

Chemical Analysis Report

SO-DIST-2020-02-22-01

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

Event Description: **CALOOSA LT**
Request ID: **RQ-2020-02-10-10**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-MAR-2020 16:48

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

NON-CONFORMANCE REPORT INCLUDED

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: USGStation-PuntaBlanca

Collection Date/Time: 02/20/2020 09:40

Field ID: G3SD0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160104	SM 2320 B-2011	Total Alkalinity	127		mg CaCO3/L	P379903	
	SM 4500 F-C-2011	Fluoride	0.88		mg F/L	P380180	
2160107	SM 5310 B-2011 dissolved	Organic Carbon	6.7		mg C/L	P379638	
2160110	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P379809	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P379623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P379699	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P379987	
	SM 5310 B-2011	Organic Carbon	6.9		mg C/L	P379638	
2160113	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028	Q	mg P/L	P379395	
2160158	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P379691	
		Zinc	15	U	ug/L	P379691	
	EPA 200.8 Rev. 5.4	Arsenic	2.10		ug/L	P379691	
		Cadmium	0.080	U	ug/L	P379691	
		Chromium	1.6	U	ug/L	P379691	
		Copper	1.6	U	ug/L	P379691	
		Lead	0.80	U	ug/L	P379691	
		Nickel	2.0	U	ug/L	P379691	
		Silver	0.10	U	ug/L	P380290	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt.

Sample Location: USGStation-ShellPoint

Collection Date/Time: 02/20/2020 10:00

Field ID: G3SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160105	SM 2320 B-2011	Total Alkalinity	126		mg CaCO3/L	P379903	
	SM 4500 F-C-2011	Fluoride	0.83		mg F/L	P380180	
2160108	SM 5310 B-2011 dissolved	Organic Carbon	6.7		mg C/L	P379638	
2160111	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P379809	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P379623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P379699	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P379990	
	SM 5310 B-2011	Organic Carbon	7.0		mg C/L	P379638	
2160114	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031	Q	mg P/L	P379395	
2160159	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P379691	
		Zinc	15	U	ug/L	P379691	
		Arsenic	2.07		ug/L	P379691	
	EPA 200.8 Rev. 5.4	Cadmium	0.080	U	ug/L	P379691	
		Chromium	1.6	U	ug/L	P379691	
		Copper	1.6	U	ug/L	P379691	
		Lead	0.80	U	ug/L	P379691	
		Nickel	2.0	U	ug/L	P379691	
		Silver	0.10	U	ug/L	P380290	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Marker #76

Collection Date/Time: 02/20/2020 10:20

Field ID: G3SD0110

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160106	SM 2320 B-2011	Total Alkalinity	125		mg CaCO3/L	P379903	
	SM 4500 F-C-2011	Fluoride	0.73		mg F/L	P380180	
2160109	SM 5310 B-2011 dissolved	Organic Carbon	9.0		mg C/L	P379638	
2160112	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P379805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P379623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P379699	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P379990	
	SM 5310 B-2011	Organic Carbon	9.3		mg C/L	P379638	
2160115	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037	Q	mg P/L	P379395	
2160160	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P379691	
		Zinc	15	U	ug/L	P379691	
	EPA 200.8 Rev. 5.4	Arsenic	2.05		ug/L	P379691	
		Cadmium	0.080	U	ug/L	P379691	
		Chromium	1.6	U	ug/L	P379691	
		Copper	1.6	U	ug/L	P379691	
		Lead	0.80	U	ug/L	P379691	
		Nickel	2.0	U	ug/L	P379691	
		Silver	0.10	U	ug/L	P380290	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: US 41 Marker # 38

Collection Date/Time: 02/20/2020 11:05

Field ID: G3SD0112

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160116	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P379637	
2160125	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P379805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P379623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P379699	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P379990	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379637	
2160134	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047	Q	mg P/L	P379395	
2160161	EPA 200.7 Rev. 4.4	Calcium	97.6		mg/L	P379765	
		Iron	60	I	ug/L	P379765	
		Magnesium	201		mg/L	P379765	
		Potassium	67		mg/L	P379765	
		Sodium	1.54E+03		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.69		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.45	I	ug/L	P379765	
		Copper	1.73		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.54	I	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

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

Sample Location: Marker # 28

Collection Date/Time: 02/20/2020 11:13

Field ID: G3SD0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160117	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P379637	
2160126	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P379909	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P379623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P379699	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P379990	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379637	
2160135	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048	Q	mg P/L	P379395	
2160162	EPA 200.7 Rev. 4.4	Calcium	80.5		mg/L	P379765	
		Iron	140		ug/L	P379765	
		Magnesium	127		mg/L	P379765	
		Potassium	45		mg/L	P379765	
		Sodium	959		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.81		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.49		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.55	I	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

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

Sample Location: Marker # 22

Collection Date/Time: 02/20/2020 11:30

Field ID: G3SD0114

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160118	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P379637	
2160127	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P379910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P379755	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P380155	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P380038	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379637	
2160136	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050	Q	mg P/L	P379396	
2160163	EPA 200.7 Rev. 4.4	Calcium	71.0		mg/L	P379765	
		Iron	150		ug/L	P379765	
		Magnesium	86.7		mg/L	P379765	
		Potassium	30.3		mg/L	P379765	
		Sodium	646		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.58		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.31		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.52	I	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

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

Sample Location: Old Swing Bridge

Collection Date/Time: 02/20/2020 11:40

Field ID: G3SD0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160119	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P379711	
2160128	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P379910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P379647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380156	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P380038	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379928	
2160137	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P379394	
2160164	EPA 200.7 Rev. 4.4	Calcium	67.4		mg/L	P379765	
		Iron	110	I	ug/L	P379765	
		Magnesium	71.2		mg/L	P379765	
		Potassium	26.5		mg/L	P379765	
		Sodium	539		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.62		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.30		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.50	U	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

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

Sample Location: MidChannel@OrangeRiver

Collection Date/Time: 02/20/2020 12:00

Field ID: G3SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160120	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P379711	
2160129	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P379910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P379647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P380156	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P380038	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379928	
2160138	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P379394	
2160165	EPA 200.7 Rev. 4.4	Calcium	65.8		mg/L	P379765	
		Iron	210		ug/L	P379765	
		Magnesium	66.4		mg/L	P379765	
		Potassium	24.7		mg/L	P379765	
		Sodium	509		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.64		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.42		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.60	I	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

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

Sample Location: Upstream of Power Plant

Collection Date/Time: 02/20/2020 12:12

Field ID: G3SD0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160121	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P379711	
2160130	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P379910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P379755	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380156	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P380037	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379928	
2160139	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P379394	
2160166	EPA 200.7 Rev. 4.4	Calcium	65.2		mg/L	P379765	
		Iron	37	I	ug/L	P379765	
		Magnesium	62.5		mg/L	P379765	
		Potassium	23.4		mg/L	P379765	
		Sodium	464		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.70		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.17		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.50	U	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

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

Sample Location: Mid Channel off Oxbow

Collection Date/Time: 02/20/2020 12:25

Field ID: G3SD0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160122	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P379711	
2160131	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P379910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P379755	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380156	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P380037	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379928	
2160140	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P379394	
2160167	EPA 200.7 Rev. 4.4	Calcium	62.8		mg/L	P379765	
		Iron	46	I	ug/L	P379765	
		Magnesium	60.1		mg/L	P379765	
		Potassium	22.8		mg/L	P379765	
		Sodium	459		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.65		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.14		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.50	U	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

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

Sample Location: Mid channel off point

Collection Date/Time: 02/20/2020 12:35

Field ID: G3SD0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160123	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P379711	
2160132	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P379910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P379755	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P380156	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P380037	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P379928	
2160141	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P379394	
2160168	EPA 200.7 Rev. 4.4	Calcium	65.7		mg/L	P379765	
		Iron	110	I	ug/L	P379765	
		Magnesium	65.4		mg/L	P379765	
		Potassium	23.7		mg/L	P379765	
		Sodium	490		mg/L	P379765	
		Zinc	5.0	U	ug/L	P379765	
	EPA 200.8 Rev. 5.4	Arsenic	1.61		ug/L	P379765	
		Cadmium	0.020	U	ug/L	P379765	
		Chromium	0.40	U	ug/L	P379765	
		Copper	1.12		ug/L	P379765	
		Lead	0.20	U	ug/L	P379765	
		Nickel	0.50	U	ug/L	P379765	
		Silver	0.010	U	ug/L	P379765	

Ref. Method and Comment:

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

Sample Location: Marker # 52

Collection Date/Time: 02/20/2020 10:45

Field ID: G3SD0111

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160182	SM 2320 B-2011	Total Alkalinity	128	A	mg CaCO3/L	P379903	
	SM 4500 F-C-2011	Fluoride	0.45		mg F/L	P380180	
2160183	SM 5310 B-2011 dissolved	Organic Carbon	13		mg C/L	P379638	
2160184	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P379909	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P379623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P379699	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P379990	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P379638	
2160185	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049	Q	mg P/L	P379395	
2160188	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P379691	
		Zinc	15	U	ug/L	P379691	
	EPA 200.8 Rev. 5.4	Arsenic	2.28		ug/L	P379691	
		Cadmium	0.080	U	ug/L	P379691	
		Chromium	1.6	U	ug/L	P379691	
		Copper	1.8	I	ug/L	P379691	
		Lead	0.80	U	ug/L	P379691	
		Nickel	2.0	U	ug/L	P379691	
		Silver	0.10	U	ug/L	P380290	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 8203

Event(s)

SO-DIST-2020-02-22-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx, samples received within the acceptable temperature range.

Resolution: Customer contacted John Barrington, email correspondence attached to sample submittal forms. Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 3/4/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379691

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: P379765

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
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379691

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379765

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380290

Component	Result	Code	Units
Silver	0.010	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379805

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379809

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379909

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379910

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379623

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379755

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379699

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380155

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380156

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379987

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379990

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380037

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380038

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379394

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379395

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379396

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

Reference Method: SM 2320 B-2011
Batch ID: P379903

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

Reference Method: SM 4500 F-C-2011
Batch ID: P380180

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P379637

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

Reference Method: SM 5310 B-2011
Batch ID: P379638

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

Reference Method: SM 5310 B-2011
Batch ID: P379928

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379637

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379638

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379711

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: P379691

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	108		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	85 - 115
Iron	105		P	85 - 115
Magnesium	113		P	85 - 115
Potassium	102		P	85 - 115
Sodium	101		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379691

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	91.2		P	85 - 115
Cadmium	92.4		P	85 - 115
Chromium	93.8		P	85 - 115
Copper	95.0		P	85 - 115
Lead	91.8		P	85 - 115
Nickel	93.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	80 - 120
Cadmium	100		P	80 - 120
Chromium	103		P	80 - 120
Copper	102		P	80 - 120
Lead	98.6		P	80 - 120
Nickel	103		P	80 - 120
Silver	98.4		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380290

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379805

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379909

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379910

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379623

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379699

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380155

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: P380156

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379987

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379990

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380037

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380038

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379394

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379395

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: P379396

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

Reference Method: SM 2320 B-2011
Batch ID: P379903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P380180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P379637

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

Reference Method: SM 5310 B-2011
Batch ID: P379638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P379928

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379637

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379711

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160160	Iron	98.3		P	70 - 130
2160160	Zinc	102		P	70 - 130
2160188	Iron	101	98.8	P/P	70 - 130
2160188	Zinc	106	104	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160096	Calcium	99.2	99.7	P/P	80 - 120
2160096	Iron	101	102	P/P	80 - 120
2160096	Magnesium	102	101	P/P	80 - 120
2160096	Potassium	102		P	80 - 120
2160096	Zinc	105	104	P/P	80 - 120
2160441	Calcium	102		P	80 - 120
2160441	Iron	100		P	80 - 120
2160441	Magnesium	103		P	80 - 120
2160441	Potassium	99.2		P	80 - 120
2160441	Sodium	99.1		P	80 - 120
2160441	Zinc	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160160	Arsenic	113		P	70 - 130
2160160	Cadmium	97.8		P	70 - 130
2160160	Chromium	98.1		P	70 - 130
2160160	Copper	116		P	70 - 130
2160160	Lead	107		P	70 - 130
2160160	Nickel	116		P	70 - 130
2160188	Arsenic	110	110	P/P	70 - 130
2160188	Cadmium	97.0	101	P/P	70 - 130
2160188	Chromium	97.9	104	P/P	70 - 130
2160188	Copper	105	110	P/P	70 - 130
2160188	Lead	101	104	P/P	70 - 130
2160188	Nickel	108	113	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160096	Arsenic	105	104	P/P	80 - 120
2160096	Cadmium	92.0	89.8	P/P	80 - 120
2160096	Chromium	99.7	99.1	P/P	80 - 120
2160096	Copper	96.8	98.2	P/P	80 - 120
2160096	Lead	103	101	P/P	80 - 120
2160096	Nickel	104	101	P/P	80 - 120
2160096	Silver	94.0	94.4	P/P	80 - 120
2160441	Arsenic	104		P	80 - 120
2160441	Cadmium	102		P	80 - 120
2160441	Chromium	101		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P379765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160441	Copper	99.4		P	80 - 120
2160441	Lead	101		P	80 - 120
2160441	Nickel	99.3		P	80 - 120
2160441	Silver	96.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2158865	Silver	101	104	P/P	70 - 130
2160419	Silver	103		P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160250	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159442	Ammonia-N	99.6	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160259	Ammonia-N	104	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160196	Ammonia-N	97.2	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160060	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160057	Kjeldahl Nitrogen	107	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160196	Kjeldahl Nitrogen	96.0	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160063	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159964	NO2NO3-N	96.1	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160128	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159766	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160111	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160130	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160201	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160137	O-Phosphate-P	95.3	95.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160115	O-Phosphate-P	97.9	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160202	O-Phosphate-P	95.9	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P380180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160182	Fluoride	100	100	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P379637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159960	Organic Carbon	98.8		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P379638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160110	Organic Carbon	100	98.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P379928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160197	Organic Carbon	96.6	97.2	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159960	Organic Carbon	98.8		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160110	Organic Carbon	100	98.5	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160266	Organic Carbon	100		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P379691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160188	Iron	2.24	Spike	P	0 - 20
2160188	Zinc	1.60	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P379765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160096	Calcium	0.288	Spike	P	0 - 20
2160096	Iron	0.991	Spike	P	0 - 20
2160096	Magnesium	0.288	Spike	P	0 - 20
2160096	Potassium	0.813	Spike	P	0 - 20
2160096	Sodium	0.417	Spike	P	0 - 20
2160096	Zinc	0.787	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P379691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160188	Arsenic	0.749	Spike	P	0 - 20
2160188	Cadmium	4.46	Spike	P	0 - 20
2160188	Chromium	5.67	Spike	P	0 - 20
2160188	Copper	4.13	Spike	P	0 - 20
2160188	Lead	2.54	Spike	P	0 - 20
2160188	Nickel	4.35	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P379765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160096	Arsenic	0.942	Spike	P	0 - 20
2160096	Cadmium	2.41	Spike	P	0 - 20
2160096	Chromium	0.628	Spike	P	0 - 20
2160096	Copper	1.30	Spike	P	0 - 20
2160096	Lead	1.55	Spike	P	0 - 20
2160096	Nickel	2.43	Spike	P	0 - 20
2160096	Silver	0.438	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P380290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2158865	Silver	3.07	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160250	Ammonia-N	0.239	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159442	Ammonia-N	0.464	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160259	Ammonia-N	2.92	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160196	Ammonia-N	4.55	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160060	Kjeldahl Nitrogen	0.349	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160057	Kjeldahl Nitrogen	0.856	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160196	Kjeldahl Nitrogen	5.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160063	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159964	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160128	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159766	Total-P	0.994	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160111	Total-P	0.857	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160130	Total-P	0.926	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160201	Total-P	0.0679	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160137	O-Phosphate-P	0.0706	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160115	O-Phosphate-P	0.885	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160202	O-Phosphate-P	1.76	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P379903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160182	Total Alkalinity	0.125	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P380180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160182	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P379637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159960	Organic Carbon	1.14	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P379638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160110	Organic Carbon	1.59	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P379928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160197	Organic Carbon	0.374	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159960	Organic Carbon	1.14	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160110	Organic Carbon	1.59	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P379711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160266	Organic Carbon	0.399	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97733

Included Lab Sample IDs: 2160113, 2160114, 2160115, 2160134, 2160135, 2160136, 2160137, 2160138, 2160139, 2160140, 2160141, 2160185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.1	93.8	P/P	90 - 110
O-Phosphate-P	98.1	96.1	P/P	90 - 110
O-Phosphate-P	98.7	98.1	P/P	90 - 110
O-Phosphate-P	99.6	98.7	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97811

Included Lab Sample IDs: 2160110, 2160111, 2160112, 2160125, 2160126, 2160127, 2160184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.5	P/P	90 - 110
Organic Carbon	99.5	97.5	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A97811

Included Lab Sample IDs: 2160107, 2160108, 2160109, 2160116, 2160117, 2160118, 2160183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.5	P/P	90 - 110
Organic Carbon	97.5	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97812

Included Lab Sample IDs: 2160110, 2160111, 2160112, 2160125, 2160126, 2160184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A97841

Included Lab Sample IDs: 2160119, 2160120, 2160121, 2160122, 2160123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	99.8	P/P	90 - 110
Organic Carbon	98.0	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97862

Included Lab Sample IDs: 2160128, 2160129

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97864

Included Lab Sample IDs: 2160110, 2160111, 2160112, 2160125, 2160126, 2160184

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97877

Included Lab Sample IDs: 2160127, 2160130, 2160131, 2160132

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97883

Included Lab Sample IDs: 2160112, 2160125

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97886

Included Lab Sample IDs: 2160110, 2160111

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97922

Included Lab Sample IDs: 2160161, 2160162, 2160163, 2160164, 2160165, 2160166, 2160167, 2160168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.8	98.2	P/P	90 - 110
Calcium	97.9	97.8	P/P	90 - 110
Calcium	98.2	99.5	P/P	90 - 110
Iron	97.7	98.9	P/P	90 - 110
Iron	98.1	97.7	P/P	90 - 110
Iron	98.9	101	P/P	90 - 110
Magnesium	99.5	99.9	P/P	90 - 110
Magnesium	99.8	99.5	P/P	90 - 110
Magnesium	99.9	102	P/P	90 - 110
Potassium	97.2	98.5	P/P	90 - 110
Potassium	98.5	99.5	P/P	90 - 110
Potassium	99.5	99.4	P/P	90 - 110
Sodium	95.8	98.6	P/P	90 - 110
Sodium	95.9	95.8	P/P	90 - 110
Sodium	98.6	99.1	P/P	90 - 110
Zinc	100	98.2	P/P	90 - 110
Zinc	98.2	101	P/P	90 - 110
Zinc	99.8	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97924

Included Lab Sample IDs: 2160104, 2160105, 2160106, 2160182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97928

Included Lab Sample IDs: 2160126, 2160127, 2160128, 2160129, 2160130, 2160131, 2160132, 2160184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	101	91.6	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97937

Included Lab Sample IDs: 2160128, 2160129, 2160130, 2160131, 2160132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.6	P/P	90 - 110
Organic Carbon	99.6	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97940

Included Lab Sample IDs: 2160158, 2160159, 2160160, 2160188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	96.4	97.6	P/P	90 - 110
Iron	97.6	97.7	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97967

Included Lab Sample IDs: 2160161, 2160162, 2160163, 2160164, 2160165, 2160166, 2160167, 2160168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	102	102	P/P	90 - 110
Lead	100	99.7	P/P	90 - 110
Nickel	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97979

Included Lab Sample IDs: 2160127, 2160128, 2160129, 2160130, 2160131, 2160132

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: A97984

Included Lab Sample IDs: 2160184

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97989

Included Lab Sample IDs: 2160158, 2160159, 2160160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	101	103	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97992

Included Lab Sample IDs: 2160110, 2160111, 2160112, 2160125, 2160126

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98000

Included Lab Sample IDs: 2160161, 2160162, 2160163, 2160164, 2160165, 2160166, 2160167, 2160168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	99.3	P/P	90 - 110
Cadmium	93.6	91.6	P/P	90 - 110
Chromium	99.0	97.8	P/P	90 - 110
Copper	99.9	97.0	P/P	90 - 110
Lead	98.8	98.0	P/P	90 - 110
Silver	91.4	90.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98011

Included Lab Sample IDs: 2160127, 2160128, 2160129, 2160130, 2160131, 2160132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110
Total-P	101	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98029

Included Lab Sample IDs: 2160161, 2160162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	100	P/P	90 - 110
Cadmium	101	99.5	P/P	90 - 110
Chromium	101	104	P/P	90 - 110
Silver	97.9	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A98031

Included Lab Sample IDs: 2160104, 2160105, 2160106, 2160182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	97.2	P/P	90 - 110
Fluoride	97.2	96.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98040

Included Lab Sample IDs: 2160158, 2160159, 2160160, 2160188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.2	100	P/P	90 - 110
Arsenic	99.5	99.6	P/P	90 - 110
Arsenic	99.6	99.2	P/P	90 - 110
Cadmium	94.4	96.2	P/P	90 - 110
Cadmium	95.8	94.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98040

Included Lab Sample IDs: 2160158, 2160159, 2160160, 2160188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	97.1	94.9	P/P	90 - 110
Chromium	95.5	95.6	P/P	90 - 110
Chromium	98.0	95.5	P/P	90 - 110
Chromium	98.2	98.7	P/P	90 - 110
Copper	103	101	P/P	90 - 110
Copper	104	103	P/P	90 - 110
Copper	99.2	102	P/P	90 - 110
Lead	96.0	95.9	P/P	90 - 110
Lead	96.2	96.0	P/P	90 - 110
Lead	97.1	97.0	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Nickel	104	103	P/P	90 - 110
Nickel	99.8	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98107

Included Lab Sample IDs: 2160160, 2160188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	94.9	94.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98137

Included Lab Sample IDs: 2160158, 2160159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	96.8	94.3	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Calcium	109	99.2	99.7	102		0.288
	Iron	108	98.3	101	98.8		2.24
	Iron	105	101	102	100		0.991
	Magnesium	113	102	101	103		0.288
	Potassium	102	102	99.2			0.813
	Sodium	101	99.1				0.417
	Zinc	106	106	104	102		1.60
	Zinc	103	105	104	104		0.787
EPA 200.8 Rev. 5.4	Arsenic	91.2	110	110	113		0.749
	Arsenic	102	105	104	104		0.942
	Cadmium	92.4	97.0	101	97.8		4.46
	Cadmium	100	92.0	89.8	102		2.41
	Chromium	93.8	97.9	104	98.1		5.67
	Chromium	103	99.7	99.1	101		0.628
	Copper	95.0	105	110	116		4.13
	Copper	102	96.8	98.2	99.4		1.30
	Lead	91.8	101	104	107		2.54
	Lead	98.6	103	101	101		1.55
	Nickel	93.5	108	113	116		4.35
	Nickel	103	104	101	99.3		2.43
	Silver	98.4	94.0	94.4	96.1		0.438
	Silver	99.2	101	104	103		3.07
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	102			0.239
	Ammonia-N	97.4	99.6	99.0			0.464
	Ammonia-N	99.3	104	101			2.92
	Ammonia-N	102	97.2	102			4.55
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	100	101			0.349
	Kjeldahl Nitrogen	101	107	108			0.856
	Kjeldahl Nitrogen	96.9	96.0	104			5.84
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103			0.0
	NO2NO3-N	100	96.1	95.6			0.499
	NO2NO3-N	100	100	99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	107	100	101			0.994
	Total-P	108	103	102			0.857
	Total-P	105	103	102			0.926
	Total-P	105	103	103			0.0679
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	95.3	95.2			0.0706
	O-Phosphate-P	101	97.9	99.1			0.885
	O-Phosphate-P	101	95.9	97.6			1.76
SM 2320 B-2011	Total Alkalinity	102				0.125	
SM 4500 F-C-2011	Fluoride	99.3	100	100			0.0
SM 5310 B-2011	Organic Carbon	99.2	98.8				1.14
	Organic Carbon	102	100	98.5			1.59
	Organic Carbon	95.6	96.6	97.2			0.374
SM 5310 B-2011 dissolved	Organic Carbon	99.2	98.8				1.14
	Organic Carbon	102	100	98.5			1.59
	Organic Carbon	98.0	100				0.399

Reference Method Descriptions

Method	Description	Associated Samples
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Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2160158, 2160159, 2160160, 2160161, 2160162, 2160163, 2160164, 2160165, 2160166, 2160167, 2160168, 2160188
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2160158, 2160159, 2160160, 2160161, 2160162, 2160163, 2160164, 2160165, 2160166, 2160167, 2160168, 2160188
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2160110, 2160111, 2160112, 2160125, 2160126, 2160127, 2160128, 2160129, 2160130, 2160131, 2160132, 2160184
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2160110, 2160111, 2160112, 2160125, 2160126, 2160127, 2160128, 2160129, 2160130, 2160131, 2160132, 2160184
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2160110, 2160111, 2160112, 2160125, 2160126, 2160127, 2160128, 2160129, 2160130, 2160131, 2160132, 2160184
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2160110, 2160111, 2160112, 2160125, 2160126, 2160127, 2160128, 2160129, 2160130, 2160131, 2160132, 2160184
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2160113, 2160114, 2160115, 2160134, 2160135, 2160136, 2160137, 2160138, 2160139, 2160140, 2160141, 2160185
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2160104, 2160105, 2160106, 2160182
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2160104, 2160105, 2160106, 2160182
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2160110, 2160111, 2160112, 2160125, 2160126, 2160127, 2160128, 2160129, 2160130, 2160131, 2160132, 2160184
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2160107, 2160108, 2160109, 2160116, 2160117, 2160118, 2160119, 2160120, 2160121, 2160122, 2160123, 2160183

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EPA 200.7 Rev. 4.4	02/22/2020	02/26/2020 17:40	Elliott D. Healy	02/27/2020 22:07	Martin Acosta	2160158
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	02/27/2020 22:46	Martin Acosta	2160159
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	02/27/2020 22:53	Martin Acosta	2160160
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	02/27/2020 23:15	Martin Acosta	2160188
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/04/2020 12:44	Betina Topolski	2160158
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/04/2020 12:50	Betina Topolski	2160159
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/04/2020 12:56	Betina Topolski	2160160
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 15:09	Betina Topolski	2160161
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 15:16	Betina Topolski	2160161
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 15:22	Betina Topolski	2160162
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 15:30	Betina Topolski	2160162
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:06	Betina Topolski	2160163
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:13	Betina Topolski	2160163
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:20	Betina Topolski	2160164
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:27	Betina Topolski	2160164
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:35	Betina Topolski	2160165
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:42	Betina Topolski	2160165
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:49	Betina Topolski	2160166
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 16:56	Betina Topolski	2160166
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 17:04	Betina Topolski	2160167
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 17:11	Betina Topolski	2160167
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 17:42	Betina Topolski	2160168
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/02/2020 17:49	Betina Topolski	2160168
EPA 200.8 Rev. 5.4	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/03/2020 16:24	Justin Cutchin	2160188
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/03/2020 19:34	Justin Cutchin	2160160
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/03/2020 20:09	Justin Cutchin	2160158
	02/22/2020	02/26/2020 17:40	Elliott D. Healy	03/03/2020 20:17	Justin Cutchin	2160159
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 19:38	Alexander Thompson	2160161
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 19:47	Alexander Thompson	2160162
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 19:57	Alexander Thompson	2160163
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 20:07	Alexander Thompson	2160164
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 20:16	Alexander Thompson	2160165
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 20:26	Alexander Thompson	2160166
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 20:36	Alexander Thompson	2160167
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/03/2020 20:45	Alexander Thompson	2160168
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 17:12	Alexander Thompson	2160161
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 17:22	Alexander Thompson	2160162
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 17:31	Alexander Thompson	2160163
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 17:41	Alexander Thompson	2160164
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 17:50	Alexander Thompson	2160165

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Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.8 Rev. 5.4	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 18:00	Alexander Thompson	2160166
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 18:10	Alexander Thompson	2160167
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/04/2020 18:19	Alexander Thompson	2160168
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/05/2020 13:45	Alexander Thompson	2160161
	02/22/2020	02/27/2020 15:45	Elliott D. Healy	03/05/2020 13:52	Alexander Thompson	2160162
	02/22/2020	03/09/2020 13:10	Elliott D. Healy	03/10/2020 17:23	Alexander Thompson	2160160
	02/22/2020	03/09/2020 13:10	Elliott D. Healy	03/10/2020 17:33	Alexander Thompson	2160188
	02/22/2020	03/09/2020 13:10	Elliott D. Healy	03/11/2020 16:51	Alexander Thompson	2160158
	02/22/2020	03/09/2020 13:10	Elliott D. Healy	03/11/2020 16:58	Alexander Thompson	2160159
EPA 350.1 Rev. 2.0	02/22/2020			02/27/2020 15:11	Ping Hua	2160110
	02/22/2020			02/27/2020 15:18	Ping Hua	2160111
	02/22/2020			02/28/2020 12:23	Ping Hua	2160112
	02/22/2020			02/28/2020 12:25	Ping Hua	2160125
	02/22/2020			03/02/2020 11:10	Ping Hua	2160126
	02/22/2020			03/02/2020 11:12	Ping Hua	2160184
	02/22/2020			03/02/2020 11:39	Ping Hua	2160128
	02/22/2020			03/02/2020 11:40	Ping Hua	2160129
	02/22/2020			03/02/2020 11:42	Ping Hua	2160130
	02/22/2020			03/02/2020 11:49	Ping Hua	2160131
	02/22/2020			03/02/2020 11:51	Ping Hua	2160132
	02/22/2020			03/02/2020 13:57	Ping Hua	2160127
EPA 351.2 Rev. 2.0	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 14:03	Jhamieka S. Greenwood	2160128
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 14:05	Jhamieka S. Greenwood	2160129
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 15:56	Jhamieka S. Greenwood	2160110
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 15:58	Jhamieka S. Greenwood	2160111
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 16:00	Jhamieka S. Greenwood	2160112
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 16:01	Jhamieka S. Greenwood	2160125
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 16:03	Jhamieka S. Greenwood	2160126
	02/22/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 16:04	Jhamieka S. Greenwood	2160184
	02/22/2020	02/27/2020 11:50	Sima Feizi	02/28/2020 08:30	Jhamieka S. Greenwood	2160127
	02/22/2020	02/27/2020 11:50	Sima Feizi	02/28/2020 08:31	Jhamieka S. Greenwood	2160130
	02/22/2020	02/27/2020 11:50	Sima Feizi	02/28/2020 08:33	Jhamieka S. Greenwood	2160131
	02/22/2020	02/27/2020 11:50	Sima Feizi	02/28/2020 08:34	Jhamieka S. Greenwood	2160132
EPA 353.2 Rev. 2.0	02/22/2020			02/26/2020 10:49	Beverly Y. Sanders	2160110
	02/22/2020			02/26/2020 10:50	Beverly Y. Sanders	2160111
	02/22/2020			02/26/2020 10:51	Beverly Y. Sanders	2160112
	02/22/2020			02/26/2020 10:52	Beverly Y. Sanders	2160125
	02/22/2020			02/26/2020 10:53	Beverly Y. Sanders	2160126
	02/22/2020			02/26/2020 10:56	Beverly Y. Sanders	2160184
	02/22/2020			03/04/2020 10:22	Beverly Y. Sanders	2160127

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EPA 353.2 Rev. 2.0	02/22/2020			03/04/2020 10:29	Beverly Y. Sanders	2160128
	02/22/2020			03/04/2020 10:35	Beverly Y. Sanders	2160129
	02/22/2020			03/04/2020 10:36	Beverly Y. Sanders	2160130
	02/22/2020			03/04/2020 10:37	Beverly Y. Sanders	2160131
	02/22/2020			03/04/2020 10:38	Beverly Y. Sanders	2160132
EPA 365.1 Rev. 2.0	02/22/2020	03/03/2020 13:55	Yen Ta	03/04/2020 12:03	Benjamin T. Nordmann	2160184
	02/22/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:11	Benjamin T. Nordmann	2160110
	02/22/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:40	Benjamin T. Nordmann	2160111
	02/22/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:41	Benjamin T. Nordmann	2160112
	02/22/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:42	Benjamin T. Nordmann	2160125
	02/22/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:43	Benjamin T. Nordmann	2160126
	02/22/2020	03/04/2020 13:06	Yen Ta	03/05/2020 11:05	Benjamin T. Nordmann	2160130
	02/22/2020	03/04/2020 13:06	Yen Ta	03/05/2020 11:09	Benjamin T. Nordmann	2160131
	02/22/2020	03/04/2020 13:06	Yen Ta	03/05/2020 11:10	Benjamin T. Nordmann	2160132
	02/22/2020	03/04/2020 13:06	Yen Ta	03/05/2020 11:27	Benjamin T. Nordmann	2160127
	02/22/2020	03/04/2020 13:06	Yen Ta	03/05/2020 11:28	Benjamin T. Nordmann	2160128
	02/22/2020	03/04/2020 13:06	Yen Ta	03/05/2020 11:29	Benjamin T. Nordmann	2160129
EPA 365.1 Rev. 2.0 dissolved	02/22/2020			02/22/2020 11:39	Jhamieka S. Greenwood	2160137
	02/22/2020			02/22/2020 11:43	Jhamieka S. Greenwood	2160138
	02/22/2020			02/22/2020 11:44	Jhamieka S. Greenwood	2160139, 2160140
	02/22/2020			02/22/2020 11:50	Jhamieka S. Greenwood	2160141
	02/22/2020			02/22/2020 11:55	Jhamieka S. Greenwood	2160115
	02/22/2020			02/22/2020 11:57	Jhamieka S. Greenwood	2160114
	02/22/2020			02/22/2020 12:02	Jhamieka S. Greenwood	2160113
	02/22/2020			02/22/2020 12:03	Jhamieka S. Greenwood	2160134
	02/22/2020			02/22/2020 12:04	Jhamieka S. Greenwood	2160135
	02/22/2020			02/22/2020 12:05	Jhamieka S. Greenwood	2160185
	02/22/2020			02/22/2020 12:15	Jhamieka S. Greenwood	2160136
	02/22/2020			02/29/2020 13:59	Dale L. Simmons	2160182
SM 2320 B-2011	02/22/2020			02/29/2020 16:11	Dale L. Simmons	2160104
	02/22/2020			02/29/2020 16:23	Dale L. Simmons	2160105
	02/22/2020			02/29/2020 16:36	Dale L. Simmons	2160106
SM 4500 F-C-2011	02/22/2020			03/05/2020 14:50	Dale L. Simmons	2160182
	02/22/2020			03/05/2020 15:52	Dale L. Simmons	2160104
	02/22/2020			03/05/2020 15:56	Dale L. Simmons	2160105
SM 5310 B-2011	02/22/2020			03/05/2020 16:00	Dale L. Simmons	2160106
	02/22/2020			02/26/2020 02:41	Lauren Lees	2160125
	02/22/2020			02/26/2020 02:54	Lauren Lees	2160126
	02/22/2020			02/26/2020 03:07	Lauren Lees	2160127
	02/22/2020			02/26/2020 05:28	Lauren Lees	2160110

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Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	02/22/2020			02/26/2020 06:09	Lauren Lees	2160111
	02/22/2020			02/26/2020 06:21	Lauren Lees	2160112
	02/22/2020			02/26/2020 06:50	Lauren Lees	2160184
	02/22/2020			03/02/2020 16:41	Lauren Lees	2160128
	02/22/2020			03/02/2020 16:54	Lauren Lees	2160129
	02/22/2020			03/02/2020 17:37	Lauren Lees	2160130
	02/22/2020			03/02/2020 17:51	Lauren Lees	2160131
	02/22/2020			03/02/2020 18:07	Lauren Lees	2160132
	02/22/2020			02/26/2020 03:34	Lauren Lees	2160116
	02/22/2020			02/26/2020 03:48	Lauren Lees	2160117
SM 5310 B-2011 dissolved	02/22/2020			02/26/2020 04:02	Lauren Lees	2160118
	02/22/2020			02/26/2020 07:31	Lauren Lees	2160107
	02/22/2020			02/26/2020 07:45	Lauren Lees	2160108
	02/22/2020			02/26/2020 07:58	Lauren Lees	2160109
	02/22/2020			02/26/2020 08:14	Lauren Lees	2160183
	02/22/2020			02/26/2020 15:27	Lauren Lees	2160119
	02/22/2020			02/26/2020 15:44	Lauren Lees	2160120
	02/22/2020			02/26/2020 16:29	Lauren Lees	2160121
	02/22/2020			02/26/2020 16:44	Lauren Lees	2160122
	02/22/2020			02/26/2020 16:59	Lauren Lees	2160123