

Chemical Analysis Report

SW-DIST-2016-05-05-02

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

Event Description: **1758F**
Request ID: **RQ-2016-05-02-71**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 01-JUN-2016 10:34

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: LAKE ISABELL SW

Collection Date/Time: 05/04/2016 11:45

Field ID: G4SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796076	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P303665	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P304288	
		Sulfate	24		mg SO4/L	P304556	
	SM 2120 B	Color (true)	68		PCU	P303617	
	SM 2320 B-97	Total Alkalinity	11	A	mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	112		mg/L	P304454	
	SM 2540 D-97	TSS	2	U	mg/L	P304386	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P304244	
1796079	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P304506	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P304274	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P304613	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P304295	
1796082	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P303643	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: LAKE ISABELL SW-DUPLICATE

Collection Date/Time: 05/04/2016 11:50

Field ID: G5SW0097 DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796077	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P303665	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P304288	
		Sulfate	24	A	mg SO4/L	P304556	
	SM 2120 B	Color (true)	59		PCU	P303617	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	111		mg/L	P304454	
	SM 2540 D-97	TSS	2	U	mg/L	P304386	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P304244	
1796080	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P304506	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P304274	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P304613	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P304295	
1796083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P303643	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 05/04/2016 13:46

Field ID: BLANK

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796078	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P303665	

Field ID: BLANK

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796078	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P304288	
		Sulfate	0.20	U	mg SO4/L	P304556	
	SM 2120 B	Color (true)	2.5	U	PCU	P303617	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	15	U	mg/L	P304454	
	SM 2540 D-97	TSS	2	U	mg/L	P304386	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796081	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P304216	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P304506	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304274	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P304613	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P304295	
1796084	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303643	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 05/26/2016.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P303665

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P304288

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P304556

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P304216

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P304217

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: P304506

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

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: P304613

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

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

Reference Method: SM 2120 B
Batch ID: P303617

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304242

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

Reference Method: SM 2540 C-97
Batch ID: P304454

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304386

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P304295

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: P304288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304613

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: P303643

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

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

Reference Method: SM 2320 B-97
Batch ID: P304242

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

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796059	Chloride	94.7		P	90 - 110
1796077	Chloride	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796062	Sulfate	97.1		P	90 - 110
1796077	Sulfate	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796020	Ammonia-N	99.2	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796101	Ammonia-N	100	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796079	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796079	Total-P	101	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796033	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796076	Fluoride	97.4	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796020	Organic Carbon	97.4	94.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796012	Turbidity	1.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796059	Chloride	0.376	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796077	Sulfate	0.636	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796020	Ammonia-N	0.0723	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796101	Ammonia-N	2.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796063	Kjeldahl Nitrogen	2.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796079	NO2NO3-N	0.862	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796079	Total-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796033	O-Phosphate-P	1.48	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796012	Color (true)	1.20	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796076	Total Alkalinity	1.44	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P304454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796061	TDS	0.739	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796076	Fluoride	0.530	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796020	Organic Carbon	2.28	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: SM 2120 B
Run ID: A69297
Included Lab Sample IDs: 1796076, 1796077, 1796078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	97.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69300
Included Lab Sample IDs: 1796082, 1796083, 1796084

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69305
Included Lab Sample IDs: 1796076, 1796077, 1796078

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69423
Included Lab Sample IDs: 1796076, 1796077, 1796078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69423

Included Lab Sample IDs: 1796076, 1796077, 1796078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69447

Included Lab Sample IDs: 1796079, 1796080, 1796081

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

Reference Method: SM 2320 B-97

Run ID: A69463

Included Lab Sample IDs: 1796076, 1796077, 1796078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.4	P/P	90 - 110
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69463

Included Lab Sample IDs: 1796076, 1796077, 1796078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.5	P/P	90 - 110
Fluoride	99.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69466

Included Lab Sample IDs: 1796079, 1796080, 1796081

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

Reference Method: SM 5310 B-00

Run ID: A69473

Included Lab Sample IDs: 1796079, 1796080, 1796081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.0	P/P	90 - 110
Organic Carbon	97.0	97.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69555

Included Lab Sample IDs: 1796076, 1796077, 1796078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	98.8	97.6	P/P	90 - 110
Sulfate	98.8	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69582
Included Lab Sample IDs: 1796079, 1796080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69611
Included Lab Sample IDs: 1796081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.0	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69622
Included Lab Sample IDs: 1796079, 1796080, 1796081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	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				1.70	
EPA 300.0 Rev. 2.1	Chloride	97.4	94.7 95.6		0.376	
	Sulfate	97.5	96.0 97.1		0.636	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	99.2 99.2			0.0723
	Ammonia-N	100	100 103			2.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.6				2.34
EPA 353.2 Rev. 2.0	NO2NO3-N	103	101 102			0.862
EPA 365.1 Rev. 2.0	Total-P	97.0	101 99.3			1.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101 102			1.48
SM 2120 B	Color (true)				1.20	
SM 2320 B-97	Total Alkalinity	101			1.44	
SM 2540 C-97	TDS				0.739	
SM 4500 F-C-97	Fluoride	96.5	97.4 96.7			0.530
SM 5310 B-00	Organic Carbon	98.4	97.4 94.7			2.28

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796076, 1796077, 1796078
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796076, 1796077, 1796078
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796076, 1796077, 1796078

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796079, 1796080, 1796081
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796079, 1796080, 1796081
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796079, 1796080, 1796081
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796079, 1796080, 1796081
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796082, 1796083, 1796084
SM 2120 B / E31780	True Color measured at 450 nm	1796076, 1796077, 1796078
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1796076, 1796077, 1796078
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796076, 1796077, 1796078
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796076, 1796077, 1796078
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796076, 1796077, 1796078
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796079, 1796080, 1796081

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	05/05/2016			05/05/2016 16:25	Blanca Fach	1796076, 1796077, 1796078
EPA 300.0 Rev. 2.1	05/05/2016			05/13/2016	Elisa J Lutz	1796076, 1796077, 1796078
	05/05/2016			05/17/2016	Elisa J Lutz	1796076, 1796077, 1796078
EPA 350.1 Rev. 2.0	05/05/2016			05/12/2016	Diana M. Turner	1796079, 1796080, 1796081
EPA 351.2 Rev. 2.0	05/05/2016	05/18/2016	Sofia Elnemr	05/19/2016	Vijayalakshmi Reddy	1796079, 1796080
	05/05/2016	05/18/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796081
EPA 353.2 Rev. 2.0	05/05/2016			05/13/2016	Peter D. Kaus	1796079, 1796080, 1796081
EPA 365.1 Rev. 2.0	05/05/2016	05/19/2016	Vijayalakshmi Reddy	05/23/2016	Lipi Saha	1796079, 1796080, 1796081
EPA 365.1 Rev. 2.0 dissolved	05/05/2016			05/05/2016 15:52	Julia Storbeck	1796084
	05/05/2016			05/05/2016 16:07	Julia Storbeck	1796082
	05/05/2016			05/05/2016 16:08	Julia Storbeck	1796083
SM 2120 B	05/05/2016			05/05/2016 13:11	Rochelle Y Jackson	1796076
	05/05/2016			05/05/2016 13:12	Rochelle Y Jackson	1796077
	05/05/2016			05/05/2016 13:13	Rochelle Y Jackson	1796078
SM 2320 B-97	05/05/2016			05/12/2016	Dale L. Simmons	1796076, 1796077, 1796078
SM 2540 C-97	05/05/2016			05/09/2016	Sima Feizi	1796076, 1796077, 1796078
SM 2540 D-97	05/05/2016			05/09/2016	Sima Feizi	1796076, 1796077, 1796078
SM 4500 F-C-97	05/05/2016			05/12/2016	Dale L. Simmons	1796076, 1796077, 1796078
SM 5310 B-00	05/05/2016			05/12/2016	Diana M. Turner	1796079, 1796080, 1796081