

Chemical Analysis Report

SE-DIST-2017-01-31-01

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

Event Description: **SMP-G5 Everglades Run (1/5)**

Request ID: **RQ-2017-01-23-33**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

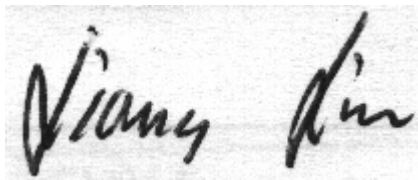
FL Dept. of Environmental Protection
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2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-FEB-2017 09:57

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical 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: WCA 3 L-67 @ S-151

Collection Date/Time: 01/30/2017 11:00

Field ID: G5SE0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868012	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P319018	
	EPA 300.0 Rev. 2.1	Chloride	95		mg Cl/L	P319229	
		Sulfate	16		mg SO4/L	P319232	
	SM 2120 B	Color (true)	62	A	PCU	P318999	
	SM 2320 B-97	Total Alkalinity	238		mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	460	A	mg/L	P319425	
	SM 2540 D-97	TSS	2	U	mg/L	P319174	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P319276	
1868014	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P319358	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P319029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.099		mg N/L	P319172	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P319073	
1868016	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319013	

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: WCA 2B @ S-141

Collection Date/Time: 01/30/2017 11:40

Field ID: G5SE0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868013	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P319018	
	EPA 300.0 Rev. 2.1	Chloride	160		mg Cl/L	P319229	
		Sulfate	49		mg SO4/L	P319232	
	SM 2120 B	Color (true)	83		PCU	P318999	
	SM 2320 B-97	Total Alkalinity	240		mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	644		mg/L	P319425	
	SM 2540 D-97	TSS	2	U	mg/L	P319174	
	SM 4500 F-C-97	Fluoride	0.63		mg F/L	P319276	
1868015	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P319337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P319029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P319172	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	35		mg C/L	P319073	
1868017	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319013	

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: WCA 1 South near S-39

Collection Date/Time: 01/30/2017 12:30

Field ID: G5SE0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868021	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P319018	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P319383	

Field ID: G5SE0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868021	EPA 300.0 Rev. 2.1	Sulfate	54		mg SO4/L	P319385	
	SM 2120 B	Color (true)	51		PCU	P318999	
	SM 2320 B-97	Total Alkalinity	149		mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	487		mg/L	P319425	
	SM 2540 D-97	TSS	2	U	mg/L	P319174	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P319276	
1868023	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P319337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P319029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P319172	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P319073	
1868025	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319013	
1868080	EPA 200.7 Rev. 4.4	Calcium	59.0		mg/L	P319200	
		Iron	30	U	ug/L	P319200	
		Magnesium	14.7		mg/L	P319200	
		Potassium	6.3		mg/L	P319200	
		Sodium	85.4		mg/L	P319200	
		Zinc	5.0	U	ug/L	P319200	
	EPA 200.8 Rev. 5.4	Arsenic	0.91		ug/L	P319200	
		Cadmium	0.020	U	ug/L	P319200	
		Chromium	0.40	U	ug/L	P319200	
		Copper	0.20	U	ug/L	P319200	
		Lead	0.050	U	ug/L	P319200	
		Nickel	0.20	U	ug/L	P319200	
		Silver	0.010	U	ug/L	P319200	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: WCA1 L-39 Canal

Collection Date/Time: 01/30/2017 13:00

Field ID: G5SE0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868022	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P319018	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P319325	
		Sulfate	55		mg SO4/L	P319328	
		Color (true)	66		PCU	P318999	
	SM 2320 B-97	Total Alkalinity	186		mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	561		mg/L	P319425	
	SM 2540 D-97	TSS	2	U	mg/L	P319174	
	SM 4500 F-C-97	Fluoride	0.34		mg F/L	P319276	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P319358	
1868024	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P319029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P319172	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P319097	

Field ID: G5SE0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868024	SM 5310 B-00	Organic Carbon	25		mg C/L	P319073	
1868026	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P319013	
1868081	EPA 200.7 Rev. 4.4	Calcium	60.3		mg/L	P319200	
		Iron	30	U	ug/L	P319200	
		Magnesium	21.6		mg/L	P319200	
		Potassium	8.1		mg/L	P319200	
		Sodium	94.1		mg/L	P319200	
		Zinc	5.0	U	ug/L	P319200	
	EPA 200.8 Rev. 5.4	Arsenic	1.30		ug/L	P319200	
		Cadmium	0.030	I	ug/L	P319200	
		Chromium	0.40	U	ug/L	P319200	
		Copper	0.22	I	ug/L	P319200	
		Lead	0.064	I	ug/L	P319200	
		Nickel	0.20	U	ug/L	P319200	
		Silver	0.019	I	ug/L	P319200	

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 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Hillscan 0.25M South of L-16 Canal

Collection Date/Time: 01/30/2017 14:00

Field ID: G5SE0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868018	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P319018	
	EPA 300.0 Rev. 2.1	Chloride	84		mg Cl/L	P319383	
		Sulfate	36		mg SO4/L	P319385	
	SM 2120 B	Color (true)	78		PCU	P318999	
	SM 2320 B-97	Total Alkalinity	187		mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	431		mg/L	P319425	
	SM 2540 D-97	TSS	4	I	mg/L	P319174	
	SM 4500 F-C-97	Fluoride	0.42		mg F/L	P319276	
1868019	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P319337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P319029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.48		mg N/L	P319172	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P319073	
1868020	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P319013	

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: WCA 1 North @ G-301

Collection Date/Time: 01/30/2017 14:30

Field ID: G5SE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868027	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P319018	

Field ID: G5SE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868027	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P319325	
		Sulfate	48		mg SO4/L	P319328	
	SM 2120 B	Color (true)	51		PCU	P318999	
	SM 2320 B-97	Total Alkalinity	167		mg CaCO3/L	P319273	
	SM 2540 C-97	TDS	430		mg/L	P319425	
	SM 2540 D-97	TSS	2	I	mg/L	P319174	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P319276	
1868028	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P319338	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P319029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P319173	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P319097	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P319073	
1868029	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P319013	
1868082	EPA 200.7 Rev. 4.4	Calcium	64.2		mg/L	P319200	
		Iron	30	U	ug/L	P319200	
		Magnesium	14.5		mg/L	P319200	
		Potassium	6.7		mg/L	P319200	
		Sodium	77.8		mg/L	P319200	
		Zinc	5.0	U	ug/L	P319200	
	EPA 200.8 Rev. 5.4	Arsenic	1.06		ug/L	P319200	
		Beryllium	0.010	U	ug/L	P319200	
		Cadmium	0.020	U	ug/L	P319200	
		Chromium	0.40	U	ug/L	P319200	
		Copper	0.28	I	ug/L	P319200	
		Lead	0.055	I	ug/L	P319200	
		Nickel	0.20	U	ug/L	P319200	
		Silver	0.010	U	ug/L	P319200	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P319018

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P319200

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319200

Component	Result	Code	Units
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319200

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Beryllium	0.010	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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319229

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319232

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319337

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319358

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319029

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319172

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

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

Reference Method: SM 2120 B
Batch ID: P318999

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P319273

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P319425

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319174

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319073

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: P319200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	101		P	85 - 115
Magnesium	100		P	85 - 115
Potassium	97.6		P	85 - 115
Sodium	99.4		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	92.6		P	85 - 115
Beryllium	100		P	85 - 115
Cadmium	96.3		P	85 - 115
Chromium	97.7		P	85 - 115
Copper	91.7		P	85 - 115
Lead	96.9		P	85 - 115
Nickel	92.3		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	98.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319229

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319232

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319337

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319358

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319172

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: P319173

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

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

Reference Method: SM 2320 B-97
Batch ID: P319273

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

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P319073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868304	Calcium	99.5		P	80 - 120
1868304	Iron	106		P	80 - 120
1868304	Magnesium	99.3		P	80 - 120
1868304	Potassium	99.5		P	80 - 120
1868304	Sodium	99.2		P	80 - 120
1868304	Zinc	101		P	80 - 120
1868526	Calcium	96.4		P	80 - 120
1868526	Iron	103	98.5	P/P	80 - 120
1868526	Magnesium	95.4		P	80 - 120
1868526	Sodium	97.0		P	80 - 120
1868526	Zinc	103	94.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868304	Arsenic	89.9		P	80 - 120
1868304	Beryllium	96.0		P	80 - 120
1868304	Cadmium	96.1		P	80 - 120
1868304	Chromium	94.9		P	80 - 120
1868304	Copper	87.2		P	80 - 120
1868304	Lead	93.5		P	80 - 120
1868304	Nickel	88.4		P	80 - 120
1868304	Silver	96.2		P	80 - 120
1868526	Arsenic	94.3	95.6	P/P	80 - 120
1868526	Beryllium	102	99.9	P/P	80 - 120
1868526	Cadmium	97.5	96.4	P/P	80 - 120
1868526	Chromium	97.4	97.4	P/P	80 - 120
1868526	Copper	92.5	93.1	P/P	80 - 120
1868526	Lead	98.8	98.7	P/P	80 - 120
1868526	Nickel	91.6	91.9	P/P	80 - 120
1868526	Silver	98.4	96.9	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867318	Chloride	102		P	90 - 110
1867385	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867318	Sulfate	96.7		P	90 - 110
1867385	Sulfate	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868181	Chloride	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868205	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868181	Sulfate	97.3		P	90 - 110
1868205	Sulfate	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867410	Chloride	101		P	90 - 110
1868471	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867410	Sulfate	98.0		P	90 - 110
1868471	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868015	Ammonia-N	109	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868028	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868028	Kjeldahl Nitrogen	95.9	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866827	NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868103	NO2NO3-N	106	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868014	Total-P	92.5	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868025	O-Phosphate-P	96.8	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868301	Fluoride	96.6	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867211	Organic Carbon	96.0	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868012	Turbidity	11.6	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P319200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868526	Calcium	3.67	Spike	P	0 - 20
1868526	Iron	4.92	Spike	P	0 - 20
1868526	Magnesium	4.07	Spike	P	0 - 20
1868526	Potassium	4.77	Spike	P	0 - 20
1868526	Sodium	4.46	Spike	P	0 - 20
1868526	Zinc	7.85	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868526	Arsenic	1.23	Spike	P	0 - 20
1868526	Beryllium	1.86	Spike	P	0 - 20
1868526	Cadmium	1.15	Spike	P	0 - 20
1868526	Chromium	0.00671	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P319200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868526	Copper	0.684	Spike	P	0 - 20
1868526	Lead	0.162	Spike	P	0 - 20
1868526	Nickel	0.386	Spike	P	0 - 20
1868526	Silver	1.56	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867318	Chloride	0.153	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867318	Sulfate	0.217	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868181	Chloride	0.0417	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868181	Sulfate	3.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867410	Chloride	0.180	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867410	Sulfate	0.310	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868015	Ammonia-N	3.46	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868028	Ammonia-N	1.08	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868818	Ammonia-N	0.143	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868028	Kjeldahl Nitrogen	1.04	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866827	NO2NO3-N	0.783	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868103	NO2NO3-N	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868014	Total-P	3.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868025	O-Phosphate-P	2.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P318999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868012	Color (true)	0.871	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868301	Total Alkalinity	0.234	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868012	TDS	0.217	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868301	Fluoride	1.50	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867211	Organic Carbon	0.259	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A74192
Included Lab Sample IDs: 1868012, 1868013, 1868018, 1868021, 1868022, 1868027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	99.4	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74194
Included Lab Sample IDs: 1868016, 1868017, 1868020, 1868025, 1868026, 1868029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	103	P/P	90 - 110
O-Phosphate-P	99.6	99.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74195

Included Lab Sample IDs: 1868012, 1868013, 1868018, 1868021, 1868022, 1868027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	97.0	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74206

Included Lab Sample IDs: 1868012, 1868013, 1868022, 1868027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	99.4	102	P/P	90 - 110
Sulfate	91.2	97.1	P/P	90 - 110
Sulfate	91.8	97.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A74208

Included Lab Sample IDs: 1868014, 1868015, 1868019, 1868023, 1868024, 1868028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.9	97.0	P/P	90 - 110
Organic Carbon	97.0	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74229

Included Lab Sample IDs: 1868019

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74235

Included Lab Sample IDs: 1868014, 1868015, 1868019, 1868023, 1868024, 1868028

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74243

Included Lab Sample IDs: 1868014, 1868015, 1868023, 1868024, 1868028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	96.8	P/P	90 - 110
Total-P	99.0	97.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74269

Included Lab Sample IDs: 1868012, 1868013, 1868018, 1868021, 1868022, 1868027

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A74269

Included Lab Sample IDs: 1868012, 1868013, 1868018, 1868021, 1868022, 1868027

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74279

Included Lab Sample IDs: 1868014, 1868015, 1868019, 1868023, 1868024, 1868028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	104	P/P	90 - 110
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74289

Included Lab Sample IDs: 1868015, 1868019, 1868023, 1868028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	99.9	101	P/P	90 - 110
Ammonia-N	99.9	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74296

Included Lab Sample IDs: 1868014, 1868024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A74304

Included Lab Sample IDs: 1868080, 1868081, 1868082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.0	98.3	P/P	90 - 110
Iron	100	98.7	P/P	90 - 110
Magnesium	99.5	98.9	P/P	90 - 110
Potassium	96.7	97.3	P/P	90 - 110
Sodium	97.8	97.3	P/P	90 - 110
Zinc	101	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74307

Included Lab Sample IDs: 1868018, 1868021

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Sulfate	94.8	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A74420
Included Lab Sample IDs: 1868080, 1868081, 1868082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	97.0	P/P	90 - 110
Arsenic	99.1	100	P/P	90 - 110
Beryllium	95.6	94.1	P/P	90 - 110
Cadmium	102	102	P/P	90 - 110
Cadmium	102	101	P/P	90 - 110
Chromium	104	105	P/P	90 - 110
Chromium	105	103	P/P	90 - 110
Copper	99.0	99.9	P/P	90 - 110
Copper	99.9	97.8	P/P	90 - 110
Lead	101	100	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Nickel	99.3	99.7	P/P	90 - 110
Nickel	99.7	97.1	P/P	90 - 110
Silver	107	105	P/P	90 - 110
Silver	108	107	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						11.6	
EPA 200.7 Rev. 4.4	Calcium	101	99.5	96.4				3.67
	Iron	101	106	103	98.5			4.92
	Magnesium	100	99.3	95.4				4.07
	Potassium	97.6	99.5					4.77
	Sodium	99.4	99.2	97.0				4.46
	Zinc	100	101	103	94.8			7.85
EPA 200.8 Rev. 5.4	Arsenic	92.6	89.9	94.3	95.6			1.23
	Beryllium	100	96.0	102	99.9			1.86
	Cadmium	96.3	96.1	97.5	96.4			1.15
	Chromium	97.7	94.9	97.4	97.4			0.0067
	Copper	91.7	87.2	92.5	93.1			0.684
	Lead	96.9	93.5	98.8	98.7			0.162
	Nickel	92.3	88.4	91.6	91.9			0.386
	Silver	98.2	96.2	98.4	96.9			1.56
EPA 300.0 Rev. 2.1	Chloride	103	102	103			0.153	
	Chloride	102	102	99.3			0.0417	
	Chloride	100	101	98.3			0.180	
	Sulfate	97.9	96.7	97.0			0.217	
	Sulfate	96.4	97.3	92.7			3.85	
	Sulfate	97.6	98.0	96.2			0.310	
EPA 350.1 Rev. 2.0	Ammonia-N	108	109	103				3.46
	Ammonia-N	102	100	102				1.08
	Ammonia-N	99.4						0.143
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	95.9	97.8				1.04

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104			0.783
	NO2NO3-N	106	106	104		1.39
EPA 365.1 Rev. 2.0	Total-P	98.2	92.5	95.5		3.09
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.8	99.4		2.65
SM 2120 B	Color (true)				0.871	
SM 2320 B-97	Total Alkalinity	103			0.234	
SM 2540 C-97	TDS				0.217	
SM 4500 F-C-97	Fluoride	97.9	96.6	98.3		1.50
SM 5310 B-00	Organic Carbon	94.6	96.0	95.6		0.259

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1868080, 1868081, 1868082
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1868080, 1868081, 1868082
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1868016, 1868017, 1868020, 1868025, 1868026, 1868029
SM 2120 B / E31780	True Color measured at 450 nm	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1868014, 1868015, 1868019, 1868023, 1868024, 1868028

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	01/31/2017			01/31/2017 16:45	Julie Michelle Frank	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
EPA 200.7 Rev. 4.4	01/31/2017	02/02/2017	Elliott D. Healy	02/06/2017	Joshua Ayres	1868080, 1868081, 1868082
EPA 200.8 Rev. 5.4	01/31/2017	02/02/2017	Elliott D. Healy	02/11/2017	Betina Topolski	1868080, 1868081, 1868082
EPA 300.0 Rev. 2.1	01/31/2017			02/03/2017	Ping Hua	1868012, 1868013, 1868022, 1868027
	01/31/2017			02/06/2017	Ping Hua	1868018, 1868021
EPA 350.1 Rev. 2.0	01/31/2017			02/02/2017	Sofia Elnemr	1868015, 1868019, 1868023, 1868028
	01/31/2017			02/06/2017	Sofia Elnemr	1868014, 1868024
EPA 351.2 Rev. 2.0	01/31/2017	02/01/2017	Adrian Shelby	02/06/2017	Joseph Suarez	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 353.2 Rev. 2.0	01/31/2017			02/02/2017	Beverly Y. Sanders	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 365.1 Rev. 2.0	01/31/2017	02/01/2017	Vijayalakshmi Reddy	02/02/2017	Lipi Saha	1868014, 1868015, 1868019, 1868023, 1868024, 1868028
EPA 365.1 Rev. 2.0 dissolved	01/31/2017			01/31/2017 14:24	Julie Michelle Frank	1868025
	01/31/2017			01/31/2017 14:52	Julie Michelle Frank	1868016
	01/31/2017			01/31/2017 14:53	Julie Michelle Frank	1868017
	01/31/2017			01/31/2017 14:54	Julie Michelle Frank	1868020
	01/31/2017			01/31/2017 14:55	Julie Michelle Frank	1868026
	01/31/2017			01/31/2017 14:56	Julie Michelle Frank	1868029
SM 2120 B	01/31/2017			01/31/2017 14:51	Jared I. Manley	1868012
	01/31/2017			01/31/2017 14:52	Jared I. Manley	1868013
	01/31/2017			01/31/2017 14:53	Jared I. Manley	1868018
	01/31/2017			01/31/2017 14:54	Jared I. Manley	1868021, 1868022
	01/31/2017			01/31/2017 14:55	Jared I. Manley	1868027
SM 2320 B-97	01/31/2017			02/02/2017	Dale L. Simmons	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 2540 C-97	01/31/2017			02/03/2017	Blanca Fach	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 2540 D-97	01/31/2017			02/01/2017	Christopher Armour	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 4500 F-C-97	01/31/2017			02/02/2017	Dale L. Simmons	1868012, 1868013, 1868018, 1868021, 1868022, 1868027
SM 5310 B-00	01/31/2017			01/31/2017	Julie Michelle Frank	1868014, 1868015, 1868019, 1868023, 1868024, 1868028