Chemical Analysis Report

SW-DIST-2016-06-28-01

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

Event Description: **1329G, 1758F**
Request ID: **RQ-2016-06-27-15**
Customer: **SW-DIST**
Project ID: **SMP**

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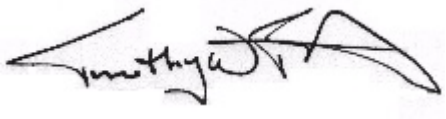
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 20-JUL-2016 09:53



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: Lake Isabelle SW **Collection Date/Time: 06/27/2016 10:25**

Field ID: G4SW0097 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811586	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P307030	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P307883	
		Sulfate	24		mg SO4/L	P307884	
	SM 2120 B	Color (true)	99		PCU	P307036	
	SM 2320 B-97	Total Alkalinity	9.5		mg CaCO3/L	P307511	
	SM 2540 C-97	TDS	93		mg/L	P307343	
	SM 2540 D-97	TSS	4	I	mg/L	P307314	
	SM 4500 F-C-97	Fluoride	0.089	I	mg F/L	P307513	
1811591	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P307358	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P307051	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307214	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P307140	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P307484	
1811596	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307018	

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: Lake Isabelle C **Collection Date/Time: 06/27/2016 10:35**

Field ID: G4SW0095 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811587	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P307030	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P307883	
		Sulfate	24		mg SO4/L	P307884	
	SM 2120 B	Color (true)	100		PCU	P307036	
	SM 2320 B-97	Total Alkalinity	8.1	A	mg CaCO3/L	P307511	
	SM 2540 C-97	TDS	96		mg/L	P307343	
	SM 2540 D-97	TSS	3	I	mg/L	P307314	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P307513	
1811592	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P307358	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P307051	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P307214	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P307140	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P307484	
1811597	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307018	

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: Lake Isabelle SE **Collection Date/Time: 06/27/2016 10:45**

Field ID: G4SW0098 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811588	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P307030	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P307883	
		Sulfate	24		mg SO4/L	P307884	

Field ID: G4SW0098 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811588	SM 2120 B	Color (true)	98		PCU	P307036	
	SM 2320 B-97	Total Alkalinity	9.3		mg CaCO3/L	P307511	
	SM 2540 C-97	TDS	102		mg/L	P307343	
	SM 2540 D-97	TSS	2	I	mg/L	P307314	
	SM 4500 F-C-97	Fluoride	0.087	I	mg F/L	P307513	
1811593	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P307358	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P307051	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307214	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P307140	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P307484	
1811598	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307018	

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: Lake Isabelle N **Collection Date/Time: 06/27/2016 11:00**

Field ID: G4SW0096 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811589	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P307030	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P307883	
		Sulfate	23		mg SO4/L	P307884	
	SM 2120 B	Color (true)	100		PCU	P307036	
	SM 2320 B-97	Total Alkalinity	9.1		mg CaCO3/L	P307511	
	SM 2540 C-97	TDS	106		mg/L	P307343	
	SM 2540 D-97	TSS	2	I	mg/L	P307314	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P307513	
1811594	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P307358	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P307051	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P307214	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P307140	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P307484	
1811599	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307018	

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: Withlacoochee River **Collection Date/Time: 06/27/2016 12:45**

Field ID: G4SW0099 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811590	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P307030	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P307883	
		Sulfate	0.21	I	mg SO4/L	P307884	
	SM 2120 B	Color (true)	700		PCU	P307036	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307511	
	SM 2540 C-97	TDS	93		mg/L	P307343	
	SM 2540 D-97	TSS	2	I	mg/L	P307314	

Field ID: G4SW0099 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811590	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P307513	
1811595	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P307358	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P307051	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307214	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P307140	
	SM 5310 B-00	Organic Carbon	59		mg C/L	P307484	
1811600	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P307018	

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: P307030

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307883

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307884

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307358

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307051

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307214

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307140

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 dissolved
Batch ID: P307018

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

Reference Method: SM 2120 B
Batch ID: P307036

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307511

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

Reference Method: SM 2540 C-97
Batch ID: P307343

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307314

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307513

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307484

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: P307883

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307884

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307051

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307214

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: P307140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307018

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

Reference Method: SM 2320 B-97
Batch ID: P307511

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P307513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811125	Chloride	97.5	97.9	P/P	90 - 110
1811590	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811125	Sulfate	97.7	98.1	P/P	90 - 110
1811590	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811591	Ammonia-N	98.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811592	Kjeldahl Nitrogen	98.9	90.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810649	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811570	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811571	O-Phosphate-P	94.4	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811587	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811591	Organic Carbon	97.5	97.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811569	Turbidity	7.89	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811125	Chloride	0.424	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811125	Sulfate	0.406	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811591	Ammonia-N	2.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811592	Kjeldahl Nitrogen	5.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810649	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811570	Total-P	0.708	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811571	O-Phosphate-P	2.20	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P307036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811569	Color (true)	0.411	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811587	Total Alkalinity	0.618	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811251	TDS	3.39	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811587	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811591	Organic Carbon	0.0312	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: A70279
Included Lab Sample IDs: 1811596, 1811597, 1811598, 1811599, 1811600

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70283
Included Lab Sample IDs: 1811586, 1811587, 1811588, 1811589, 1811590

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A70284
Included Lab Sample IDs: 1811586, 1811587, 1811588, 1811589, 1811590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	97.0	P/P	90 - 115
Color (true)	98.5	97.3	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70336
Included Lab Sample IDs: 1811591, 1811592, 1811593, 1811594, 1811595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	98.8	P/P	90 - 110
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70350
Included Lab Sample IDs: 1811591, 1811592, 1811593, 1811594, 1811595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70357
Included Lab Sample IDs: 1811591, 1811592, 1811593, 1811594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70368
Included Lab Sample IDs: 1811595

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70390
Included Lab Sample IDs: 1811591, 1811592, 1811593, 1811594, 1811595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A70437
Included Lab Sample IDs: 1811591, 1811592, 1811593, 1811594, 1811595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A70440
Included Lab Sample IDs: 1811586, 1811587, 1811588, 1811589, 1811590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A70440
Included Lab Sample IDs: 1811586, 1811587, 1811588, 1811589, 1811590

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

Reference Method: SM 4500 F-C-97
Run ID: A70440
Included Lab Sample IDs: 1811586, 1811587, 1811588, 1811589, 1811590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70540
Included Lab Sample IDs: 1811586, 1811587, 1811588, 1811589, 1811590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	98.2	P/P	90 - 110
Chloride	98.5	98.4	P/P	90 - 110
Sulfate	98.5	95.1	P/P	90 - 110
Sulfate	99.1	98.5	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			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						7.89	
EPA 300.0 Rev. 2.1	Chloride	98.2	97.5	97.9	97.5			0.424
	Sulfate	98.8	97.7	98.1	97.9			0.406
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	98.3	101				2.03
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	98.9	90.2				5.26
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	101				0.475
EPA 365.1 Rev. 2.0	Total-P	97.0	100	101				0.708
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	94.4	96.5				2.20
SM 2120 B	Color (true)						0.411	
SM 2320 B-97	Total Alkalinity	102					0.618	
SM 2540 C-97	TDS						3.39	
SM 4500 F-C-97	Fluoride	96.2	101	101				0.0
SM 5310 B-00	Organic Carbon	99.8	97.5	97.6				0.0312

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1811586, 1811587, 1811588, 1811589, 1811590
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1811586, 1811587, 1811588, 1811589, 1811590

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1811586, 1811587, 1811588, 1811589, 1811590
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1811591, 1811592, 1811593, 1811594, 1811595
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1811591, 1811592, 1811593, 1811594, 1811595
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1811591, 1811592, 1811593, 1811594, 1811595
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1811591, 1811592, 1811593, 1811594, 1811595
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1811596, 1811597, 1811598, 1811599, 1811600
SM 2120 B / E31780	True Color measured at 450 nm	1811586, 1811587, 1811588, 1811589, 1811590
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1811586, 1811587, 1811588, 1811589, 1811590
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1811586, 1811587, 1811588, 1811589, 1811590
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1811586, 1811587, 1811588, 1811589, 1811590
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1811586, 1811587, 1811588, 1811589, 1811590
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1811591, 1811592, 1811593, 1811594, 1811595

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	06/28/2016			06/28/2016 16:16	Sima Feizi	1811586, 1811587, 1811588, 1811589, 1811590
EPA 300.0 Rev. 2.1	06/28/2016			07/12/2016	Ping Hua	1811586, 1811587, 1811588, 1811589, 1811590
EPA 350.1 Rev. 2.0	06/28/2016			07/05/2016	Diana M. Turner	1811591, 1811592, 1811593, 1811594, 1811595
EPA 351.2 Rev. 2.0	06/28/2016	06/29/2016	Sofia Elnemr	06/30/2016	Christopher Armour	1811591, 1811592, 1811593, 1811594, 1811595
EPA 353.2 Rev. 2.0	06/28/2016			06/30/2016	Beverly Y. Sanders	1811591, 1811592, 1811593, 1811594, 1811595
EPA 365.1 Rev. 2.0	06/28/2016	06/30/2016	Vijayalakshmi Reddy	07/01/2016	Lipi Saha	1811591, 1811592, 1811593, 1811594, 1811595
EPA 365.1 Rev. 2.0 dissolved	06/28/2016			06/28/2016 14:51	Julia Storbeck	1811600
	06/28/2016			06/28/2016 14:55	Julia Storbeck	1811596, 1811597
	06/28/2016			06/28/2016 14:56	Julia Storbeck	1811598
	06/28/2016			06/28/2016 14:57	Julia Storbeck	1811599
SM 2120 B	06/28/2016			06/28/2016 16:41	Rochelle Y Jackson	1811586
	06/28/2016			06/28/2016 16:42	Rochelle Y Jackson	1811587
	06/28/2016			06/28/2016 16:43	Rochelle Y Jackson	1811588, 1811589
	06/28/2016			06/28/2016 17:17	Rochelle Y Jackson	1811590
SM 2320 B-97	06/28/2016			07/06/2016	Dale L. Simmons	1811586, 1811587, 1811588, 1811589, 1811590
SM 2540 C-97	06/28/2016			06/29/2016	Yijie Li	1811586, 1811587, 1811588, 1811589, 1811590
SM 2540 D-97	06/28/2016			06/29/2016	Yijie Li	1811586, 1811587, 1811588, 1811589, 1811590
SM 4500 F-C-97	06/28/2016			07/06/2016	Dale L. Simmons	1811586, 1811587, 1811588, 1811589, 1811590
SM 5310 B-00	06/28/2016			07/07/2016	Sofia Elnemr	1811591, 1811592, 1811593, 1811594, 1811595