

Chemical Analysis Report

SW-DIST-2016-05-24-01

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

Event Description: **1329L, 1329W**
Request ID: **RQ-2016-05-23-48**
Customer: **SW-DIST**
Project ID: **SMP**

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13051 N. Telecom Parkway
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 15-JUN-2016 15:05



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: CALM LAKE

Collection Date/Time: 05/23/2016 11:00

Field ID: G1SW0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801212	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P304999	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P305250	
		Sulfate	13		mg SO4/L	P305252	
	SM 2120 B	Color (true)	14		PCU	P304930	
	SM 2320 B-97	Total Alkalinity	16	A	mg CaCO3/L	P305294	
	SM 2540 C-97	TDS	106		mg/L	P305271	
	SM 2540 D-97	TSS	3	I	mg/L	P305162	
	SM 4500 F-C-97	Fluoride	0.070	I	mg F/L	P305297	
1801216	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P305307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P305245	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304994	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P305545	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P305513	
1801220	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304920	

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: CALM LAKE

Collection Date/Time: 05/23/2016 11:05

Field ID: G1SW0040DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801213	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P304999	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P305250	
		Sulfate	13	A	mg SO4/L	P305252	
	SM 2120 B	Color (true)	13		PCU	P304930	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P305294	
	SM 2540 C-97	TDS	97		mg/L	P305271	
	SM 2540 D-97	TSS	2	I	mg/L	P305162	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P305297	
1801217	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P305307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P305245	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304990	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P305545	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P305513	
1801221	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304920	

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: CALM LAKE

Collection Date/Time: 05/23/2016 11:15

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801214	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P304999	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P305250	
		Sulfate	0.20	U	mg SO4/L	P305252	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801214	SM 2120 B	Color (true)	2.5	U	PCU	P304930	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P305294	
	SM 2540 C-97	TDS	15	U	mg/L	P305268	
	SM 2540 D-97	TSS	2	U	mg/L	P305159	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305297	
1801218	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P305307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305246	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304990	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P305546	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P305514	
1801222	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304920	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The result was confirmed on 05/31/2016.

Sample Location: LAKE ALLEN

Collection Date/Time: 05/23/2016 14:05

Field ID: G1SW0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801215	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P305000	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P305250	
		Sulfate	4.3		mg SO4/L	P305252	
	SM 2120 B	Color (true)	46		PCU	P304931	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P305294	
	SM 2540 C-97	TDS	126	A	mg/L	P305272	
	SM 2540 D-97	TSS	3	I	mg/L	P305163	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P305297	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P305307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P305246	
1801219	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304990	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P305546	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P305514	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304920	

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: P304999

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305000

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305250

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305252

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305307

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305245

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305246

Component	Result	Code	Units
Kjeldahl Nitrogen	0.0615		mg N/L
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304994

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305545

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
Batch ID: P305546

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304920

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

Reference Method: SM 2120 B
Batch ID: P304930

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P304931

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305294

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

Reference Method: SM 2540 C-97
Batch ID: P305268

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P305271

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P305272

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305159

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P305162

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305163

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305297

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305513

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P305514

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: P305250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305252

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305245

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305245

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305246

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304994

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: P305545

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305546

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304920

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

Reference Method: SM 2320 B-97
Batch ID: P305294

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

Reference Method: SM 4500 F-C-97
Batch ID: P305297

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P305513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P305514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801212	Chloride	97.1		P	90 - 110
1801213	Chloride	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801212	Sulfate	96.8		P	90 - 110
1801213	Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801219	Ammonia-N	99.8	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801145	Kjeldahl Nitrogen	97.9	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801219	Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801217	NO2NO3-N	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801146	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801217	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801244	Total-P	105	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801254	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P305297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801212	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P305513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801001	Organic Carbon	95.4	95.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P305514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801234	Organic Carbon	93.8	95.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801161	Turbidity	0.368	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801232	Turbidity	4.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801213	Chloride	0.0305	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801213	Sulfate	0.427	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801219	Ammonia-N	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801145	Kjeldahl Nitrogen	8.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801219	Kjeldahl Nitrogen	1.89	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801217	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801146	NO2NO3-N	0.621	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801217	Total-P	0.528	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801244	Total-P	4.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801254	O-Phosphate-P	1.09	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801144	Color (true)	5.17	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801236	Color (true)	2.67	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801212	Total Alkalinity	0.969	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P305268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800794	TDS	1.03	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P305271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801062	TDS	1.90	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P305272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801215	TDS	3.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801212	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P305513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801001	Organic Carbon	0.0587	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P305514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801234	Organic Carbon	0.943	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: A69666
Included Lab Sample IDs: 1801220, 1801221, 1801222, 1801223

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

Reference Method: SM 2120 B
Run ID: A69670
Included Lab Sample IDs: 1801212, 1801213, 1801214, 1801215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.4	98.8	P/P	90 - 115
Color (true)	99.1	98.4	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69676
Included Lab Sample IDs: 1801212, 1801213, 1801214, 1801215

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69676

Included Lab Sample IDs: 1801212, 1801213, 1801214, 1801215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	100	97.3	P/P	90 - 110
Sulfate	97.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69684

Included Lab Sample IDs: 1801216, 1801217, 1801218, 1801219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69689

Included Lab Sample IDs: 1801212, 1801213, 1801214, 1801215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2320 B-97

Run ID: A69766

Included Lab Sample IDs: 1801212, 1801213, 1801214, 1801215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69766

Included Lab Sample IDs: 1801212, 1801213, 1801214, 1801215

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69768

Included Lab Sample IDs: 1801216, 1801217, 1801218, 1801219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69823

Included Lab Sample IDs: 1801216, 1801217, 1801218, 1801219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	96.0	P/P	90 - 110
Kjeldahl Nitrogen	93.7	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69823

Included Lab Sample IDs: 1801216, 1801217, 1801218, 1801219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	93.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69826

Included Lab Sample IDs: 1801216, 1801217, 1801218, 1801219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	99.0	P/P	90 - 110
Organic Carbon	99.0	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69883

Included Lab Sample IDs: 1801216, 1801217, 1801218, 1801219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.368	
	Turbidity				4.50	
EPA 300.0 Rev. 2.1	Chloride	99.5	97.1 97.1		0.0305	
	Sulfate	99.0	97.0 96.8		0.427	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	99.8 98.2			1.48
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.4	97.9 109			8.97
	Kjeldahl Nitrogen	98.9	101 104			1.89
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101 102			0.985
	NO2NO3-N	102	100 102			0.621
EPA 365.1 Rev. 2.0	Total-P	106	106 105			0.528
	Total-P	95.6	105 99.8			4.74
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	100 101			1.09
SM 2120 B	Color (true)				5.17	
	Color (true)				2.67	
SM 2320 B-97	Total Alkalinity	102			0.969	
SM 2540 C-97	TDS				1.03	
	TDS				1.90	
	TDS				3.95	
SM 4500 F-C-97	Fluoride	96.1	96.7 96.7			0.0
SM 5310 B-00	Organic Carbon	99.4	95.4 95.2			0.0587
	Organic Carbon	98.7	93.8 95.4			0.943

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1801212, 1801213, 1801214, 1801215
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1801212, 1801213, 1801214, 1801215
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1801212, 1801213, 1801214, 1801215
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1801216, 1801217, 1801218, 1801219
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1801216, 1801217, 1801218, 1801219
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1801216, 1801217, 1801218, 1801219
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1801216, 1801217, 1801218, 1801219
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1801220, 1801221, 1801222, 1801223
SM 2120 B / E31780	True Color measured at 450 nm	1801212, 1801213, 1801214, 1801215
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1801212, 1801213, 1801214, 1801215
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1801212, 1801213, 1801214, 1801215
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1801212, 1801213, 1801214, 1801215
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1801212, 1801213, 1801214, 1801215
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1801216, 1801217, 1801218, 1801219

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	05/24/2016			05/24/2016 15:12	Rochelle Y Jackson	1801212, 1801213, 1801214, 1801215
EPA 300.0 Rev. 2.1	05/24/2016			05/27/2016	Ping Hua	1801212, 1801213, 1801214, 1801215
EPA 350.1 Rev. 2.0	05/24/2016			05/31/2016	Diana M. Turner	1801216, 1801217, 1801218, 1801219
EPA 351.2 Rev. 2.0	05/24/2016	05/31/2016	Sofia Elnemr	06/02/2016	Christopher Armour	1801216, 1801217, 1801218, 1801219
EPA 353.2 Rev. 2.0	05/24/2016			05/25/2016	Peter D. Kaus	1801216, 1801217, 1801218, 1801219
EPA 365.1 Rev. 2.0	05/24/2016	06/03/2016	Vijayalakshmi Reddy	06/07/2016	Virginia P. Brown	1801216, 1801217, 1801218, 1801219
EPA 365.1 Rev. 2.0 dissolved	05/24/2016			05/24/2016 14:51	Julia Storbeck	1801220
	05/24/2016			05/24/2016 14:52	Julia Storbeck	1801221
	05/24/2016			05/24/2016 14:55	Julia Storbeck	1801222
	05/24/2016			05/24/2016 15:04	Julia Storbeck	1801223
SM 2120 B	05/24/2016			05/24/2016 13:34	Chrisoulla Rakowski	1801212
	05/24/2016			05/24/2016 13:35	Chrisoulla Rakowski	1801213, 1801214
	05/24/2016			05/24/2016 13:39	Chrisoulla Rakowski	1801215
SM 2320 B-97	05/24/2016			05/27/2016	Dale L. Simmons	1801212
	05/24/2016			05/28/2016	Dale L. Simmons	1801213, 1801214, 1801215
SM 2540 C-97	05/24/2016			05/25/2016	Yijie Li	1801212, 1801213, 1801214, 1801215
SM 2540 D-97	05/24/2016			05/25/2016	Yijie Li	1801212, 1801213, 1801214, 1801215
SM 4500 F-C-97	05/24/2016			05/27/2016	Dale L. Simmons	1801212
	05/24/2016			05/28/2016	Dale L. Simmons	1801213, 1801214, 1801215
SM 5310 B-00	05/24/2016			06/02/2016	Diana M. Turner	1801216, 1801217, 1801218
	05/24/2016			06/03/2016	Diana M. Turner	1801219