

Chemical Analysis Report

SW-DIST-2016-06-21-02

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

Event Description: **1329G**
Request ID: **RQ-2016-06-20-40**
Customer: **SW-DIST**
Project ID: **SMP**

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

Date Certified: 13-JUL-2016 11:45

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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: 06/20/2016 10:30

Field ID: G4SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809644	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P306571	
	EPA 300.0 Rev. 2.1	Chloride	19	A	mg Cl/L	P307113	
		Sulfate	25	A	mg SO4/L	P307111	
	SM 2120 B	Color (true)	110	A	PCU	P306575	
	SM 2320 B-97	Total Alkalinity	6.0		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	135		mg/L	P307013	
	SM 2540 D-97	TSS	3	I	mg/L	P306991	
1809649	SM 4500 F-C-97	Fluoride	0.099	I	mg F/L	P307284	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.086		mg N/L	P306896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P306605	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P306832	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P306692	
1809654	SM 5310 B-00	Organic Carbon	14		mg C/L	P307066	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P306561	

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: Matrix spike recovery data is unavailable due to high 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 (N)

Collection Date/Time: 06/20/2016 10:40

Field ID: G4SW0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809645	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P306571	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P307113	
		Sulfate	22		mg SO4/L	P307111	
	SM 2120 B	Color (true)	110		PCU	P306575	
	SM 2320 B-97	Total Alkalinity	9.7		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	105		mg/L	P307013	
	SM 2540 D-97	TSS	2	I	mg/L	P306991	
1809650	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P307284	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P306896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P306605	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022	J	mg N/L	P306938	MS
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P306692	
1809655	SM 5310 B-00	Organic Carbon	13		mg C/L	P307066	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P306561	

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: Matrix spike recovery data is unavailable due to high 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 353.2 Rev. 2.0: NO2NO3-N: Refer to the narrative for an explanation of QC Codes.

Sample Location: LAKE ISABELL (C)

Collection Date/Time: 06/20/2016 10:50

Field ID: G4SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809646	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P306572	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P307113	
		Sulfate	23		mg SO4/L	P307111	
	SM 2120 B	Color (true)	110		PCU	P306575	
	SM 2320 B-97	Total Alkalinity	8.4		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	113		mg/L	P307013	
	SM 2540 D-97	TSS	2	I	mg/L	P306991	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P307284	
1809651	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P306896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P306605	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P306938	MS
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P306715	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P307066	
1809656	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P306561	

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: Matrix spike recovery data is unavailable due to high 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 (SE)

Collection Date/Time: 06/20/2016 11:00

Field ID: G4SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809647	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P306572	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P307113	
		Sulfate	22		mg SO4/L	P307111	
	SM 2120 B	Color (true)	97		PCU	P306575	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	102		mg/L	P307014	
	SM 2540 D-97	TSS	2	I	mg/L	P306992	
	SM 4500 F-C-97	Fluoride	0.093	I	mg F/L	P307284	
1809652	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P306896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P306605	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P306938	MS
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P306715	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P307066	
1809657	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306561	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high 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: WITHLACOOCHIEE RIVER @ 33

Collection Date/Time: 06/20/2016 12:45

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809648	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P306572	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P307113	

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809648	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P307111	
	SM 2120 B	Color (true)	660		PCU	P306575	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	103		mg/L	P307014	
	SM 2540 D-97	TSS	2	I	mg/L	P306992	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P307284	
1809653	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P306896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P306605	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306938	MS
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P306715	
	SM 5310 B-00	Organic Carbon	59		mg C/L	P307066	
1809658	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048		mg P/L	P306561	

Ref. Method and Comment:
 EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high 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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P306571

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P306572

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307111

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307113

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P306896

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: P306605

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306832

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306938

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306692

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306715

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306561

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

Reference Method: SM 2120 B
Batch ID: P306575

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307277

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

Reference Method: SM 2540 C-97
Batch ID: P307013

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P307014

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306991

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306992

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307066

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: P307111

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307113

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306896

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306605

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: P306605

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306832

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: P306938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306715

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306561

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

Reference Method: SM 2320 B-97
Batch ID: P307277

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

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809644	Sulfate	103		P	90 - 110
1809645	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809644	Chloride	103		P	90 - 110
1809645	Chloride	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P306832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809579	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P306938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809650	NO2NO3-N	110	111	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P306692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809610	Total-P	100	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P306715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809669	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P306561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809654	O-Phosphate-P	98.4	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P307284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810672	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P307066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809649	Organic Carbon	96.4	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809576	Turbidity	0.866	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809646	Turbidity	3.95	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809644	Sulfate	0.152	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809644	Chloride	0.174	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809649	Ammonia-N	0.110	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809628	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809579	NO2NO3-N	0.667	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809650	NO2NO3-N	0.823	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809610	Total-P	2.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809669	Total-P	0.991	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809654	O-Phosphate-P	0.446	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809644	Color (true)	0.612	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810672	Total Alkalinity	0.317	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809626	TDS	2.66	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P307014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809714	TDS	8.07	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P306992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809714	TSS	7.41	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810672	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809649	Organic Carbon	2.95	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: A70146
Included Lab Sample IDs: 1809654, 1809655, 1809656, 1809657, 1809658

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.1	P/P	90 - 110
O-Phosphate-P	99.1	99.4	P/P	90 - 110
O-Phosphate-P	99.7	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70148
Included Lab Sample IDs: 1809644, 1809645, 1809646, 1809647, 1809648

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

Reference Method: SM 2120 B
Run ID: A70149
Included Lab Sample IDs: 1809644, 1809645, 1809646, 1809647, 1809648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	97.0	P/P	90 - 115
Color (true)	97.6	96.4	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70202
Included Lab Sample IDs: 1809649, 1809650, 1809651, 1809652, 1809653

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70208

Included Lab Sample IDs: 1809653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70212

Included Lab Sample IDs: 1809649, 1809650, 1809651, 1809652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	98.5	P/P	90 - 110
Total-P	98.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70213

Included Lab Sample IDs: 1809649

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70237

Included Lab Sample IDs: 1809649, 1809650, 1809651, 1809652, 1809653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.4	95.8	P/P	90 - 110
Ammonia-N	95.8	95.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70249

Included Lab Sample IDs: 1809650, 1809651, 1809652, 1809653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70300

Included Lab Sample IDs: 1809649, 1809650, 1809651, 1809652, 1809653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	107	P/P	90 - 110
Organic Carbon	107	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70313

Included Lab Sample IDs: 1809644, 1809645, 1809646, 1809647, 1809648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	101	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A70372

Included Lab Sample IDs: 1809644, 1809645, 1809646, 1809647, 1809648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.7	P/P	90 - 110
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70372

Included Lab Sample IDs: 1809644, 1809645, 1809646, 1809647, 1809648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	100	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					0.866	
	Turbidity					3.95	
EPA 300.0 Rev. 2.1	Chloride	104	103	102		0.174	
	Sulfate	102	103	101		0.152	
EPA 350.1 Rev. 2.0	Ammonia-N	93.0					0.110
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0					4.75
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.0	100			0.667
	NO2NO3-N	97.0	110	111			0.823
EPA 365.1 Rev. 2.0	Total-P	96.4	100	104			2.97
	Total-P	101	102	103			0.991
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.4	98.9			0.446
SM 2120 B	Color (true)					0.612	
SM 2320 B-97	Total Alkalinity	103				0.317	
SM 2540 C-97	TDS					2.66	
	TDS					8.07	
SM 2540 D-97	TSS					7.41	
SM 4500 F-C-97	Fluoride	98.0	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	101	96.4	101			2.95

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1809644, 1809645, 1809646, 1809647, 1809648
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1809644, 1809645, 1809646, 1809647, 1809648
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1809644, 1809645, 1809646, 1809647, 1809648
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1809649, 1809650, 1809651, 1809652, 1809653

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1809649, 1809650, 1809651, 1809652, 1809653
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1809649, 1809650, 1809651, 1809652, 1809653
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1809649, 1809650, 1809651, 1809652, 1809653
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1809654, 1809655, 1809656, 1809657, 1809658
SM 2120 B / E31780	True Color measured at 450 nm	1809644, 1809645, 1809646, 1809647, 1809648
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1809644, 1809645, 1809646, 1809647, 1809648
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1809644, 1809645, 1809646, 1809647, 1809648
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1809644, 1809645, 1809646, 1809647, 1809648
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1809644, 1809645, 1809646, 1809647, 1809648
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1809649, 1809650, 1809651, 1809652, 1809653

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/21/2016			06/21/2016 15:30	Sima Feizi	1809644, 1809645, 1809646, 1809647, 1809648
EPA 300.0 Rev. 2.1	06/21/2016			06/29/2016	Ping Hua	1809644, 1809645, 1809646, 1809647, 1809648
EPA 350.1 Rev. 2.0	06/21/2016			06/24/2016	Diana M. Turner	1809649, 1809650, 1809651, 1809652, 1809653
EPA 351.2 Rev. 2.0	06/21/2016	06/22/2016	Sofia Elnemr	06/23/2016	Christopher Armour	1809649, 1809650, 1809651, 1809652, 1809653
EPA 353.2 Rev. 2.0	06/21/2016			06/24/2016	Virginia P. Brown	1809649
	06/21/2016			06/27/2016	Beverly Y. Sanders	1809650, 1809651, 1809652, 1809653
EPA 365.1 Rev. 2.0	06/21/2016	06/23/2016	Vijayalakshmi Reddy	06/24/2016	Lipi Saha	1809649, 1809650, 1809651, 1809652, 1809653
EPA 365.1 Rev. 2.0 dissolved	06/21/2016			06/21/2016 14:29	Julia Storbeck	1809654
	06/21/2016			06/21/2016 14:40	Julia Storbeck	1809658
	06/21/2016			06/21/2016 14:51	Julia Storbeck	1809655
	06/21/2016			06/21/2016 14:52	Julia Storbeck	1809656
	06/21/2016			06/21/2016 14:53	Julia Storbeck	1809657
SM 2120 B	06/21/2016			06/21/2016 15:55	Chrisoulla Rakowski	1809644
	06/21/2016			06/21/2016 15:56	Chrisoulla Rakowski	1809645, 1809646
	06/21/2016			06/21/2016 15:57	Chrisoulla Rakowski	1809647
	06/21/2016			06/21/2016 16:18	Chrisoulla Rakowski	1809648
SM 2320 B-97	06/21/2016			07/02/2016	Dale L. Simmons	1809644, 1809645, 1809646, 1809647, 1809648
SM 2540 C-97	06/21/2016			06/22/2016	Yijie Li	1809644, 1809645, 1809646, 1809647, 1809648
SM 2540 D-97	06/21/2016			06/22/2016	Yijie Li	1809644, 1809645, 1809646, 1809647, 1809648
SM 4500 F-C-97	06/21/2016			07/02/2016	Dale L. Simmons	1809644, 1809645, 1809646, 1809647, 1809648
SM 5310 B-00	06/21/2016			06/28/2016	Diana M. Turner	1809649
	06/21/2016			06/29/2016	Diana M. Turner	1809650, 1809651, 1809652, 1809653