

Chemical Analysis Report

SW-DIST-2016-03-15-01

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

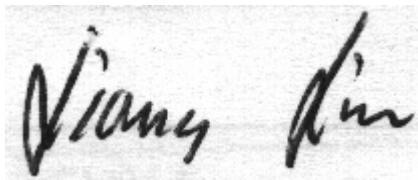
Event Description: **1329G, 1758F**
Request ID: **RQ-2016-03-14-41**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-APR-2016 17:05

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: G4SW0097

Collection Date/Time: 03/14/2016 11:30

Field ID: G4SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779554	EPA 180.1 Rev. 2.0	Turbidity	1.4	A	NTU	P300399	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P300483	
		Sulfate	26		mg SO4/L	P300485	
	SM 2120 B	Color (true)	74		PCU	P300364	
	SM 2320 B-97	Total Alkalinity	7.6		mg CaCO3/L	P300586	
	SM 2540 C-97	TDS	97		mg/L	P301124	
	SM 2540 D-97	TSS	4	I	mg/L	P300899	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P300589	
1779559	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P300853	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P300745	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P300704	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P300699	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P300651	
1779564	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P300389	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4SW0095

Collection Date/Time: 03/14/2016 11:45

Field ID: G4SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779555	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P300399	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P300483	
		Sulfate	27		mg SO4/L	P300485	
	SM 2120 B	Color (true)	73		PCU	P300364	
	SM 2320 B-97	Total Alkalinity	7.4		mg CaCO3/L	P300586	
	SM 2540 C-97	TDS	91		mg/L	P301124	
	SM 2540 D-97	TSS	3	I	mg/L	P300899	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P300589	
1779560	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P300853	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P300745	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P300710	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P300699	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P300651	
1779565	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300389	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4SW0096

Collection Date/Time: 03/14/2016 12:00

Field ID: G4SW0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779556	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P300399	

Field ID: G4SW0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779556	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P300483	
		Sulfate	26		mg SO4/L	P300485	
	SM 2120 B	Color (true)	69		PCU	P300364	
	SM 2320 B-97	Total Alkalinity	8.0		mg CaCO3/L	P300586	
	SM 2540 C-97	TDS	95		mg/L	P301124	
	SM 2540 D-97	TSS	2	I	mg/L	P300899	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P300589	
1779561	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P300853	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P300745	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P300710	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P300699	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P300651	
1779566	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300389	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4SW0098

Collection Date/Time: 03/14/2016 12:10

Field ID: G4SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779557	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P300399	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P300483	
		Sulfate	26		mg SO4/L	P300485	
	SM 2120 B	Color (true)	71		PCU	P300364	
	SM 2320 B-97	Total Alkalinity	7.6		mg CaCO3/L	P300586	
	SM 2540 C-97	TDS	101		mg/L	P301124	
	SM 2540 D-97	TSS	4	I	mg/L	P300899	
1779562	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P300589	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P300853	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P300745	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P300710	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P300699	
1779567	SM 5310 B-00	Organic Carbon	11		mg C/L	P300651	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300389	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4SW0099

Collection Date/Time: 03/14/2016 14:05

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779558	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P300399	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P300483	
		Sulfate	0.20	U	mg SO4/L	P300485	

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779558	SM 2120 B	Color (true)	550		PCU	P300364	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300586	
	SM 2540 C-97	TDS	110		mg/L	P301124	
	SM 2540 D-97	TSS	4	I	mg/L	P300899	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P300589	
1779563	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P300853	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P300745	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P300710	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P300699	
	SM 5310 B-00	Organic Carbon	56		mg C/L	P300651	
1779568	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P300389	

Ref. Method and Comment:
 EPA 300.0 Rev. 2.1: Chloride: Matrix spike recovery data for one of two spiked samples 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: P300399

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P300483

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P300485

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P300853

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P300745

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P300704

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300710

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300699

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300389

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

Reference Method: SM 2120 B
Batch ID: P300364

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300586

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

Reference Method: SM 2540 C-97
Batch ID: P301124

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300899

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300589

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300651

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: P300483

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300485

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300853

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300704

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300710

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300699

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300389

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

Reference Method: SM 2320 B-97
Batch ID: P300586

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P300589

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300651

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778845	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778845	Sulfate	102		P	90 - 110
1779206	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779561	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779559	Kjeldahl Nitrogen	92.0	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779212	NO2NO3-N	101	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779560	NO2NO3-N	102	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779252	Total-P	103	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779622	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300589

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779588	Fluoride	100	98.5	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P300651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779213	Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779554	Turbidity	8.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778845	Chloride	0.0504	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778845	Sulfate	2.67	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779561	Ammonia-N	0.606	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779559	Kjeldahl Nitrogen	2.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779212	NO2NO3-N	1.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779560	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779252	Total-P	2.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779622	O-Phosphate-P	0.786	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P300364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779588	Color (true)	3.81	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779588	Total Alkalinity	0.451	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P301124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779584	TDS	1.79	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
Batch ID: P300899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779584	TSS	7.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779588	Fluoride	1.41	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779213	Organic Carbon	0.739	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: A68225
Included Lab Sample IDs: 1779554, 1779555, 1779556, 1779557, 1779558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	99.3	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68233
Included Lab Sample IDs: 1779564, 1779565, 1779566, 1779567, 1779568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.0	P/P	90 - 110
O-Phosphate-P	99.6	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68237
Included Lab Sample IDs: 1779554, 1779555, 1779556, 1779557, 1779558

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68261
Included Lab Sample IDs: 1779554, 1779555, 1779556, 1779557, 1779558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68261

Included Lab Sample IDs: 1779554, 1779555, 1779556, 1779557, 1779558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	96.5	99.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68295

Included Lab Sample IDs: 1779554, 1779555, 1779556, 1779557, 1779558

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

Reference Method: SM 4500 F-C-97

Run ID: A68295

Included Lab Sample IDs: 1779554, 1779555, 1779556, 1779557, 1779558

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

Reference Method: SM 5310 B-00

Run ID: A68315

Included Lab Sample IDs: 1779559, 1779560, 1779561, 1779562, 1779563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68335

Included Lab Sample IDs: 1779559, 1779560, 1779561, 1779562, 1779563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68389

Included Lab Sample IDs: 1779559, 1779560, 1779561, 1779562, 1779563

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68404

Included Lab Sample IDs: 1779559, 1779560, 1779561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68406

Included Lab Sample IDs: 1779559, 1779560, 1779561, 1779562, 1779563

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68406

Included Lab Sample IDs: 1779559, 1779560, 1779561, 1779562, 1779563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68418

Included Lab Sample IDs: 1779562, 1779563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.0	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				8.70	
EPA 300.0 Rev. 2.1	Chloride	102	101		0.0504	
	Sulfate	101	102	99.5	2.67	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	103		0.606
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.4	92.0	96.0		2.45
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	99.2		1.56
	NO2NO3-N	104	102	104		1.53
EPA 365.1 Rev. 2.0	Total-P	99.8	103	99.6		2.24
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101	102		0.786
SM 2120 B	Color (true)				3.81	
SM 2320 B-97	Total Alkalinity	103			0.451	
SM 2540 C-97	TDS				1.79	
SM 2540 D-97	TSS				7.14	
SM 4500 F-C-97	Fluoride	99.9	100	98.5		1.41
SM 5310 B-00	Organic Carbon	95.7	99.0			0.739

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1779554, 1779555, 1779556, 1779557, 1779558
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1779554, 1779555, 1779556, 1779557, 1779558
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1779554, 1779555, 1779556, 1779557, 1779558
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1779559, 1779560, 1779561, 1779562, 1779563
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1779559, 1779560, 1779561, 1779562, 1779563
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1779559, 1779560, 1779561, 1779562, 1779563
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1779559, 1779560, 1779561, 1779562, 1779563

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1779564, 1779565, 1779566, 1779567, 1779568
SM 2120 B / E31780	True Color measured at 450 nm	1779554, 1779555, 1779556, 1779557, 1779558
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1779554, 1779555, 1779556, 1779557, 1779558
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1779554, 1779555, 1779556, 1779557, 1779558
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1779554, 1779555, 1779556, 1779557, 1779558
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1779554, 1779555, 1779556, 1779557, 1779558
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1779559, 1779560, 1779561, 1779562, 1779563

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	03/15/2016			03/15/2016 17:40	Ping Hua	1779554, 1779555, 1779556, 1779557, 1779558
EPA 300.0 Rev. 2.1	03/15/2016			03/16/2016	Ping Hua	1779554, 1779555, 1779556, 1779557, 1779558
EPA 350.1 Rev. 2.0	03/15/2016			03/22/2016	Diana M. Turner	1779559, 1779560, 1779561, 1779562, 1779563
EPA 351.2 Rev. 2.0	03/15/2016	03/22/2016	Sofia Elnemr	03/23/2016	Rochelle Y Jackson	1779559, 1779560, 1779561, 1779562, 1779563
EPA 353.2 Rev. 2.0	03/15/2016			03/18/2016	Diana M. Turner	1779559, 1779560, 1779561, 1779562, 1779563
EPA 365.1 Rev. 2.0	03/15/2016	03/21/2016	Christopher Armour	03/23/2016	Lipi Saha	1779559, 1779560, 1779561, 1779562, 1779563
EPA 365.1 Rev. 2.0 dissolved	03/15/2016			03/15/2016 15:11	Julia Storbeck	1779564
	03/15/2016			03/15/2016 15:12	Julia Storbeck	1779565
	03/15/2016			03/15/2016 15:13	Julia Storbeck	1779566
	03/15/2016			03/15/2016 15:22	Julia Storbeck	1779567
	03/15/2016			03/15/2016 15:23	Julia Storbeck	1779568
SM 2120 B	03/15/2016			03/15/2016 13:13	Rochelle Y Jackson	1779554
	03/15/2016			03/15/2016 13:14	Rochelle Y Jackson	1779555, 1779556
	03/15/2016			03/15/2016 13:15	Rochelle Y Jackson	1779557
	03/15/2016			03/15/2016 13:16	Rochelle Y Jackson	1779558
SM 2320 B-97	03/15/2016			03/16/2016	Dale L. Simmons	1779554, 1779555, 1779556, 1779557, 1779558
SM 2540 C-97	03/15/2016			03/18/2016	Yijie Li	1779554, 1779555, 1779556, 1779557, 1779558
SM 2540 D-97	03/15/2016			03/18/2016	Yijie Li	1779554, 1779555, 1779556, 1779557, 1779558
SM 4500 F-C-97	03/15/2016			03/16/2016	Dale L. Simmons	1779554, 1779555, 1779556, 1779557, 1779558
SM 5310 B-00	03/15/2016			03/18/2016	Sofia Elnemr	1779559, 1779560, 1779561, 1779562, 1779563