

Chemical Analysis Report

SO-DIST-2019-05-24-01

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-2019-05-06-05**
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
Attn: John Barrington

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-JUN-2019 10:48

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: USGSStation-PuntaBlanca

Collection Date/Time: 05/23/2019 10:05

Field ID: G3SD0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089080	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P364929	
	SM 4500 F-C-97	Fluoride	0.89		mg F/L	P364931	
2089084	SM 5310 B-00 dissolved	Organic Carbon	7.0		mg C/L	P364644	
2089088	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364811	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P364910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P364569	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P364903	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P364644	
2089092	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P364532	
2089136	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P364772	
		Zinc	15	U	ug/L	P364772	
	EPA 200.8 Rev. 5.4	Arsenic	2.4		ug/L	P364772	
		Cadmium	0.080	U	ug/L	P364772	
		Chromium	4.0	U	ug/L	P364772	
		Copper	1.6	U	ug/L	P364772	
		Lead	2.0	U	ug/L	P364772	
		Nickel	5.0	U	ug/L	P364772	
		Silver	0.040	U	ug/L	P364772	

Ref. Method and Comment:

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

Sample Location: USGS Station-ShellPoint

Collection Date/Time: 05/23/2019 10:30

Field ID: G3SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089081	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P364929	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P364931	
2089085	SM 5310 B-00 dissolved	Organic Carbon	4.7		mg C/L	P364644	
2089089	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364811	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P364910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364570	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P364903	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P364644	
2089093	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P364532	
2089137	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P364772	
		Zinc	20	U	ug/L	P364772	
	EPA 200.8 Rev. 5.4	Arsenic	2.3		ug/L	P364772	
		Cadmium	0.080	U	ug/L	P364772	
		Chromium	4.0	U	ug/L	P364772	
		Copper	1.6	U	ug/L	P364772	
		Lead	2.0	U	ug/L	P364772	
		Nickel	5.0	U	ug/L	P364772	
		Silver	0.040	U	ug/L	P364772	

Ref. Method and Comment:

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

Sample Location: Marker # 76

Collection Date/Time: 05/23/2019 11:00

Field ID: G3SD0110

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089082	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P364929	
	SM 4500 F-C-97	Fluoride	0.69		mg F/L	P364931	
2089086	SM 5310 B-00 dissolved	Organic Carbon	9.0		mg C/L	P364644	
2089090	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P364811	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P364910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364570	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P365421	MS
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P364644	
2089094	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.071		mg P/L	P364532	
2089138	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P364772	
		Zinc	15	U	ug/L	P364772	
	EPA 200.8 Rev. 5.4	Arsenic	2.4		ug/L	P364772	
		Cadmium	0.080	U	ug/L	P364772	
		Chromium	4.0	U	ug/L	P364772	
		Copper	1.6	U	ug/L	P364772	
		Lead	2.0	U	ug/L	P364772	
		Nickel	5.0	U	ug/L	P364772	
		Silver	0.040	U	ug/L	P364772	

Ref. Method and Comment:

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

Sample Location: Marker # 52

Collection Date/Time: 05/23/2019 11:30

Field ID: G3SD0111

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089083	SM 2320 B-97	Total Alkalinity	125	A	mg CaCO3/L	P364930	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P364932	
2089087	SM 5310 B-00 dissolved	Organic Carbon	12		mg C/L	P364797	
2089091	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364811	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P364910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364570	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P364903	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P364797	
2089095	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P364532	
2089139	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P364772	
		Zinc	5.0	U	ug/L	P364772	
	EPA 200.8 Rev. 5.4	Arsenic	2.5		ug/L	P364772	
		Cadmium	0.080	U	ug/L	P364772	
		Chromium	4.0	U	ug/L	P364772	
		Copper	1.6	U	ug/L	P364772	
		Lead	2.0	U	ug/L	P364772	
		Nickel	5.0	U	ug/L	P364772	
		Silver	0.040	U	ug/L	P364772	

Ref. Method and Comment:

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

Sample Location: US 41, Marker # 38

Collection Date/Time: 05/23/2019 12:05

Field ID: G3SD0112

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089096	SM 5310 B-00 dissolved	Organic Carbon	12		mg C/L	P364797	
2089104	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P364915	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P364910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364570	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P364903	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P364797	
2089112	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P364532	
2089140	EPA 200.7 Rev. 4.4	Calcium	111		mg/L	P364772	
		Iron	30	U	ug/L	P364772	
		Magnesium	257		mg/L	P364772	
		Potassium	85		mg/L	P364772	
		Sodium	2.16E+03		mg/L	P364772	
		Zinc	5.0	U	ug/L	P364772	
	EPA 200.8 Rev. 5.4	Arsenic	2.2		ug/L	P364772	
		Cadmium	0.080	U	ug/L	P364772	
		Chromium	4.0	U	ug/L	P364772	
		Copper	1.6	U	ug/L	P364772	
		Lead	2.0	U	ug/L	P364772	
		Nickel	5.0	U	ug/L	P364772	
		Silver	0.040	U	ug/L	P364772	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Marker # 28

Collection Date/Time: 05/23/2019 12:18

Field ID: G3SD0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089097	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P364797	
2089105	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P364915	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P364897	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364570	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P364903	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P364797	
2089113	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P364532	
2089141	EPA 200.7 Rev. 4.4	Calcium	86.5		mg/L	P364672	
		Iron	180		ug/L	P364672	
		Magnesium	144		mg/L	P364672	
		Potassium	45		mg/L	P364672	
		Sodium	1.11E+03		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.29		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.41		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.51	I	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Marker # 22

Collection Date/Time: 05/23/2019 12:32

Field ID: G3SD0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089098	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P364797	
2089106	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P364913	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P364895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P364651	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P364872	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P364797	
2089114	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.096		mg P/L	P364533	
2089142	EPA 200.7 Rev. 4.4	Calcium	68.0		mg/L	P364672	
		Iron	99	I	ug/L	P364672	
		Magnesium	63.9		mg/L	P364672	
		Potassium	21.8		mg/L	P364672	
		Sodium	474		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.19		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.25		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.52	I	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Old Swing Bridge

Collection Date/Time: 05/23/2019 12:45

Field ID: G3SD0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089099	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P364797	
2089107	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P364913	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P364895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364651	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P364900	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P364797	
2089115	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.094		mg P/L	P364533	
2089143	EPA 200.7 Rev. 4.4	Calcium	62.2		mg/L	P364672	
		Iron	130		ug/L	P364672	
		Magnesium	40.4		mg/L	P364672	
		Potassium	15.0		mg/L	P364672	
		Sodium	285		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.18		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.28		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.58	I	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: MidChannel@OrangeRiver

Collection Date/Time: 05/23/2019 13:00

Field ID: G3SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089100	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P364797	
2089108	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364914	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P364895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364651	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P364900	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P364797	
2089116	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.065		mg P/L	P364533	
2089144	EPA 200.7 Rev. 4.4	Calcium	63.5		mg/L	P364672	
		Iron	88	I	ug/L	P364672	
		Magnesium	28.9		mg/L	P364672	
		Potassium	10.6		mg/L	P364672	
		Sodium	188		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.09		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.12		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.62	I	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Upstream of Power Plant

Collection Date/Time: 05/23/2019 13:25

Field ID: G3SD0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089101	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P364797	
2089109	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P364914	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P364895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364651	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P364900	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P364797	
2089117	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.093		mg P/L	P364534	
2089145	EPA 200.7 Rev. 4.4	Calcium	62.4		mg/L	P364672	
		Iron	160		ug/L	P364672	
		Magnesium	39.3		mg/L	P364672	
		Potassium	14.7		mg/L	P364672	
		Sodium	269		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.23		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.40		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.54	I	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mid Channel off Oxbow

Collection Date/Time: 05/23/2019 13:40

Field ID: G3SD0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089102	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P364797	
2089110	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	Y	mg N/L	P364914	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen		O	mg N/L	P364895	
	EPA 353.2 Rev. 2.0	NO2NO3-N		O	mg N/L	P364651	
	EPA 365.1 Rev. 2.0	Total-P	0.20	Y	mg P/L	P364900	
	SM 5310 B-00	Organic Carbon	16	Y	mg C/L	P364797	
2089118	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P364534	
2089146	EPA 200.7 Rev. 4.4	Calcium	69.1		mg/L	P364672	
		Iron	81	I	ug/L	P364672	
		Magnesium	56.4		mg/L	P364672	
		Potassium	19.9		mg/L	P364672	
		Sodium	408		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.26		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.13		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.50	U	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample appears to have been preserved with nitric acid and sulfuric acid.

EPA 351.2 Rev. 2.0: Sample appears to have been preserved with nitric acid and sulfuric acid.

EPA 353.2 Rev. 2.0: Sample appears to have been preserved with nitric acid and sulfuric acid.

EPA 365.1 Rev. 2.0: Total-P: Sample appears to have been preserved with nitric acid and sulfuric acid.

SM 5310 B-00: Sample appears to have been preserved with nitric acid and sulfuric acid.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mid channel off point

Collection Date/Time: 05/23/2019 13:50

Field ID: G3SD0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089103	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P364797	
2089111	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P364914	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P364895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P364651	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P364900	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P364797	
2089119	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P364534	
2089147	EPA 200.7 Rev. 4.4	Calcium	69.0		mg/L	P364672	
		Iron	160		ug/L	P364672	
		Magnesium	59.5		mg/L	P364672	
		Potassium	20.1		mg/L	P364672	
		Sodium	437		mg/L	P364672	
		Zinc	5.0	U	ug/L	P364672	
	EPA 200.8 Rev. 5.4	Arsenic	2.09		ug/L	P364672	
		Cadmium	0.020	U	ug/L	P364672	
		Chromium	0.40	U	ug/L	P364672	
		Copper	1.09		ug/L	P364672	
		Lead	0.20	U	ug/L	P364672	
		Nickel	0.50	I	ug/L	P364672	
		Silver	0.010	U	ug/L	P364672	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 7701

Event(s)

SO-DIST-2019-05-24-01

Job(s)

TLH-2019-05-24-46

Sample(s)

2089146

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with nitric acid 05-24-2019 at 12:51.
HNO3 Lot# NA8197080 | Expiration Date: 7-16-2019
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 5/29/2019

NCR ID: 7706

Event(s)

SO-DIST-2019-05-24-01

Job(s)

TLH-2019-05-24-42

Sample(s)

2089110

Test(s)

NCR Type: SAMPLING

NCR Category: General

Observation: Sample appears to be preserved with nitric acid and sulfuric acid. It has a nitrite/nitrate concentration of 460 mg N/L and there is less than 0.05 mg N/L in the unpreserved aliquot (laboratory ID 2089118).

Resolution: Results for the NO₂NO₃-N and Kjeldahl Nitrogen components were reported as the non numeric qualifier O.
Results for the other affected components were qualified with a Y qualifier for incorrect preservation.

Authorized by/Date: Peter D. Kaus 6/13/2019

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: P364672

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 200.7 Rev. 4.4
Batch ID: P364772

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: P364672

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: P364772

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 350.1 Rev. 2.0
Batch ID: P364811

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364913

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364913

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364914

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364915

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364895

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364897

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364910

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364569

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364570

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364651

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: P364872

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364900

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364903

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365421

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364532

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364533

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364534

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

Reference Method: SM 2320 B-97
Batch ID: P364929

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

Reference Method: SM 2320 B-97
Batch ID: P364930

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

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P364931

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364644

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

Reference Method: SM 5310 B-00
Batch ID: P364797

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364644

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364797

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: P364672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.1		P	85 - 115
Iron	101		P	85 - 115
Magnesium	98.9		P	85 - 115
Potassium	99.0		P	85 - 115
Sodium	99.9		P	85 - 115
Zinc	96.1		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	103		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	102		P	85 - 115
Sodium	101		P	85 - 115
Zinc	98.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	107		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Copper	105		P	85 - 115
Lead	96.4		P	85 - 115
Nickel	104		P	85 - 115
Silver	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Copper	98.7		P	85 - 115
Lead	92.1		P	85 - 115
Nickel	98.6		P	85 - 115
Silver	99.4		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364811

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364913

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364913

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364914

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364915

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364895

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364897

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364910

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364569

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364651

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: P364872

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364900

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364903

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365421

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364532

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364533

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364534

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

Reference Method: SM 2320 B-97
Batch ID: P364929

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

Reference Method: SM 2320 B-97
Batch ID: P364930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P364931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364932

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

Reference Method: SM 5310 B-00
Batch ID: P364644

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

Reference Method: SM 5310 B-00
Batch ID: P364797

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364644

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364797

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089144	Calcium	97.7		P	80 - 120
2089144	Iron	99.1	98.4	P/P	80 - 120
2089144	Magnesium	98.9		P	80 - 120
2089144	Zinc	96.3	95.9	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089140	Iron	100	100	P/P	70 - 130
2089140	Zinc	96.8	97.5	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089144	Arsenic	110	110	P/P	80 - 120
2089144	Cadmium	101	104	P/P	80 - 120
2089144	Chromium	91.0	92.6	P/P	80 - 120
2089144	Copper	97.4	98.1	P/P	80 - 120
2089144	Lead	99.3	101	P/P	80 - 120
2089144	Nickel	94.1	95.8	P/P	80 - 120
2089144	Silver	97.8	98.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089140	Arsenic	108	106	P/P	70 - 130
2089140	Cadmium	97.7	95.5	P/P	70 - 130
2089140	Chromium	103	97.1	P/P	70 - 130
2089140	Copper	99.6	99.3	P/P	70 - 130
2089140	Lead	95.4	93.5	P/P	70 - 130
2089140	Nickel	95.8	94.0	P/P	70 - 130
2089140	Silver	94.3	92.5	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088462	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089024	Ammonia-N	98.0	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364914

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089212	Ammonia-N	97.9	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089104	Ammonia-N	98.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089043	Kjeldahl Nitrogen	103	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088982	Kjeldahl Nitrogen	107	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089088	Kjeldahl Nitrogen	103	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364569

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088143	NO2NO3-N	95.4	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089089	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089049	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089041	Total-P	98.1	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089407	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088466	Total-P	93.2	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091628	Total-P	90.0	92.5	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088983	O-Phosphate-P	93.2	94.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089044	O-Phosphate-P	94.2	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089050	O-Phosphate-P	96.8	96.6	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P364644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088462	Organic Carbon	92.3	92.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P364797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089104	Organic Carbon	102	104	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088462	Organic Carbon	92.3	92.6	P/P	85 - 115

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089104	Organic Carbon	102	104	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089144	Calcium	0.731	Spike	P	0 - 20
2089144	Iron	0.773	Spike	P	0 - 20
2089144	Magnesium	1.32	Spike	P	0 - 20
2089144	Potassium	1.36	Spike	P	0 - 20
2089144	Sodium	2.48	Spike	P	0 - 20
2089144	Zinc	0.406	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089140	Calcium	1.57	Spike	P	0 - 20
2089140	Iron	0.358	Spike	P	0 - 20
2089140	Magnesium	0.499	Spike	P	0 - 20
2089140	Potassium	3.08	Spike	P	0 - 20
2089140	Sodium	1.72	Spike	P	0 - 20
2089140	Zinc	0.672	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089144	Arsenic	0.473	Spike	P	0 - 20
2089144	Cadmium	3.00	Spike	P	0 - 20
2089144	Chromium	1.74	Spike	P	0 - 20
2089144	Copper	0.720	Spike	P	0 - 20
2089144	Lead	1.74	Spike	P	0 - 20
2089144	Nickel	1.78	Spike	P	0 - 20
2089144	Silver	1.00	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089140	Arsenic	1.82	Spike	P	0 - 20
2089140	Cadmium	2.35	Spike	P	0 - 20
2089140	Chromium	5.76	Spike	P	0 - 20
2089140	Copper	0.256	Spike	P	0 - 20
2089140	Lead	1.95	Spike	P	0 - 20
2089140	Nickel	1.83	Spike	P	0 - 20
2089140	Silver	1.95	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088462	Ammonia-N	0.232	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089024	Ammonia-N	3.50	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089212	Ammonia-N	1.75	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089104	Ammonia-N	2.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089043	Kjeldahl Nitrogen	4.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088982	Kjeldahl Nitrogen	3.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089088	Kjeldahl Nitrogen	4.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088143	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089089	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089049	NO2NO3-N	0.407	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089041	Total-P	3.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089407	Total-P	0.0447	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088466	Total-P	2.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091628	Total-P	2.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088983	O-Phosphate-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089044	O-Phosphate-P	1.89	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089050	O-Phosphate-P	0.207	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P364929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088458	Total Alkalinity	0.434	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P364930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089083	Total Alkalinity	1.42	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P364931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088458	Fluoride	0.513	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089083	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088462	Organic Carbon	0.257	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P364797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089104	Organic Carbon	1.61	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088462	Organic Carbon	0.257	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089104	Organic Carbon	1.61	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: A91670

Included Lab Sample IDs: 2089092, 2089093, 2089094, 2089095, 2089112, 2089113, 2089114, 2089115, 2089116, 2089117, 2089118, 2089119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.2	95.3	P/P	90 - 110
O-Phosphate-P	97.0	96.2	P/P	90 - 110
O-Phosphate-P	98.7	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91682

Included Lab Sample IDs: 2089088, 2089089, 2089090, 2089091, 2089104, 2089105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	98.0	P/P	90 - 110
NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91711

Included Lab Sample IDs: 2089088, 2089089, 2089090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.4	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A91711

Included Lab Sample IDs: 2089084, 2089085, 2089086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91712

Included Lab Sample IDs: 2089106, 2089107, 2089108, 2089109, 2089110, 2089111

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91767

Included Lab Sample IDs: 2089141, 2089142, 2089143, 2089144, 2089145, 2089146, 2089147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.1	98.7	P/P	90 - 110
Calcium	98.7	98.4	P/P	90 - 110
Calcium	99.0	98.1	P/P	90 - 110
Iron	98.7	99.8	P/P	90 - 110
Iron	99.8	99.6	P/P	90 - 110
Iron	99.9	98.7	P/P	90 - 110
Magnesium	98.0	98.5	P/P	90 - 110
Magnesium	98.5	98.3	P/P	90 - 110
Magnesium	98.8	98.0	P/P	90 - 110
Potassium	100	99.4	P/P	90 - 110
Potassium	99.4	99.3	P/P	90 - 110
Potassium	99.6	100	P/P	90 - 110
Sodium	98.7	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91767

Included Lab Sample IDs: 2089141, 2089142, 2089143, 2089144, 2089145, 2089146, 2089147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	99.1	99.1	P/P	90 - 110
Sodium	99.6	99.1	P/P	90 - 110
Zinc	101	98.5	P/P	90 - 110
Zinc	101	98.0	P/P	90 - 110
Zinc	98.0	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91779

Included Lab Sample IDs: 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	108	P/P	90 - 110
Organic Carbon	107	106	P/P	90 - 110
Organic Carbon	108	107	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A91779

Included Lab Sample IDs: 2089087, 2089096, 2089097, 2089098, 2089099, 2089100, 2089101, 2089102, 2089103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	108	P/P	90 - 110
Organic Carbon	108	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91783

Included Lab Sample IDs: 2089088, 2089089, 2089090, 2089091

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: A91814

Included Lab Sample IDs: 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110
Ammonia-N	101	99.1	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	99.1	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91818

Included Lab Sample IDs: 2089080, 2089081, 2089082, 2089083

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A91818

Included Lab Sample IDs: 2089080, 2089081, 2089082, 2089083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.5	P/P	90 - 110
Fluoride	99.1	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91824

Included Lab Sample IDs: 2089136, 2089137, 2089138, 2089139, 2089140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.8	99.4	P/P	90 - 110
Iron	101	99.9	P/P	90 - 110
Iron	99.6	101	P/P	95 - 105
Magnesium	101	100	P/P	90 - 110
Potassium	103	102	P/P	90 - 110
Sodium	104	105	P/P	90 - 110
Zinc	101	102	P/P	95 - 105
Zinc	102	99.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91828

Included Lab Sample IDs: 2089141, 2089142, 2089143, 2089144, 2089145, 2089146, 2089147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	101	P/P	90 - 110
Arsenic	104	102	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Cadmium	99.4	101	P/P	90 - 110
Chromium	101	98.3	P/P	90 - 110
Chromium	98.3	99.9	P/P	90 - 110
Copper	101	102	P/P	90 - 110
Copper	103	101	P/P	90 - 110
Lead	95.6	96.9	P/P	90 - 110
Lead	96.9	96.5	P/P	90 - 110
Nickel	103	99.9	P/P	90 - 110
Nickel	99.9	101	P/P	90 - 110
Silver	100	101	P/P	90 - 110
Silver	99.3	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91830

Included Lab Sample IDs: 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	106	P/P	90 - 110
Kjeldahl Nitrogen	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91836

Included Lab Sample IDs: 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91836

Included Lab Sample IDs: 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110
Total-P	105	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91839

Included Lab Sample IDs: 2089088, 2089089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91856

Included Lab Sample IDs: 2089136, 2089137, 2089138, 2089139, 2089140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	101	P/P	90 - 110
Cadmium	99.3	99.6	P/P	90 - 110
Copper	99.7	100	P/P	90 - 110
Lead	92.4	92.8	P/P	90 - 110
Nickel	99.2	98.1	P/P	90 - 110
Silver	97.8	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91895

Included Lab Sample IDs: 2089088, 2089089, 2089090, 2089091, 2089104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.7	P/P	90 - 110
Kjeldahl Nitrogen	97.7	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91899

Included Lab Sample IDs: 2089136, 2089137, 2089138, 2089139, 2089140

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91924

Included Lab Sample IDs: 2089139, 2089140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	99.3	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92045

Included Lab Sample IDs: 2089090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	101	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		LCS	Precision SMP	MS
EPA 200.7 Rev. 4.4	Calcium	99.1	97.7				0.731
	Calcium	101					1.57
	Iron	101	99.1	98.4			0.773
	Iron	103	100	100			0.358
	Magnesium	98.9	98.9				1.32
	Magnesium	101					0.499
	Potassium	99.0					1.36
	Potassium	102					3.08
	Sodium	99.9					2.48
	Sodium	101					1.72
	Zinc	96.1	96.3	95.9			0.406
	Zinc	98.9	96.8	97.5			0.672
EPA 200.8 Rev. 5.4	Arsenic	107	110	110			0.473
	Arsenic	101	108	106			1.82
	Cadmium	102	101	104			3.00
	Cadmium	102	97.7	95.5			2.35
	Chromium	102	91.0	92.6			1.74
	Chromium	102	103	97.1			5.76
	Copper	105	97.4	98.1			0.720
	Copper	98.7	99.6	99.3			0.256
	Lead	96.4	99.3	101			1.74
	Lead	92.1	95.4	93.5			1.95
	Nickel	104	94.1	95.8			1.78
	Nickel	98.6	95.8	94.0			1.83
	Silver	103	97.8	98.8			1.00
	Silver	99.4	94.3	92.5			1.95
EPA 350.1 Rev. 2.0	Ammonia-N	97.5	104	104			0.232
	Ammonia-N	101	98.0	102			3.50
	Ammonia-N	102	97.9	96.0			1.75
	Ammonia-N	97.4	98.9	101			2.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	108			4.15
	Kjeldahl Nitrogen	102	107	103			3.18
	Kjeldahl Nitrogen	107	103	98.2			4.23
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	95.4	94.9			0.506
	NO2NO3-N	97.5	99.5	99.5			0.0
	NO2NO3-N	100	100	100			0.407
EPA 365.1 Rev. 2.0	Total-P	99.7	98.1	101			3.31
	Total-P	99.4	102	102			0.0447
	Total-P	99.0	93.2	91.2			2.14
	Total-P	98.1	90.0	92.5			2.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	93.2	94.7			1.53
	O-Phosphate-P	96.9	94.2	96.0			1.89
	O-Phosphate-P	100	96.8	96.6			0.207
SM 2320 B-97	Total Alkalinity	102				0.434	
	Total Alkalinity	103				1.42	
SM 4500 F-C-97	Fluoride	95.8					0.513
	Fluoride	97.7					0.473
SM 5310 B-00	Organic Carbon	92.8	92.3	92.6			0.257
	Organic Carbon	105	102	104			1.61
SM 5310 B-00 dissolved	Organic Carbon	92.8	92.3	92.6			0.257
	Organic Carbon	105	102	104			1.61

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	2089136, 2089137, 2089138, 2089139, 2089140, 2089141, 2089142, 2089143, 2089144, 2089145, 2089146, 2089147
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2089136, 2089137, 2089138, 2089139, 2089140, 2089141, 2089142, 2089143, 2089144, 2089145, 2089146, 2089147
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2089088, 2089089, 2089090, 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2089088, 2089089, 2089090, 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2089088, 2089089, 2089090, 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2089088, 2089089, 2089090, 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2089092, 2089093, 2089094, 2089095, 2089112, 2089113, 2089114, 2089115, 2089116, 2089117, 2089118, 2089119
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2089080, 2089081, 2089082, 2089083
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2089080, 2089081, 2089082, 2089083
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2089088, 2089089, 2089090, 2089091, 2089104, 2089105, 2089106, 2089107, 2089108, 2089109, 2089110, 2089111
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2089084, 2089085, 2089086, 2089087, 2089096, 2089097, 2089098, 2089099, 2089100, 2089101, 2089102, 2089103

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	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 17:00	Betina Topolski	2089141
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 17:12	Betina Topolski	2089141
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 17:19	Betina Topolski	2089142
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 17:31	Betina Topolski	2089142
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 17:38	Betina Topolski	2089143
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 17:50	Betina Topolski	2089143
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 18:30	Betina Topolski	2089144
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 19:29	Betina Topolski	2089145
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 19:40	Betina Topolski	2089145
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 20:20	Betina Topolski	2089146
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 20:32	Betina Topolski	2089146
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 20:39	Betina Topolski	2089147
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	05/30/2019 20:51	Betina Topolski	2089147
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 13:18	Betina Topolski	2089136
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 13:26	Betina Topolski	2089137
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 13:35	Betina Topolski	2089138
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 13:43	Betina Topolski	2089139
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 14:23	Betina Topolski	2089140
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 14:53	Betina Topolski	2089140
EPA 200.8 Rev. 5.4	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 00:29	Robert K Palmer	2089141
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 00:39	Robert K Palmer	2089142
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 00:48	Robert K Palmer	2089143
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 00:58	Robert K Palmer	2089144
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 02:07	Robert K Palmer	2089145
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 02:16	Robert K Palmer	2089146
	05/24/2019	05/29/2019 16:40	Elliott D. Healy	06/04/2019 02:26	Robert K Palmer	2089147
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 00:12	Robert K Palmer	2089136
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 00:22	Robert K Palmer	2089137
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 00:32	Robert K Palmer	2089138
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 00:42	Robert K Palmer	2089139
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 01:11	Robert K Palmer	2089140
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 02:20	Robert K Palmer	2089136
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 02:29	Robert K Palmer	2089137
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 02:39	Robert K Palmer	2089138
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 02:49	Robert K Palmer	2089139
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 03:18	Robert K Palmer	2089140
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 03:29	Robert K Palmer	2089136
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 03:36	Robert K Palmer	2089137
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 03:42	Robert K Palmer	2089138
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 03:49	Robert K Palmer	2089139

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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	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 04:09	Robert K Palmer	2089140
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 15:47	Robert K Palmer	2089139
	05/24/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 16:06	Robert K Palmer	2089140
EPA 350.1 Rev. 2.0	05/24/2019			05/30/2019 10:56	Ping Hua	2089088
	05/24/2019			05/30/2019 10:57	Ping Hua	2089089
	05/24/2019			05/30/2019 10:59	Ping Hua	2089090
	05/24/2019			05/30/2019 11:00	Ping Hua	2089091
	05/24/2019			05/31/2019 13:21	Ping Hua	2089106
	05/24/2019			05/31/2019 13:22	Ping Hua	2089107
	05/24/2019			05/31/2019 13:37	Ping Hua	2089108
	05/24/2019			05/31/2019 13:39	Ping Hua	2089109
	05/24/2019			05/31/2019 13:40	Ping Hua	2089110
	05/24/2019			05/31/2019 13:42	Ping Hua	2089111
	05/24/2019			05/31/2019 14:00	Ping Hua	2089104
	05/24/2019			05/31/2019 14:10	Ping Hua	2089105
EPA 351.2 Rev. 2.0	05/24/2019	06/03/2019 11:50	Jhamieka S. Greenwood	06/05/2019 11:55	Joseph Suarez	2089088
	05/24/2019	06/03/2019 11:50	Jhamieka S. Greenwood	06/05/2019 12:03	Joseph Suarez	2089089
	05/24/2019	06/03/2019 11:50	Jhamieka S. Greenwood	06/05/2019 12:04	Joseph Suarez	2089090
	05/24/2019	06/03/2019 11:50	Jhamieka S. Greenwood	06/05/2019 12:06	Joseph Suarez	2089091
	05/24/2019	06/03/2019 11:50	Jhamieka S. Greenwood	06/05/2019 12:07	Joseph Suarez	2089104
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 22:39	Virginia P. Brown	2089106
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 22:41	Virginia P. Brown	2089107
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 22:43	Virginia P. Brown	2089108
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 22:44	Virginia P. Brown	2089109
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 22:46	Virginia P. Brown	2089110
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 22:47	Virginia P. Brown	2089111
	05/24/2019	06/03/2019 13:00	Adrian Shelby	06/03/2019 23:24	Virginia P. Brown	2089105
EPA 353.2 Rev. 2.0	05/24/2019			05/28/2019 11:11	Beverly Y. Sanders	2089088
	05/24/2019			05/28/2019 11:18	Beverly Y. Sanders	2089089
	05/24/2019			05/28/2019 11:24	Beverly Y. Sanders	2089090
	05/24/2019			05/28/2019 11:25	Beverly Y. Sanders	2089091
	05/24/2019			05/28/2019 11:26	Beverly Y. Sanders	2089104
	05/24/2019			05/28/2019 11:27	Beverly Y. Sanders	2089105
	05/24/2019			05/29/2019 12:53	Beverly Y. Sanders	2089106
	05/24/2019			05/29/2019 12:54	Beverly Y. Sanders	2089107
	05/24/2019			05/29/2019 12:55	Beverly Y. Sanders	2089108
	05/24/2019			05/29/2019 13:00	Beverly Y. Sanders	2089109
	05/24/2019			05/29/2019 13:01	Beverly Y. Sanders	2089111
	05/24/2019			05/29/2019 13:08	Beverly Y. Sanders	2089110
EPA 365.1 Rev. 2.0	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 09:33	Rosalyn Ballman	2089106

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EPA 365.1 Rev. 2.0	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 09:42	Rosalyn Ballman	2089107
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 09:43	Rosalyn Ballman	2089108
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 09:44	Rosalyn Ballman	2089109
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 09:45	Rosalyn Ballman	2089110
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 09:46	Rosalyn Ballman	2089111
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 10:41	Rosalyn Ballman	2089091
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 10:42	Rosalyn Ballman	2089104
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 10:43	Rosalyn Ballman	2089105
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 12:59	Rosalyn Ballman	2089088
	05/24/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 13:00	Rosalyn Ballman	2089089
	05/24/2019	06/11/2019 13:00	Adrian Shelby	06/12/2019 13:59	Rosalyn Ballman	2089090
EPA 365.1 Rev. 2.0 dissolved	05/24/2019			05/24/2019 16:17	Jhamieka S. Greenwood	2089092
	05/24/2019			05/24/2019 16:23	Jhamieka S. Greenwood	2089113
	05/24/2019			05/24/2019 16:24	Jhamieka S. Greenwood	2089112
	05/24/2019			05/24/2019 16:25	Jhamieka S. Greenwood	2089095
	05/24/2019			05/24/2019 16:26	Jhamieka S. Greenwood	2089093, 2089094
	05/24/2019			05/24/2019 16:27	Jhamieka S. Greenwood	2089114
	05/24/2019			05/24/2019 16:28	Jhamieka S. Greenwood	2089115
	05/24/2019			05/24/2019 16:36	Jhamieka S. Greenwood	2089116
	05/24/2019			05/24/2019 16:37	Jhamieka S. Greenwood	2089117
	05/24/2019			05/24/2019 16:38	Jhamieka S. Greenwood	2089118, 2089119
	05/24/2019			06/03/2019 01:10	Dale L. Simmons	2089080
SM 2320 B-97	05/24/2019			06/03/2019 01:22	Dale L. Simmons	2089081
	05/24/2019			06/03/2019 01:34	Dale L. Simmons	2089082
	05/24/2019			06/03/2019 08:36	Dale L. Simmons	2089083
	05/24/2019			06/02/2019 21:10	Dale L. Simmons	2089080
SM 4500 F-C-97	05/24/2019			06/02/2019 21:14	Dale L. Simmons	2089081
	05/24/2019			06/02/2019 21:18	Dale L. Simmons	2089082
	05/24/2019			06/03/2019 06:00	Dale L. Simmons	2089083
	05/24/2019			05/29/2019 10:20	Julia Storbeck	2089088
SM 5310 B-00	05/24/2019			05/29/2019 10:33	Julia Storbeck	2089089
	05/24/2019			05/29/2019 10:47	Julia Storbeck	2089090
	05/24/2019			05/30/2019 16:15	Julia Storbeck	2089104
	05/24/2019			05/30/2019 17:07	Julia Storbeck	2089105
	05/24/2019			05/30/2019 20:22	Julia Storbeck	2089091
	05/24/2019			05/30/2019 21:00	Julia Storbeck	2089106
	05/24/2019			05/30/2019 21:13	Julia Storbeck	2089107
	05/24/2019			05/30/2019 21:25	Julia Storbeck	2089108
	05/24/2019			05/30/2019 21:37	Julia Storbeck	2089109
	05/24/2019			05/30/2019 21:49	Julia Storbeck	2089110
	05/24/2019					

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Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	05/24/2019			05/30/2019 22:01	Julia Storbeck	2089111
SM 5310 B-00 dissolved	05/24/2019			05/29/2019 09:03	Julia Storbeck	2089084
	05/24/2019			05/29/2019 09:25	Julia Storbeck	2089085
	05/24/2019			05/29/2019 09:39	Julia Storbeck	2089086
	05/24/2019			05/30/2019 17:34	Julia Storbeck	2089087
	05/24/2019			05/30/2019 17:48	Julia Storbeck	2089096
	05/24/2019			05/30/2019 18:28	Julia Storbeck	2089097
	05/24/2019			05/30/2019 18:45	Julia Storbeck	2089098
	05/24/2019			05/30/2019 18:57	Julia Storbeck	2089099
	05/24/2019			05/30/2019 19:09	Julia Storbeck	2089100
	05/24/2019			05/30/2019 19:21	Julia Storbeck	2089101
	05/24/2019			05/30/2019 19:33	Julia Storbeck	2089102
	05/24/2019			05/30/2019 19:45	Julia Storbeck	2089103