

Chemical Analysis Report

SW-DIST-2016-10-21-01

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

Event Description: **RUN 10**
Request ID: **RQ-2016-10-17-28**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 17-NOV-2016 13:05



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: LAKE THOMAS

Collection Date/Time: 10/20/2016 09:45

Field ID: G5SW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843197	EPA 180.1 Rev. 2.0	Turbidity	1.6	A	NTU	P313739	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P314695	
		Sulfate	6.5		mg SO4/L	P314700	
	SM 2120 B	Color (true)	28		PCU	P313666	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	59		mg/L	P314270	
	SM 2540 D-97	TSS	2	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P313696	
1843203	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P314839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P314761	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P314028	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P313853	
1843209	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313669	

Ref. Method and Comment:

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

Sample Location: LAKE THOMAS WEST

Collection Date/Time: 10/20/2016 09:55

Field ID: G5SW0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843198	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P313739	
	EPA 300.0 Rev. 2.1	Chloride	21	A	mg Cl/L	P314695	
		Sulfate	6.6	A	mg SO4/L	P314700	
	SM 2120 B	Color (true)	27		PCU	P313666	
	SM 2320 B-97	Total Alkalinity	2.5	I	mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	56		mg/L	P314270	
	SM 2540 D-97	TSS	4	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P313696	
1843204	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P314840	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P314761	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314028	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P313853	
1843210	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313669	

Ref. Method and Comment:

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

Sample Location: VIENNA LAKE N

Collection Date/Time: 10/20/2016 10:30

Field ID: G5SW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843199	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P313739	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P314695	
		Sulfate	9.7		mg SO4/L	P314700	

Field ID: G5SW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843199	SM 2120 B	Color (true)	39		PCU	P313666	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	95		mg/L	P314270	
	SM 2540 D-97	TSS	4	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P313696	
1843205	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P314840	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P314761	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P314029	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P313853	
1843211	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313669	

Ref. Method and Comment:

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

Sample Location: VIENNA LAKE S

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

Field ID: G5SW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843200	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P313739	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P314695	
		Sulfate	9.7		mg SO4/L	P314700	
	SM 2120 B	Color (true)	38		PCU	P313666	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	82		mg/L	P314270	
	SM 2540 D-97	TSS	3	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P313696	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P314840	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P314761	
1843206	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P314029	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P313853	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313669	

Ref. Method and Comment:

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

Sample Location: BIG VIENNA LAKE NORTH

Collection Date/Time: 10/20/2016 11:15

Field ID: G5SW0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843201	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P313739	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P314695	
		Sulfate	11		mg SO4/L	P314700	
	SM 2120 B	Color (true)	41	A	PCU	P313666	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	100		mg/L	P314271	
	SM 2540 D-97	TSS	3	I	mg/L	P314161	

Field ID: G5SW0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843201	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P313696	
1843207	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P314840	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P314878	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314029	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P313853	
1843213	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313669	

Ref. Method and Comment:

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

Sample Location: BIG VIENNA LAKE S

Collection Date/Time: 10/20/2016 11:00

Field ID: G5SW0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843202	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P313739	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P314695	
		Sulfate	11		mg SO4/L	P314700	
	SM 2120 B	Color (true)	40		PCU	P313666	
	SM 2320 B-97	Total Alkalinity	25	A	mg CaCO3/L	P313697	
	SM 2540 C-97	TDS	108	A	mg/L	P314271	
	SM 2540 D-97	TSS	4	I	mg/L	P314161	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P313698	
1843208	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P314646	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P314878	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314029	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P313853	
1843214	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313670	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P313739

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P314695

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314840

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314028

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

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 dissolved
Batch ID: P313669

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

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

Reference Method: SM 2120 B
Batch ID: P313666

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313695

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

Reference Method: SM 2320 B-97
Batch ID: P313697

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

Reference Method: SM 2540 C-97
Batch ID: P314270

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P314271

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314160

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314161

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P313698

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P313853

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: P314695

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314840

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

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: P314761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314028

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

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: P314389

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

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

Reference Method: SM 2320 B-97
Batch ID: P313695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P313697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P313698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P313853

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843198	Chloride	99.9		P	90 - 110
1843287	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843198	Sulfate	99.8		P	90 - 110
1843287	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843208	Ammonia-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843178	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843204	Ammonia-N	101	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843206	Kjeldahl Nitrogen	99.2	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843207	Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843001	NO2NO3-N	99.4	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843205	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843203	Total-P	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843210	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843214	O-Phosphate-P	99.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843177	Fluoride	96.0	96.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P313698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843202	Fluoride	97.9	97.9	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P313853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843193	Organic Carbon	98.3	99.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843197	Turbidity	5.10	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843198	Chloride	0.0807	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843198	Sulfate	0.148	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843208	Ammonia-N	0.0266	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843178	Ammonia-N	0.860	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843204	Ammonia-N	1.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843206	Kjeldahl Nitrogen	1.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843207	Kjeldahl Nitrogen	1.68	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843001	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843205	NO2NO3-N	0.426	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843203	Total-P	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843210	O-Phosphate-P	0.886	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843214	O-Phosphate-P	0.699	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843201	Color (true)	8.87	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P313695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843177	Total Alkalinity	0.104	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P313697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843202	Total Alkalinity	0.751	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P314270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843177	TDS	7.69	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P314271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843202	TDS	0.922	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843177	Fluoride	0.495	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P313698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843202	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843193	Organic Carbon	1.27	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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A72372

Included Lab Sample IDs: 1843197, 1843198, 1843199, 1843200, 1843201, 1843202

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A72374

Included Lab Sample IDs: 1843209, 1843210, 1843211, 1843212, 1843213, 1843214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.4	P/P	90 - 110
O-Phosphate-P	97.6	97.2	P/P	90 - 110
O-Phosphate-P	98.2	97.6	P/P	90 - 110
O-Phosphate-P	99.1	98.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A72381

Included Lab Sample IDs: 1843197, 1843198, 1843199, 1843200, 1843201, 1843202

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	105	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A72381

Included Lab Sample IDs: 1843197, 1843198, 1843199, 1843200, 1843201, 1843202

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72389

Included Lab Sample IDs: 1843197, 1843198, 1843199, 1843200, 1843201, 1843202

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A72424

Included Lab Sample IDs: 1843203, 1843204, 1843205, 1843206, 1843207, 1843208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72468

Included Lab Sample IDs: 1843203, 1843204, 1843205, 1843206, 1843207, 1843208

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72589

Included Lab Sample IDs: 1843197, 1843198, 1843199, 1843200, 1843201, 1843202

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Chloride	103	101	P/P	90 - 110
Sulfate	101	99.5	P/P	90 - 110
Sulfate	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72630

Included Lab Sample IDs: 1843203, 1843204, 1843205, 1843206, 1843207, 1843208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72636

Included Lab Sample IDs: 1843208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72704

Included Lab Sample IDs: 1843203, 1843204, 1843205, 1843206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.5	P/P	90 - 110
Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72705

Included Lab Sample IDs: 1843203, 1843204, 1843205, 1843206, 1843207

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72747

Included Lab Sample IDs: 1843207, 1843208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	98.0	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				5.10	
EPA 300.0 Rev. 2.1	Chloride	98.8	99.9	100	0.0807	
	Sulfate	99.9	99.8	100	0.148	
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.5	98.5		0.0266
	Ammonia-N	103	101	100		0.860
	Ammonia-N	101	101	99.0		1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.2	96.1		1.92
	Kjeldahl Nitrogen	104	99.9	103		1.68
EPA 353.2 Rev. 2.0	NO2NO3-N	105	99.4	98.4		0.966
	NO2NO3-N	104	105	105		0.426
EPA 365.1 Rev. 2.0	Total-P	99.4	102	104		1.90
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	101	102		0.886
	O-Phosphate-P	102	99.8	100		0.699
SM 2120 B	Color (true)				8.87	
SM 2320 B-97	Total Alkalinity	105			0.104	
	Total Alkalinity	105			0.751	
SM 2540 C-97	TDS				7.69	
	TDS				0.922	
SM 4500 F-C-97	Fluoride	94.8	96.0	96.5		0.495
	Fluoride	97.7	97.9	97.9		0.0
SM 5310 B-00	Organic Carbon	100	98.3	99.7		1.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1843203, 1843204, 1843205, 1843206, 1843207, 1843208
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1843203, 1843204, 1843205, 1843206, 1843207, 1843208
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1843203, 1843204, 1843205, 1843206, 1843207, 1843208
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1843203, 1843204, 1843205, 1843206, 1843207, 1843208
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1843209, 1843210, 1843211, 1843212, 1843213, 1843214
SM 2120 B / E31780	True Color measured at 450 nm	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1843203, 1843204, 1843205, 1843206, 1843207, 1843208

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	10/21/2016			10/21/2016 15:29	Blanca Fach	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
EPA 300.0 Rev. 2.1	10/21/2016			11/05/2016	Elisa J Lutz	1843197, 1843198, 1843199
	10/21/2016			11/06/2016	Elisa J Lutz	1843200, 1843201, 1843202
EPA 350.1 Rev. 2.0	10/21/2016			11/04/2016	Sofia Elnemr	1843208
	10/21/2016			11/08/2016	Sofia Elnemr	1843203, 1843204, 1843205, 1843206, 1843207
EPA 351.2 Rev. 2.0	10/21/2016	11/08/2016	Adrian Shelby	11/08/2016	Joseph Suarez	1843203, 1843204, 1843205, 1843206
	10/21/2016	11/09/2016	Adrian Shelby	11/10/2016	Joseph Suarez	1843207, 1843208
EPA 353.2 Rev. 2.0	10/21/2016			10/27/2016	Beverly Y. Sanders	1843203, 1843204, 1843205, 1843206, 1843207, 1843208
EPA 365.1 Rev. 2.0	10/21/2016	11/02/2016	Vijayalakshmi Reddy	11/04/2016	Lipi Saha	1843203, 1843204, 1843205, 1843206, 1843207, 1843208
EPA 365.1 Rev. 2.0 dissolved	10/21/2016			10/21/2016 16:23	Julia Storbeck	1843210
	10/21/2016			10/21/2016 16:28	Julia Storbeck	1843214
	10/21/2016			10/21/2016 16:42	Julia Storbeck	1843209
	10/21/2016			10/21/2016 16:55	Julia Storbeck	1843211
	10/21/2016			10/21/2016 17:01	Julia Storbeck	1843212
	10/21/2016			10/21/2016 17:02	Julia Storbeck	1843213
SM 2120 B	10/21/2016			10/21/2016 15:19	Julie Michelle Frank	1843201
	10/21/2016			10/21/2016 15:20	Julie Michelle Frank	1843197
	10/21/2016			10/21/2016 15:21	Julie Michelle Frank	1843198
	10/21/2016			10/21/2016 15:22	Julie Michelle Frank	1843199, 1843200
	10/21/2016			10/21/2016 15:23	Julie Michelle Frank	1843202
SM 2320 B-97	10/21/2016			10/23/2016	Dale L. Simmons	1843197, 1843198, 1843199, 1843200, 1843201
	10/21/2016			10/24/2016	Dale L. Simmons	1843202
SM 2540 C-97	10/21/2016			10/26/2016	Yijie Li	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 2540 D-97	10/21/2016			10/26/2016	Yijie Li	1843197, 1843198, 1843199, 1843200, 1843201, 1843202
SM 4500 F-C-97	10/21/2016			10/23/2016	Dale L. Simmons	1843197, 1843198, 1843199, 1843200, 1843201
	10/21/2016			10/24/2016	Dale L. Simmons	1843202
SM 5310 B-00	10/21/2016			10/25/2016	Julie Michelle Frank	1843203, 1843204, 1843205, 1843206, 1843207, 1843208