck	1777255
SM 2120 B	03/04/2016			03/04/2016 16:46	Blanca Fach	1777248
	03/04/2016			03/04/2016 16:50	Blanca Fach	1777247
	03/04/2016			03/04/2016 16:51	Blanca Fach	1777249
SM 2320 B-97	03/04/2016			03/14/2016	Dale L. Simmons	1777247, 1777248, 1777249
SM 2540 C-97	03/04/2016			03/07/2016	Yijie Li	1777247, 1777248, 1777249
SM 2540 D-97	03/04/2016			03/07/2016	Yijie Li	1777247, 1777248, 1777249
SM 4500 F-C-97	03/04/2016			03/11/2016	Dale L. Simmons	1777247, 1777248, 1777249
SM 5310 B-00	03/04/2016			03/11/2016	Sofia Elnemr	1777250, 1777251, 1777252