

Chemical Analysis Report

SW-DIST-2016-10-19-01

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

Event Description: **RUN 7A**
Request ID: **RQ-2016-10-17-30**
Customer: **SW-DIST**
Project ID: **SMP**

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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: Klosterman Bayou

Collection Date/Time: 10/18/2016 09:55

Field ID: G5SW0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842111	EPA 180.1 Rev. 2.0	Turbidity	5.2	A	NTU	P313524	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P314456	
		Sulfate	45		mg SO4/L	P314461	
	SM 2120 B	Color (true)	99		PCU	P313497	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P313618	
	SM 2540 C-97	TDS	415		mg/L	P314158	
	SM 2540 D-97	TSS	7	I	mg/L	P314152	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P313620	
1842115	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P314208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P313733	
	EPA 365.1 Rev. 2.0	Total-P	0.39		mg P/L	P314224	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P313574	
1842119	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P313491	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Green Lake S

Collection Date/Time: 10/18/2016 11:30

Field ID: G5SW0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842112	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P313524	
	EPA 300.0 Rev. 2.1	Chloride	15	A	mg Cl/L	P314456	
		Sulfate	0.42	I	mg SO4/L	P314461	
	SM 2120 B	Color (true)	29		PCU	P313497	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P313618	
	SM 2540 C-97	TDS	71		mg/L	P314158	
	SM 2540 D-97	TSS	2	I	mg/L	P314152	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P313620	
1842116	EPA 350.1 Rev. 2.0	Ammonia-N	0.097		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P314208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P313734	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P314224	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P313574	
1842120	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313491	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Green Lake N

Collection Date/Time: 10/18/2016 11:45

Field ID: G5SW0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842113	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P313524	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P314456	
		Sulfate	0.32	I	mg SO4/L	P314461	

Field ID: G5SW0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842113	SM 2120 B	Color (true)	28		PCU	P313497	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P313618	
	SM 2540 C-97	TDS	55		mg/L	P314158	
	SM 2540 D-97	TSS	4	I	mg/L	P314152	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P313620	
1842117	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P314208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313734	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P314224	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P313574	
1842121	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313491	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pierce Lake

Collection Date/Time: 10/18/2016 12:30

Field ID: G5SW0104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842114	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P313524	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P314456	
		Sulfate	0.82		mg SO4/L	P314461	
	SM 2120 B	Color (true)	47		PCU	P313497	
	SM 2320 B-97	Total Alkalinity	5.8		mg CaCO3/L	P313618	
1842118	SM 2540 C-97	TDS	34		mg/L	P314158	
	SM 2540 D-97	TSS	3	I	mg/L	P314152	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P313620	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P314642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P314205	
1842122	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313734	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P314224	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P313574	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313493	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P313524

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314456

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314461

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314642

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314205

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314208

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313733

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313734

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314224

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313491

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313493

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

Reference Method: SM 2120 B
Batch ID: P313497

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313618

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

Reference Method: SM 2540 C-97
Batch ID: P314158

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314152

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P313620

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P313574

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: P314456

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314461

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314461

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314642

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314205

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314208

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314224

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313491

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313493

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P313618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P313620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P313574

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P314456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842112	Chloride	101		P	90 - 110
1842113	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P314461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842112	Sulfate	98.6		P	90 - 110
1842113	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P314642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842118	Ammonia-N	99.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P314208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842117	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P313733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841292	NO2NO3-N	104	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842116	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842088	Total-P	98.9	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842121	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842122	O-Phosphate-P	94.7	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842283	Fluoride	102	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P313574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842079	Organic Carbon	92.1	85.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842111	Turbidity	3.28	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842112	Chloride	2.27	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842112	Sulfate	4.10	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842118	Ammonia-N	0.666	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840179	Kjeldahl Nitrogen	1.93	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842117	Kjeldahl Nitrogen	0.228	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841292	NO2NO3-N	0.436	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842116	NO2NO3-N	0.889	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842088	Total-P	4.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842121	O-Phosphate-P	0.694	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842122	O-Phosphate-P	2.19	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842059	Color (true)	5.59	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P313618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842283	Total Alkalinity	0.0951	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P314158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842078	TDS	2.22	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P313620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842283	Fluoride	0.460	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842079	Organic Carbon	5.05	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: A72317
Included Lab Sample IDs: 1842119, 1842120, 1842121, 1842122

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A72317

Included Lab Sample IDs: 1842119, 1842120, 1842121, 1842122

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

Reference Method: SM 2120 B

Run ID: A72318

Included Lab Sample IDs: 1842111, 1842112, 1842113, 1842114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72324

Included Lab Sample IDs: 1842111, 1842112, 1842113, 1842114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	101	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A72343

Included Lab Sample IDs: 1842115, 1842116, 1842117, 1842118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.9	93.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A72356

Included Lab Sample IDs: 1842111, 1842112, 1842113, 1842114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A72356

Included Lab Sample IDs: 1842111, 1842112, 1842113, 1842114

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72388

Included Lab Sample IDs: 1842115, 1842116, 1842117, 1842118

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72548

Included Lab Sample IDs: 1842115

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72551

Included Lab Sample IDs: 1842115, 1842116, 1842117, 1842118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110
Kjeldahl Nitrogen	103	101	P/P	90 - 110
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72588

Included Lab Sample IDs: 1842116, 1842117, 1842118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72589

Included Lab Sample IDs: 1842111, 1842112, 1842113, 1842114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Chloride	99.7	100	P/P	90 - 110
Sulfate	100	99.2	P/P	90 - 110
Sulfate	97.7	98.8	P/P	90 - 110
Sulfate	99.2	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72636

Included Lab Sample IDs: 1842115, 1842116, 1842117, 1842118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	98.1	P/P	90 - 110
Ammonia-N	98.2	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	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.28	
EPA 300.0 Rev. 2.1	Chloride	101		101	99.8	2.27	
	Sulfate	98.7		98.6	97.8	4.10	
EPA 350.1 Rev. 2.0	Ammonia-N	106		99.7	101		0.666
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103					1.93
	Kjeldahl Nitrogen	104		104	104		0.228
EPA 353.2 Rev. 2.0	NO2NO3-N	104		104	104		0.436
	NO2NO3-N	106		105	106		0.889
EPA 365.1 Rev. 2.0	Total-P	98.7		98.9	104		4.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101		100	101		0.694

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 365.1 Rev. 2.0 dissolved SM 2120 B	O-Phosphate-P Color (true)	102	94.7 96.8		5.59	2.19
SM 2320 B-97 SM 2540 C-97	Total Alkalinity TDS	103			0.0951 2.22	
SM 4500 F-C-97 SM 5310 B-00	Fluoride Organic Carbon	98.9 92.6	102 101 92.1 85.3			0.460 5.05

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1842111, 1842112, 1842113, 1842114
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1842111, 1842112, 1842113, 1842114
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1842111, 1842112, 1842113, 1842114
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1842115, 1842116, 1842117, 1842118
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1842115, 1842116, 1842117, 1842118
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1842115, 1842116, 1842117, 1842118
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1842115, 1842116, 1842117, 1842118
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1842119, 1842120, 1842121, 1842122
SM 2120 B / E31780	True Color measured at 450 nm	1842111, 1842112, 1842113, 1842114
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1842111, 1842112, 1842113, 1842114
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1842111, 1842112, 1842113, 1842114
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1842111, 1842112, 1842113, 1842114
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1842111, 1842112, 1842113, 1842114
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1842115, 1842116, 1842117, 1842118

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	10/19/2016			10/19/2016 15:13	Sima Feizi	1842111, 1842112, 1842113, 1842114
EPA 300.0 Rev. 2.1	10/19/2016			11/03/2016	Ping Hua	1842111, 1842112, 1842113, 1842114
EPA 350.1 Rev. 2.0	10/19/2016			11/04/2016	Sofia Elnemr	1842115, 1842116, 1842117, 1842118
EPA 351.2 Rev. 2.0	10/19/2016	10/31/2016	Adrian Shelby	11/01/2016	Joseph Suarez	1842115, 1842116, 1842117, 1842118
EPA 353.2 Rev. 2.0	10/19/2016			10/24/2016	Beverly Y. Sanders	1842115, 1842116, 1842117, 1842118
EPA 365.1 Rev. 2.0	10/19/2016	10/31/2016	Vijayalakshmi Reddy	11/01/2016	Lipi Saha	1842115, 1842116, 1842117, 1842118
EPA 365.1 Rev. 2.0 dissolved	10/19/2016			10/19/2016 15:10	Julia Storbeck	1842121
	10/19/2016			10/19/2016 15:23	Julia Storbeck	1842122
	10/19/2016			10/19/2016 15:53	Julia Storbeck	1842119
	10/19/2016			10/19/2016 15:54	Julia Storbeck	1842120
	10/19/2016			10/19/2016 16:27	Julie Michelle Frank	1842111
SM 2120 B	10/19/2016			10/19/2016 16:28	Julie Michelle Frank	1842112, 1842113
	10/19/2016			10/19/2016 16:29	Julie Michelle Frank	1842114
	10/19/2016			10/21/2016	Dale L. Simmons	1842111, 1842112, 1842113, 1842114
SM 2320 B-97	10/19/2016			10/22/2016	Yijie Li	1842111, 1842112, 1842113, 1842114
SM 2540 C-97	10/19/2016			10/22/2016	Yijie Li	1842111, 1842112, 1842113, 1842114
SM 2540 D-97	10/19/2016			10/21/2016	Dale L. Simmons	1842111, 1842112, 1842113, 1842114
SM 4500 F-C-97	10/19/2016			10/20/2016	Julie Michelle Frank	1842115, 1842116, 1842117, 1842118
SM 5310 B-00	10/19/2016					