

Chemical Analysis Report

SO-DIST-2018-08-17-02

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

Event Description: **CALOOSA LT 3240A**
Request ID: **RQ-2018-08-13-76**
Customer: **SO-DIST**
Project ID: **BMAP**

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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 05-SEP-2018 11:34



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: USGSStation-PuntaBlanca

Collection Date/Time: 08/16/2018 09:35

Field ID: G3SD0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2018061	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P350558	
	SM 4500 F-C-97	Fluoride	0.60		mg F/L	P350563	
2018065	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P350550	
2018069	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P350688	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P350454	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P350511	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P350550	
2018073	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.085		mg P/L	P350369	
2018093	EPA 200.7 Rev. 4.4	Iron	120	I	ug/L	P350547	
	EPA 200.8 Rev. 5.4	Arsenic	2.33		ug/L	P350547	
		Cadmium	0.060	U	ug/L	P350547	
		Chromium	1.2	U	ug/L	P350547	
		Copper	1.1	I	ug/L	P350547	
		Lead	0.15	U	ug/L	P350547	
		Nickel	0.60	U	ug/L	P350547	
		Silver	0.030	U	ug/L	P350547	
		Zinc	6.0	U	ug/L	P350547	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: The sample required dilution due to matrix interference.

Sample Location: USGS Station-ShellPoint

Collection Date/Time: 08/16/2018 10:05

Field ID: G3SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2018062	SM 2320 B-97	Total Alkalinity	115	A	mg CaCO3/L	P350558	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P350563	
2018066	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P350550	
2018070	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P350688	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P350454	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P350613	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P350550	
2018074	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.086		mg P/L	P350372	
2018094	EPA 200.7 Rev. 4.4	Iron	120		ug/L	P350547	
	EPA 200.8 Rev. 5.4	Arsenic	2.25		ug/L	P350547	
		Cadmium	0.060	U	ug/L	P350547	
		Chromium	1.2	U	ug/L	P350547	
		Copper	1.1	I	ug/L	P350547	
		Lead	0.15	U	ug/L	P350547	
		Nickel	0.60	U	ug/L	P350547	
		Silver	0.030	U	ug/L	P350547	
		Zinc	6.0	U	ug/L	P350547	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: The sample required dilution due to matrix interference.

Sample Location: Marker # 76

Collection Date/Time: 08/16/2018 10:30

Field ID: G3SD0110

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2018063	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P350557	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P350562	
2018067	SM 5310 B-00 dissolved	Organic Carbon	16		mg C/L	P350549	
2018071	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P350688	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P350598	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P350455	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P350613	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P350549	
2018075	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P350372	
2018095	EPA 200.7 Rev. 4.4	Iron	190		ug/L	P350545	
		Zinc	5.0	U	ug/L	P350545	
	EPA 200.8 Rev. 5.4	Arsenic	2.21		ug/L	P350545	
		Cadmium	0.020	U	ug/L	P350545	
		Chromium	0.40	U	ug/L	P350545	
		Copper	1.30		ug/L	P350545	
		Lead	0.12	I	ug/L	P350545	
		Nickel	0.46	I	ug/L	P350545	
		Silver	0.010	U	ug/L	P350545	

Sample Location: Marker # 52

Collection Date/Time: 08/16/2018 11:05

Field ID: G3SD0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2018064	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P350557	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P350562	
2018068	SM 5310 B-00 dissolved	Organic Carbon	20		mg C/L	P350549	
2018072	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P350689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P350462	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P350664	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P350611	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P350549	
2018076	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P350370	
2018096	EPA 200.7 Rev. 4.4	Iron	520		ug/L	P350545	
		Zinc	5.0	U	ug/L	P350545	
	EPA 200.8 Rev. 5.4	Arsenic	1.90		ug/L	P350545	
		Cadmium	0.020	U	ug/L	P350545	
		Chromium	0.57	I	ug/L	P350545	
		Copper	1.22		ug/L	P350545	
		Lead	0.22		ug/L	P350545	
		Nickel	0.62	I	ug/L	P350545	
		Silver	0.010	U	ug/L	P350545	

Sample Location: Mid Channel off Point

Collection Date/Time: 08/16/2018 13:15

Field ID: BLANK_08162018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2018077	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350557	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350562	
2018078	SM 5310 B-00 dissolved	Organic Carbon	0.50	U	mg C/L	P350549	
2018079	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P350689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P350462	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350664	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P350611	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P350549	
2018080	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350370	
2018097	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P350545	
		Zinc	5.0	U	ug/L	P350545	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P350545	
		Cadmium	0.020	U	ug/L	P350545	
		Chromium	0.40	U	ug/L	P350545	
		Copper	0.20	U	ug/L	P350545	
		Lead	0.050	U	ug/L	P350545	
		Nickel	0.20	U	ug/L	P350545	
		Silver	0.010	U	ug/L	P350545	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350545

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350547

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350545

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350547

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	2.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350688

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350689

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350462

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350598

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350454

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350455

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350664

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350611

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350613

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350369

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350370

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350372

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

Reference Method: SM 2320 B-97
Batch ID: P350557

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

Reference Method: SM 2320 B-97
Batch ID: P350558

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

Reference Method: SM 4500 F-C-97
Batch ID: P350562

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P350563

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350549

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

Reference Method: SM 5310 B-00
Batch ID: P350550

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350549

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350550

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: P350545

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350545

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.3		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	96.1		P	85 - 115
Lead	101		P	85 - 115
Nickel	99.3		P	85 - 115
Silver	99.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	104		P	85 - 115
Copper	99.3		P	85 - 115
Lead	97.6		P	85 - 115
Nickel	100		P	85 - 115
Silver	107		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350688

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350689

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350462

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350598

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350454

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: P350455

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: P350664

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350611

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350613

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350369

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350370

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350372

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

Reference Method: SM 2320 B-97
Batch ID: P350557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P350558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P350563

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

Reference Method: SM 5310 B-00
Batch ID: P350549

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P350550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350549

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018099	Iron	102	105	P/P	80 - 120
2018099	Zinc	103	104	P/P	80 - 120
2018202	Iron	101		P	80 - 120
2018202	Zinc	98.5		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018094	Iron	101	105	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018099	Arsenic	98.5	98.3	P/P	80 - 120
2018099	Cadmium	101	103	P/P	80 - 120
2018099	Chromium	90.9	94.5	P/P	80 - 120
2018099	Copper	96.8	97.2	P/P	80 - 120
2018099	Lead	96.8	98.4	P/P	80 - 120
2018099	Nickel	96.8	97.6	P/P	80 - 120
2018099	Silver	96.1	98.1	P/P	80 - 120
2018202	Arsenic	102		P	80 - 120
2018202	Cadmium	103		P	80 - 120
2018202	Chromium	93.7		P	80 - 120
2018202	Copper	94.8		P	80 - 120
2018202	Lead	101		P	80 - 120
2018202	Nickel	96.5		P	80 - 120
2018202	Silver	97.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018094	Arsenic	107	108	P/P	70 - 130
2018094	Cadmium	95.9	94.0	P/P	70 - 130
2018094	Chromium	91.7	91.3	P/P	80 - 120
2018094	Copper	93.5	94.0	P/P	70 - 130
2018094	Lead	106	107	P/P	70 - 130
2018094	Nickel	93.1	93.4	P/P	70 - 130
2018094	Silver	96.7	98.3	P/P	80 - 120
2018094	Zinc	94.2	94.8	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017936	Ammonia-N	99.6	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018031	Ammonia-N	97.5	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017655	Kjeldahl Nitrogen	102	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018056	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018459	Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017991	NO2NO3-N	98.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018071	NO2NO3-N	97.0	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017595	NO2NO3-N	97.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017655	Total-P	93.7	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018141	Total-P	98.7	99.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018460	Total-P	96.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017942	O-Phosphate-P	98.5	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017982	O-Phosphate-P	96.6	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018074	O-Phosphate-P	99.1	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P350562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017977	Fluoride	95.6	96.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P350563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018062	Fluoride	92.4	94.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017903	Organic Carbon	97.6	97.9	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P350550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017654	Organic Carbon	96.1	96.1	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017903	Organic Carbon	97.6	97.9	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017654	Organic Carbon	96.1	96.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018099	Iron	2.65	Spike	P	0 - 20
2018099	Zinc	0.674	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018094	Iron	3.49	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018099	Arsenic	0.215	Spike	P	0 - 20
2018099	Cadmium	1.94	Spike	P	0 - 20
2018099	Chromium	3.65	Spike	P	0 - 20
2018099	Copper	0.513	Spike	P	0 - 20
2018099	Lead	1.63	Spike	P	0 - 20
2018099	Nickel	0.795	Spike	P	0 - 20
2018099	Silver	2.03	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018094	Arsenic	1.50	Spike	P	0 - 20
2018094	Cadmium	2.03	Spike	P	0 - 20
2018094	Chromium	0.420	Spike	P	0 - 20
2018094	Copper	0.503	Spike	P	0 - 20
2018094	Lead	0.986	Spike	P	0 - 20
2018094	Nickel	0.296	Spike	P	0 - 20
2018094	Silver	1.69	Spike	P	0 - 20
2018094	Zinc	0.675	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017936	Ammonia-N	0.869	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018031	Ammonia-N	1.92	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017655	Kjeldahl Nitrogen	2.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018056	Kjeldahl Nitrogen	0.587	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018459	Kjeldahl Nitrogen	4.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017991	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018071	NO2NO3-N	1.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017595	NO2NO3-N	0.784	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017655	Total-P	1.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018141	Total-P	0.730	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018460	Total-P	0.0781	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017942	O-Phosphate-P	0.279	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017982	O-Phosphate-P	1.82	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018074	O-Phosphate-P	1.41	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P350557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017977	Total Alkalinity	0.688	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P350558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018062	Total Alkalinity	0.289	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P350562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017977	Fluoride	0.484	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P350563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018062	Fluoride	1.44	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P350549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017903	Organic Carbon	0.203	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P350550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017654	Organic Carbon	0.0463	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017903	Organic Carbon	0.203	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P350550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017654	Organic Carbon	0.0463	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: A85971

Included Lab Sample IDs: 2018073, 2018074, 2018075, 2018076, 2018080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	101	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86010

Included Lab Sample IDs: 2018069, 2018070, 2018071

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86029

Included Lab Sample IDs: 2018069, 2018070, 2018072, 2018079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.2	P/P	90 - 110
Kjeldahl Nitrogen	94.1	96.6	P/P	90 - 110
Kjeldahl Nitrogen	95.4	94.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86036

Included Lab Sample IDs: 2018069, 2018070, 2018071, 2018072, 2018079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110
Organic Carbon	96.8	96.6	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A86036

Included Lab Sample IDs: 2018065, 2018066, 2018067, 2018068, 2018078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110
Organic Carbon	96.8	96.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86040

Included Lab Sample IDs: 2018061, 2018062, 2018063, 2018064, 2018077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86040

Included Lab Sample IDs: 2018061, 2018062, 2018063, 2018064, 2018077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	98.1	P/P	90 - 110
Fluoride	98.1	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86058

Included Lab Sample IDs: 2018069

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86062

Included Lab Sample IDs: 2018093, 2018094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	100	99.4	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86066

Included Lab Sample IDs: 2018095, 2018096, 2018097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	98.1	97.9	P/P	90 - 110
Zinc	99.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86076

Included Lab Sample IDs: 2018071, 2018072

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86078

Included Lab Sample IDs: 2018070, 2018079

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86079

Included Lab Sample IDs: 2018071

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86085

Included Lab Sample IDs: 2018072, 2018079

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86096

Included Lab Sample IDs: 2018069, 2018070, 2018071, 2018072, 2018079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.0	P/P	90 - 110
Ammonia-N	99.0	99.5	P/P	90 - 110
Ammonia-N	99.5	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86120

Included Lab Sample IDs: 2018095, 2018096, 2018097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	93.6	95.2	P/P	90 - 110
Arsenic	94.7	93.6	P/P	90 - 110
Cadmium	97.0	97.5	P/P	90 - 110
Cadmium	97.5	96.9	P/P	90 - 110
Chromium	90.2	93.7	P/P	90 - 110
Chromium	93.7	92.2	P/P	90 - 110
Copper	92.3	94.2	P/P	90 - 110
Copper	94.4	92.3	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Lead	101	100	P/P	90 - 110
Nickel	92.2	94.0	P/P	90 - 110
Nickel	94.0	92.2	P/P	90 - 110
Silver	95.4	95.5	P/P	90 - 110
Silver	95.5	95.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86204

Included Lab Sample IDs: 2018097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	98.9	96.7	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86210

Included Lab Sample IDs: 2018093, 2018094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.9	96.3	P/P	90 - 110
Cadmium	93.7	94.0	P/P	90 - 110
Copper	96.7	95.5	P/P	90 - 110
Lead	99.9	99.4	P/P	90 - 110
Nickel	95.6	93.3	P/P	90 - 110
Zinc	97.2	95.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86221

Included Lab Sample IDs: 2018093, 2018094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	99.3	101	P/P	90 - 110
Silver	102	105	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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 SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Iron	105	102	105	101		2.65
	Iron	105	101	105			3.49
	Zinc	101	103	104	98.5		0.674
EPA 200.8 Rev. 5.4	Arsenic	99.3	98.5	98.3	102		0.215
	Arsenic	101	107	108			1.50
	Cadmium	104	101	103	103		1.94
	Cadmium	100	95.9	94.0			2.03
	Chromium	97.9	90.9	94.5	93.7		3.65
	Chromium	104	91.7	91.3			0.420
	Copper	96.1	96.8	97.2	94.8		0.513
	Copper	99.3	93.5	94.0			0.503
	Lead	101	96.8	98.4	101		1.63
	Lead	97.6	106	107			0.986
	Nickel	99.3	96.8	97.6	96.5		0.795
	Nickel	100	93.1	93.4			0.296
	Silver	99.8	96.1	98.1	97.0		2.03
	Silver	107	96.7	98.3			1.69
	Zinc	102	94.2	94.8			0.675
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	99.6	101			0.869
	Ammonia-N	99.3	97.5	99.5			1.92
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	102	98.8			2.37
	Kjeldahl Nitrogen	107	102	101			0.587
	Kjeldahl Nitrogen	105	107	102			4.42
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.2	100			1.50
	NO2NO3-N	100	97.0	99.0			1.25
	NO2NO3-N	100	97.4	96.4			0.784
EPA 365.1 Rev. 2.0	Total-P	95.9	93.7	95.0			1.43
	Total-P	102	98.7	99.7			0.730
	Total-P	98.5	96.0	96.0			0.0781
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.5	98.8			0.279
	O-Phosphate-P	101	96.6	98.6			1.82
	O-Phosphate-P	102	99.1	96.5			1.41
SM 2320 B-97	Total Alkalinity	104				0.688	
	Total Alkalinity	104				0.289	
SM 4500 F-C-97	Fluoride	95.3	95.6	96.1			0.484
	Fluoride	96.7	92.4	94.6			1.44
SM 5310 B-00	Organic Carbon	97.0	97.6	97.9			0.203
	Organic Carbon	99.2	96.1	96.1			0.0463
SM 5310 B-00 dissolved	Organic Carbon	97.0	97.6	97.9			0.203
	Organic Carbon	99.2	96.1	96.1			0.0463

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2018093, 2018094, 2018095, 2018096, 2018097
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2018093, 2018094, 2018095, 2018096, 2018097
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2018069, 2018070, 2018071, 2018072, 2018079
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2018069, 2018070, 2018071, 2018072, 2018079
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2018069, 2018070, 2018071, 2018072, 2018079

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2018069, 2018070, 2018071, 2018072, 2018079
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2018073, 2018074, 2018075, 2018076, 2018080
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2018061, 2018062, 2018063, 2018064, 2018077
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2018061, 2018062, 2018063, 2018064, 2018077
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2018069, 2018070, 2018071, 2018072, 2018079
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2018065, 2018066, 2018067, 2018068, 2018078

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/22/2018 12:58	Martin Acosta	2018093
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/22/2018 13:01	Martin Acosta	2018094
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/22/2018 15:43	Betina Topolski	2018097
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/22/2018 16:22	Betina Topolski	2018095
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/22/2018 16:33	Betina Topolski	2018096
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/30/2018 10:22	Betina Topolski	2018097
EPA 200.8 Rev. 5.4	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/24/2018 19:38	Allison Taylor	2018097
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/24/2018 21:34	Allison Taylor	2018095
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/24/2018 21:43	Allison Taylor	2018096
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/30/2018 00:10	Robert K Palmer	2018093
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/30/2018 00:20	Robert K Palmer	2018094
	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/30/2018 18:33	Robert K Palmer	2018093
EPA 350.1 Rev. 2.0	08/17/2018	08/21/2018 17:45	Elliott D. Healy	08/30/2018 18:40	Robert K Palmer	2018094
	08/17/2018			08/23/2018 12:14	Ping Hua	2018069
	08/17/2018			08/23/2018 12:22	Ping Hua	2018070
	08/17/2018			08/23/2018 12:23	Ping Hua	2018071
	08/17/2018			08/23/2018 12:43	Ping Hua	2018072
EPA 351.2 Rev. 2.0	08/17/2018			08/23/2018 12:52	Ping Hua	2018079
	08/17/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:21	Joseph Suarez	2018069
	08/17/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:23	Joseph Suarez	2018070
	08/17/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 13:28	Joseph Suarez	2018072
	08/17/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 13:33	Joseph Suarez	2018079
EPA 353.2 Rev. 2.0	08/17/2018	08/22/2018 10:30	Adrian Shelby	08/23/2018 10:43	Joseph Suarez	2018071
	08/17/2018			08/20/2018 13:30	Lauren Bottorf	2018069
	08/17/2018			08/20/2018 13:31	Lauren Bottorf	2018070
	08/17/2018			08/20/2018 13:38	Lauren Bottorf	2018071
	08/17/2018			08/23/2018 11:59	Lauren Bottorf	2018079
EPA 365.1 Rev. 2.0	08/17/2018			08/23/2018 12:05	Lauren Bottorf	2018072
	08/17/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:45	Beverly Y. Sanders	2018069
	08/17/2018	08/22/2018 13:40	Sima Feizi	08/23/2018 10:33	Beverly Y. Sanders	2018072
	08/17/2018	08/22/2018 13:40	Sima Feizi	08/23/2018 11:09	Beverly Y. Sanders	2018071
	08/17/2018	08/22/2018 13:40	Sima Feizi	08/23/2018 12:04	Beverly Y. Sanders	2018079
EPA 365.1 Rev. 2.0 dissolved	08/17/2018	08/22/2018 13:40	Sima Feizi	08/23/2018 12:22	Beverly Y. Sanders	2018070
	08/17/2018			08/17/2018 13:52	Lipi Saha	2018076
	08/17/2018			08/17/2018 13:53	Lipi Saha	2018080
	08/17/2018			08/17/2018 14:17	Lipi Saha	2018073
	08/17/2018			08/17/2018 14:19	Lipi Saha	2018074
SM 2320 B-97	08/17/2018			08/17/2018 14:26	Lipi Saha	2018075
	08/17/2018			08/22/2018 01:04	Dale L. Simmons	2018064
	08/17/2018			08/22/2018 01:18	Dale L. Simmons	2018077

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	08/17/2018			08/22/2018 02:31	Dale L. Simmons	2018063
	08/17/2018			08/22/2018 04:39	Dale L. Simmons	2018062
	08/17/2018			08/22/2018 04:49	Dale L. Simmons	2018061
SM 4500 F-C-97	08/17/2018			08/22/2018 01:04	Dale L. Simmons	2018064
	08/17/2018			08/22/2018 01:18	Dale L. Simmons	2018077
	08/17/2018			08/22/2018 02:31	Dale L. Simmons	2018063
	08/17/2018			08/22/2018 04:05	Dale L. Simmons	2018062
	08/17/2018			08/22/2018 04:21	Dale L. Simmons	2018061
SM 5310 B-00	08/17/2018			08/21/2018 07:57	Megan Treadwell	2018071
	08/17/2018			08/21/2018 08:10	Megan Treadwell	2018072
	08/17/2018			08/21/2018 08:37	Megan Treadwell	2018079
	08/17/2018			08/21/2018 13:53	Megan Treadwell	2018069
	08/17/2018			08/21/2018 14:06	Megan Treadwell	2018070
SM 5310 B-00 dissolved	08/17/2018			08/21/2018 07:29	Megan Treadwell	2018067
	08/17/2018			08/21/2018 07:43	Megan Treadwell	2018068
	08/17/2018			08/21/2018 08:24	Megan Treadwell	2018078
	08/17/2018			08/21/2018 13:13	Megan Treadwell	2018065
	08/17/2018			08/21/2018 13:26	Megan Treadwell	2018066