

Chemical Analysis Report

SE-DIST-2017-02-03-01

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

Event Description: **SMP-Upper keys Run (1/5)**

Request ID: **RQ-2017-01-30-16**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

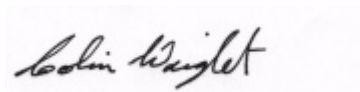
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact

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Certified by: Colin Wright, Program Administrator

Date Certified: 03-MAR-2017 13:06

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 groups are included in this report: Metals and 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: Barnes Sound

Collection Date/Time: 02/02/2017 11:30

Field ID: G5SE0053

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869339	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P319283	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	3	U	mg/L	P319665	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P319507	
1869344	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P319479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P319295	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P319494	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P319352	MS
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P319300	
1869349	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319280	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Pirate Hat Marina

Collection Date/Time: 02/02/2017 11:50

Field ID: G4SE0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869354	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P319283	
	SM 2320 B-97	Total Alkalinity	165		mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	4	I	mg/L	P319665	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P319507	
1869355	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P319479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P319296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P319685	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P319353	MS
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P319574	
1869356	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319280	
1869420	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P319430	
	EPA 200.8 Rev. 5.4	Arsenic	1.34		ug/L	P319430	
		Cadmium	0.080	U	ug/L	P319430	
		Chromium	1.6	U	ug/L	P319430	
		Copper	0.80	U	ug/L	P319430	
		Lead	0.20	U	ug/L	P319430	
		Nickel	0.80	U	ug/L	P319430	
		Silver	0.040	U	ug/L	P319430	
		Zinc	8.0	I	ug/L	P319430	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Pirate Hat Marina

Collection Date/Time: 02/02/2017 12:00

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869357	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P319283	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	2	U	mg/L	P319561	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319508	
1869358	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P319294	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319736	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P319350	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P319391	
1869359	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P319279	
	dissolved						
1869421	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P319410	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P319410	
		Cadmium	0.020	U	ug/L	P319410	
		Chromium	0.40	U	ug/L	P319410	
		Copper	0.20	U	ug/L	P319410	
		Lead	0.050	U	ug/L	P319410	
		Nickel	0.20	U	ug/L	P319410	
		Silver	0.010	U	ug/L	P319410	
		Zinc	1.0	U	ug/L	P319410	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Manatee Bay

Collection Date/Time: 02/02/2017 12:10

Field ID: G5SE0052

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869340	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P319283	
	SM 2320 B-97	Total Alkalinity	179		mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	3	U	mg/L	P319665	
	SM 4500 F-C-97	Fluoride	0.97		mg F/L	P319507	
1869345	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P319479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P319295	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P319685	
	EPA 365.1 Rev. 2.0	Total-P	0.006	IJ	mg P/L	P319352	MS
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P319300	
1869350	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P319280	
	dissolved						

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: Blackwater Sound

Collection Date/Time: 02/02/2017 12:30

Field ID: G5SE0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G5SE0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869341	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P319283	
	SM 2320 B-97	Total Alkalinity	155		mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	3	U	mg/L	P319665	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P319507	
1869346	EPA 350.1 Rev. 2.0	Ammonia-N	0.078		mg N/L	P319479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P319296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P319685	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P319353	MS
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P319574	
1869351	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319280	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Blackwater Sound

Collection Date/Time: 02/02/2017 12:45

Field ID: G5SE0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869342	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P319283	
	SM 2320 B-97	Total Alkalinity	162		mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	3	I	mg/L	P319665	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P319507	
1869347	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P319479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P319296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P319685	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P319353	MS
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P319574	
1869352	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319280	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Long Sound

Collection Date/Time: 02/02/2017 13:00

Field ID: G5SE0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869343	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P319283	
	SM 2320 B-97	Total Alkalinity	171		mg CaCO3/L	P319769	
	SM 2540 D-97	TSS	4	I	mg/L	P319665	
	SM 4500 F-C-97	Fluoride	0.90		mg F/L	P319507	
1869348	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P319479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P319296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P319685	
	EPA 365.1 Rev. 2.0	Total-P	0.006	IJ	mg P/L	P319353	MS
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P319574	
1869353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319280	

Field ID: G5SE0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.							
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.							
EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.							

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319283

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319410

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319430

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319410

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319430

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319479

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319479

Component	Result	Code	Units
Ammonia-N	0.003	I	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319480

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319294

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319296

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319494

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319736

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319350

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: P319352

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319353

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319279

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319280

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

Reference Method: SM 2320 B-97
Batch ID: P319769

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

Reference Method: SM 2540 D-97
Batch ID: P319561

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319665

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P319507

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P319508

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P319300

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

Reference Method: SM 5310 B-00
Batch ID: P319391

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

Reference Method: SM 5310 B-00
Batch ID: P319574

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319430

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	93.1		P	85 - 115
Cadmium	89.7		P	85 - 115
Chromium	93.2		P	85 - 115
Copper	90.4		P	85 - 115
Lead	91.4		P	85 - 115
Nickel	92.7		P	85 - 115
Silver	92.9		P	85 - 115
Zinc	93.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.9		P	85 - 115
Cadmium	97.8		P	85 - 115
Chromium	96.9		P	85 - 115
Copper	95.3		P	85 - 115
Lead	97.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	96.5		P	85 - 115
Silver	96.0		P	85 - 115
Zinc	97.2		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319479

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: P319480

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319296

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319494

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

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: P319736

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319350

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319279

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319280

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

Reference Method: SM 2320 B-97
Batch ID: P319769

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

Reference Method: SM 4500 F-C-97
Batch ID: P319507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P319508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P319300

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P319391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P319574

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869370	Iron	105		P	80 - 120
1869777	Iron	99.8	92.4	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869567	Iron	91.3	91.9	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869370	Arsenic	98.1		P	80 - 120
1869370	Cadmium	94.0		P	80 - 120
1869370	Chromium	94.5		P	80 - 120
1869370	Copper	92.3		P	80 - 120
1869370	Lead	94.5		P	80 - 120
1869370	Nickel	93.5		P	80 - 120
1869370	Silver	95.5		P	80 - 120
1869370	Zinc	95.9		P	80 - 120
1869777	Arsenic	95.8	97.0	P/P	80 - 120
1869777	Cadmium	93.8	93.5	P/P	80 - 120
1869777	Chromium	93.0	94.3	P/P	80 - 120
1869777	Copper	90.1	90.0	P/P	80 - 120
1869777	Lead	93.0	94.2	P/P	80 - 120
1869777	Nickel	90.8	92.6	P/P	80 - 120
1869777	Silver	94.6	96.5	P/P	80 - 120
1869777	Zinc	91.3	92.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869567	Arsenic	123	116	P/P	70 - 130
1869567	Cadmium	112	110	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869567	Chromium	101	97.2	P/P	70 - 130
1869567	Copper	103	98.7	P/P	70 - 130
1869567	Lead	116	113	P/P	70 - 130
1869567	Nickel	113	106	P/P	70 - 130
1869567	Silver	105	97.9	P/P	70 - 130
1869567	Zinc	110	106	P/P	70 - 130

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869334	Kjeldahl Nitrogen	96.1	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869344	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869346	Kjeldahl Nitrogen	94.0	94.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866879	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866814	NO2NO3-N	101	101	P/P	90 - 110
1866814	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869502	NO2NO3-N	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869334	Total-P	92.2	95.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869345	Total-P	91.6	89.8	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869348	Total-P	90.0	90.4	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869653	O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869349	O-Phosphate-P	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P319507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869508	Fluoride	97.8	99.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868451	Organic Carbon	87.4	90.9	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P319391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869258	Organic Carbon	93.6	93.7	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P319574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869346	Organic Carbon	92.8	95.1	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869336	Turbidity	2.24	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869777	Iron	7.04	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869567	Iron	0.589	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869777	Arsenic	1.20	Spike	P	0 - 20
1869777	Cadmium	0.268	Spike	P	0 - 20
1869777	Chromium	1.29	Spike	P	0 - 20
1869777	Copper	0.155	Spike	P	0 - 20
1869777	Lead	1.24	Spike	P	0 - 20
1869777	Nickel	1.87	Spike	P	0 - 20
1869777	Silver	1.92	Spike	P	0 - 20
1869777	Zinc	0.877	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869567	Arsenic	5.95	Spike	P	0 - 20
1869567	Cadmium	2.23	Spike	P	0 - 20
1869567	Chromium	3.88	Spike	P	0 - 20
1869567	Copper	3.81	Spike	P	0 - 20
1869567	Lead	3.19	Spike	P	0 - 20
1869567	Nickel	5.87	Spike	P	0 - 20
1869567	Silver	6.68	Spike	P	0 - 20
1869567	Zinc	2.99	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869344	Ammonia-N	2.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869289	Ammonia-N	3.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869334	Kjeldahl Nitrogen	5.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869344	Kjeldahl Nitrogen	1.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869346	Kjeldahl Nitrogen	0.0340	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866879	NO2NO3-N	0.569	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866814	NO2NO3-N	0.277	Spike	P	0 - 15

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869502	NO2NO3-N	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869334	Total-P	2.51	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869345	Total-P	2.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869348	Total-P	0.546	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869653	O-Phosphate-P	0.930	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869349	O-Phosphate-P	1.37	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869094	Total Alkalinity	0.125	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P319507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869508	Fluoride	0.986	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P319508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869073	Fluoride	0.947	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868451	Organic Carbon	2.82	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P319391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869258	Organic Carbon	0.0980	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P319574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869346	Organic Carbon	2.12	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: A74270
Included Lab Sample IDs: 1869349, 1869350, 1869351, 1869352, 1869353, 1869356, 1869359

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	97.9	P/P	90 - 110
O-Phosphate-P	98.7	98.9	P/P	90 - 110
O-Phosphate-P	98.9	99.8	P/P	90 - 110
O-Phosphate-P	99.3	98.7	P/P	90 - 110
O-Phosphate-P	99.8	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74271
Included Lab Sample IDs: 1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.0	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A74275
Included Lab Sample IDs: 1869344, 1869345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A74311
Included Lab Sample IDs: 1869358

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74315

Included Lab Sample IDs: 1869346, 1869347, 1869348, 1869355, 1869358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.0	96.3	P/P	90 - 110
Kjeldahl Nitrogen	99.0	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74337

Included Lab Sample IDs: 1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74344

Included Lab Sample IDs: 1869344

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74347

Included Lab Sample IDs: 1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.2	P/P	90 - 110
Total-P	98.2	98.8	P/P	90 - 110
Total-P	98.5	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74348

Included Lab Sample IDs: 1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.5	P/P	90 - 110
Fluoride	99.5	99.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A74361

Included Lab Sample IDs: 1869421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	98.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74363

Included Lab Sample IDs: 1869344, 1869345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A74366

Included Lab Sample IDs: 1869346, 1869347, 1869348, 1869355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	96.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A74386

Included Lab Sample IDs: 1869421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	104	105	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Chromium	102	104	P/P	90 - 110
Copper	102	103	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Nickel	103	104	P/P	90 - 110
Silver	107	108	P/P	90 - 110
Zinc	103	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A74387

Included Lab Sample IDs: 1869420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	92.6	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74410

Included Lab Sample IDs: 1869345, 1869346, 1869347, 1869348, 1869355

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74430

Included Lab Sample IDs: 1869358

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

Reference Method: SM 2320 B-97

Run ID: A74444

Included Lab Sample IDs: 1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A74625

Included Lab Sample IDs: 1869420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	104	108	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A74625

Included Lab Sample IDs: 1869420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	106	109	P/P	90 - 110
Chromium	104	108	P/P	90 - 110
Copper	102	107	P/P	90 - 110
Lead	103	107	P/P	90 - 110
Nickel	103	108	P/P	90 - 110
Zinc	104	108	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A74697

Included Lab Sample IDs: 1869420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	102	101	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								2.24	
EPA 200.7 Rev. 4.4	Iron	103			105	99.8	92.4			7.04
	Iron	100			91.3	91.9				0.589
EPA 200.8 Rev. 5.4	Arsenic	93.1			98.1	95.8	97.0			1.20
	Arsenic	95.9			123	116				5.95
	Cadmium	89.7			94.0	93.8	93.5			0.268
	Cadmium	97.8			112	110				2.23
	Chromium	93.2			94.5	93.0	94.3			1.29
	Chromium	96.9			101	97.2				3.88
	Copper	90.4			92.3	90.1	90.0			0.155
	Copper	95.3			98.7	103				3.81
	Lead	91.4			94.5	93.0	94.2			1.24
	Lead	97.6			116	113				3.19
	Nickel	92.7			93.5	90.8	92.6			1.87
	Nickel	96.5			113	106				5.87
	Silver	92.9			95.5	94.6	96.5			1.92
	Silver	96.0			105	97.9				6.68
	Zinc	93.1			95.9	91.3	92.6			0.877
	Zinc	97.2			110	106				2.99
EPA 350.1 Rev. 2.0	Ammonia-N	103								2.65
	Ammonia-N	105								3.08
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1			96.1	102				5.25
	Kjeldahl Nitrogen	108			102	104				1.63
	Kjeldahl Nitrogen	100			94.0	94.1				0.0340
EPA 353.2 Rev. 2.0	NO2NO3-N	104			104	105				0.569
	NO2NO3-N	100			101	101	101			0.277
	NO2NO3-N	105			106	107				1.10

RSD

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 365.1 Rev. 2.0	Total-P	92.2	92.2	95.4		2.51
	Total-P	94.0	91.6	89.8		2.09
	Total-P	95.2	90.0	90.4		0.546
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	99.3	100		0.930
	O-Phosphate-P	105	103	102		1.37
	Total Alkalinity	103			0.125	
SM 2320 B-97	Fluoride	97.4	97.8	99.2		0.986
SM 5310 B-00	Organic Carbon	96.2	87.4	90.9		2.82
	Organic Carbon	98.6	93.6	93.7		0.0980
	Organic Carbon	97.4	92.8	95.1		2.12

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1869420, 1869421
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1869420, 1869421
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1869349, 1869350, 1869351, 1869352, 1869353, 1869356, 1869359
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358

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	02/03/2017			02/03/2017 16:38	Julie Michelle Frank	1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357
EPA 200.7 Rev. 4.4	02/03/2017	02/07/2017	Elliott D. Healy	02/08/2017	Joshua Ayres	1869421
	02/03/2017	02/07/2017	Elliott D. Healy	02/09/2017	Joshua Ayres	1869420
EPA 200.8 Rev. 5.4	02/03/2017	02/07/2017	Elliott D. Healy	02/09/2017	Betina Topolski	1869421
	02/03/2017	02/07/2017	Elliott D. Healy	02/21/2017	Betina Topolski	1869420
	02/03/2017	02/07/2017	Elliott D. Healy	02/23/2017	Betina Topolski	1869420
EPA 350.1 Rev. 2.0	02/03/2017			02/07/2017	Sofia Elnemr	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358
EPA 351.2 Rev. 2.0	02/03/2017	02/06/2017	Adrian Shelby	02/07/2017	Joseph Suarez	1869346, 1869347, 1869348, 1869355, 1869358
	02/03/2017	02/06/2017	Adrian Shelby	02/09/2017	Joseph Suarez	1869344, 1869345
EPA 353.2 Rev. 2.0	02/03/2017			02/07/2017	Virginia P. Brown	1869344
	02/03/2017			02/10/2017	Virginia P. Brown	1869345, 1869346, 1869347, 1869348, 1869355
	02/03/2017			02/13/2017	Beverly Y. Sanders	1869358
EPA 365.1 Rev. 2.0	02/03/2017	02/06/2017	Vijayalakshmi Reddy	02/08/2017	Lipi Saha	1869344, 1869345, 1869346, 1869347, 1869348, 1869355, 1869358
EPA 365.1 Rev. 2.0 dissolved	02/03/2017			02/03/2017 15:43	Julia Storbeck	1869349
	02/03/2017			02/03/2017 15:54	Julia Storbeck	1869359
	02/03/2017			02/03/2017 16:07	Julia Storbeck	1869350
	02/03/2017			02/03/2017 16:09	Julia Storbeck	1869352
	02/03/2017			02/03/2017 16:15	Julia Storbeck	1869356
	02/03/2017			02/03/2017 16:28	Julia Storbeck	1869351
	02/03/2017			02/03/2017 16:29	Julia Storbeck	1869353
SM 2320 B-97	02/03/2017			02/13/2017	Dale L. Simmons	1869357
	02/03/2017			02/14/2017	Dale L. Simmons	1869339, 1869340, 1869341, 1869342, 1869343, 1869354
SM 2540 D-97	02/03/2017			02/06/2017	Christopher Armour	1869357
	02/03/2017			02/08/2017	Blanca Fach	1869339, 1869340, 1869341, 1869342, 1869343, 1869354
SM 4500 F-C-97	02/03/2017			02/08/2017	Dale L. Simmons	1869339, 1869340, 1869341, 1869342, 1869343, 1869354, 1869357
SM 5310 B-00	02/03/2017			02/04/2017	Julie Michelle Frank	1869344, 1869345
	02/03/2017			02/06/2017	Julie Michelle Frank	1869358
	02/03/2017			02/08/2017	Julie Michelle Frank	1869346, 1869347, 1869348, 1869355