

Chemical Analysis Report

SO-DIST-2019-08-23-01

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-2019-08-05-14**
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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-SEP-2019 10:14

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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: 08/22/2019 09:40

Field ID: G3SD0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114363	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P369891	
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P369892	
2114367	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P370040	
2114371	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P370097	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P369714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P369711	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P369795	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P370040	
2114375	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.097		mg P/L	P369899	
2114477	EPA 200.7 Rev. 4.4	Iron	300	I	ug/L	P369941	
		Zinc	15	U	ug/L	P369941	
	EPA 200.8 Rev. 5.4	Arsenic	2.72		ug/L	P369941	
		Cadmium	0.080	U	ug/L	P369941	
		Chromium	4.0	U	ug/L	P369941	
		Copper	1.6	U	ug/L	P369941	
		Lead	0.80	U	ug/L	P369941	
		Nickel	2.0	U	ug/L	P369941	
		Silver	0.040	U	ug/L	P369941	

Sample Location: USGS Station-ShellPoint

Collection Date/Time: 08/22/2019 10:05

Field ID: G3SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114364	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P370025	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P370029	
2114368	SM 5310 B-00 dissolved	Organic Carbon	16		mg C/L	P370040	
2114372	EPA 350.1 Rev. 2.0	Ammonia-N	0.096		mg N/L	P370097	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P369778	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P369712	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P369795	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P370040	
2114376	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P369899	
2114478	EPA 200.7 Rev. 4.4	Iron	370		ug/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	2.27		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.44	I	ug/L	P369772	
		Copper	1.34		ug/L	P369772	
		Lead	0.23	I	ug/L	P369772	
		Nickel	0.51	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Marker # 76

Collection Date/Time: 08/22/2019 10:30

Field ID: G3SD0110

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114365	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P370025	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P370029	
2114369	SM 5310 B-00 dissolved	Organic Carbon	18		mg C/L	P370040	
2114373	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P370032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P369657	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P369996	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P370040	
2114377	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P369900	
2114479	EPA 200.7 Rev. 4.4	Iron	500		ug/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	2.30		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.59	I	ug/L	P369772	
		Copper	1.51		ug/L	P369772	
		Lead	0.26	I	ug/L	P369772	
		Nickel	0.58	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Marker # 52

Collection Date/Time: 08/22/2019 11:00

Field ID: G3SD0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114366	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P370025	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P370029	
2114370	SM 5310 B-00 dissolved	Organic Carbon	20		mg C/L	P370040	
2114374	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P370040	
2114378	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P369900	
2114480	EPA 200.7 Rev. 4.4	Iron	570		ug/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	2.03		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.53	I	ug/L	P369772	
		Copper	1.51		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.60	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: US 41, Marker # 38

Collection Date/Time: 08/22/2019 11:30

Field ID: G3SD0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114379	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P370040	
2114387	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P369918	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P370040	
2114395	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P369900	
2114481	EPA 200.7 Rev. 4.4	Calcium	55.8		mg/L	P369772	
		Iron	620		ug/L	P369772	
		Magnesium	7.24		mg/L	P369772	
		Potassium	4.4		mg/L	P369772	
		Sodium	19.3		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	2.08		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.51	I	ug/L	P369772	
		Copper	1.31		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.58	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Marker # 28

Collection Date/Time: 08/22/2019 11:40

Field ID: G3SD0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114380	SM 5310 B-00 dissolved	Organic Carbon	20		mg C/L	P369739	
2114388	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P369739	
2114396	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P369900	
2114482	EPA 200.7 Rev. 4.4	Calcium	56.6		mg/L	P369772	
		Iron	600		ug/L	P369772	
		Magnesium	7.27		mg/L	P369772	
		Potassium	4.5		mg/L	P369772	
		Sodium	19.3		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	1.97		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.53	I	ug/L	P369772	
		Copper	1.15		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.59	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Marker # 22

Collection Date/Time: 08/22/2019 11:55

Field ID: G3SD0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114381	SM 5310 B-00 dissolved	Organic Carbon	20	Y	mg C/L	P369739	
2114389	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P369739	
2114397	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P369900	
2114483	EPA 200.7 Rev. 4.4	Calcium	57.5		mg/L	P369772	
		Iron	670		ug/L	P369772	
		Magnesium	7.34		mg/L	P369772	
		Potassium	4.4		mg/L	P369772	
		Sodium	19.1		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	1.96		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.54	I	ug/L	P369772	
		Copper	1.13		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.60	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Ref. Method and Comment:

SM 5310 B-00 dissolved: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: Old Swing Bridge

Collection Date/Time: 08/22/2019 12:00

Field ID: G3SD0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114382	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P369739	
2114390	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P369797	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P369739	
2114398	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P369900	
2114484	EPA 200.7 Rev. 4.4	Calcium	58.1		mg/L	P369772	
		Iron	670		ug/L	P369772	
		Magnesium	7.47		mg/L	P369772	
		Potassium	4.4		mg/L	P369772	
		Sodium	19.9		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	1.94		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.55	I	ug/L	P369772	
		Copper	1.12		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.59	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: MidChannel@OrangeRiver

Collection Date/Time: 08/22/2019 12:15

Field ID: G3SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114383	SM 5310 B-00 dissolved	Organic Carbon	19		mg C/L	P369739	
2114391	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P369797	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P369739	
2114399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.099		mg P/L	P369900	
2114485	EPA 200.7 Rev. 4.4	Calcium	60.8		mg/L	P369772	
		Iron	730		ug/L	P369772	
		Magnesium	7.77		mg/L	P369772	
		Potassium	3.9		mg/L	P369772	
		Sodium	20.8		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	2.08		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.60	I	ug/L	P369772	
		Copper	1.07		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.60	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Upstream of Power Plant

Collection Date/Time: 08/22/2019 12:25

Field ID: G3SD0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114384	SM 5310 B-00 dissolved	Organic Carbon	22		mg C/L	P369739	
2114392	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P369797	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P369739	
2114400	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P369900	
2114486	EPA 200.7 Rev. 4.4	Calcium	58.4		mg/L	P369772	
		Iron	650		ug/L	P369772	
		Magnesium	7.46		mg/L	P369772	
		Potassium	4.5		mg/L	P369772	
		Sodium	19.2		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	1.97		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.54	I	ug/L	P369772	
		Copper	1.16		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.59	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Mid Channel off Oxbow

Collection Date/Time: 08/22/2019 12:40

Field ID: G3SD0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114385	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P369739	
2114393	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P370101	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369776	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P369797	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P369739	
2114401	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P369900	
2114487	EPA 200.7 Rev. 4.4	Calcium	59.1		mg/L	P369772	
		Iron	620		ug/L	P369772	
		Magnesium	7.39		mg/L	P369772	
		Potassium	4.6		mg/L	P369772	
		Sodium	18.8		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	1.92		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.48	I	ug/L	P369772	
		Copper	0.99		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.60	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Sample Location: Mid channel off point

Collection Date/Time: 08/22/2019 12:45

Field ID: G3SD0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114386	SM 5310 B-00 dissolved	Organic Carbon	20		mg C/L	P369739	
2114394	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P370102	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P369918	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P369797	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P370222	
2114402	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P369900	
2114488	EPA 200.7 Rev. 4.4	Calcium	61.0		mg/L	P369772	
		Iron	630		ug/L	P369772	
		Magnesium	7.53		mg/L	P369772	
		Potassium	4.7		mg/L	P369772	
		Sodium	19.3		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Arsenic	1.97		ug/L	P369772	
		Cadmium	0.064	I	ug/L	P369772	
		Chromium	0.50	I	ug/L	P369772	
		Copper	1.26		ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.82	I	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	

Non-Conformance Report

NCR ID: 7871

Event(s)

SO-DIST-2019-08-23-01

Job(s)

TLH-2019-08-23-46

Sample(s)

2114381

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 sulfuric acid.
H2SO4 Lot# 8274050 | Expiration Date: 10/01/19
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 8/27/2019

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: P369772

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: P369941

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369772

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: P369941

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.20	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: P370032

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

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: P370101

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370102

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369714

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369776

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369778

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369918

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369711

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369712

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369996

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369795

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369797

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369899

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369900

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

Reference Method: SM 2320 B-97
Batch ID: P369891

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

Reference Method: SM 2320 B-97
Batch ID: P370025

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: P369892

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369739

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

Reference Method: SM 5310 B-00
Batch ID: P370040

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

Reference Method: SM 5310 B-00
Batch ID: P370222

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P369739

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P370040

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: P369772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	80 - 120
Iron	107		P	85 - 115
Magnesium	113		P	85 - 115
Potassium	105		P	80 - 120
Sodium	104		P	80 - 120
Zinc	102		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	96.0		P	85 - 115
Copper	99.9		P	85 - 115
Lead	95.1		P	85 - 115
Nickel	99.3		P	85 - 115
Silver	99.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	100		P	80 - 120
Copper	99.5		P	85 - 115
Lead	98.0		P	85 - 115
Nickel	101		P	85 - 115
Silver	101		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369776

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369918

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369711

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369712

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369996

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369795

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	90.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369899

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369900

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

Reference Method: SM 2320 B-97
Batch ID: P369891

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

Reference Method: SM 2320 B-97
Batch ID: P370025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370040

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

Reference Method: SM 5310 B-00
Batch ID: P370222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.7		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P369739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.7		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P370040

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P369772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114357	Calcium	106		P	80 - 120
2114357	Iron	107	105	P/P	80 - 120
2114357	Magnesium	110	106	P/P	80 - 120
2114357	Potassium	106		P	80 - 120
2114357	Sodium	103		P	80 - 120
2114357	Zinc	105	104	P/P	80 - 120
2114481	Calcium	103		P	80 - 120
2114481	Iron	105		P	80 - 120
2114481	Magnesium	104		P	80 - 120
2114481	Potassium	105		P	80 - 120
2114481	Sodium	99.0		P	80 - 120
2114481	Zinc	103		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P369941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114477	Iron	103	99.9	P/P	70 - 130
2114477	Zinc	106	106	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P369772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114357	Arsenic	99.9	98.3	P/P	80 - 120
2114357	Cadmium	97.6	97.3	P/P	80 - 120
2114357	Chromium	95.9	93.1	P/P	80 - 120
2114357	Copper	98.6	96.7	P/P	80 - 120
2114357	Lead	97.4	96.8	P/P	80 - 120
2114357	Nickel	97.2	95.4	P/P	80 - 120
2114357	Silver	99.5	97.6	P/P	80 - 120
2114481	Arsenic	102		P	80 - 120
2114481	Cadmium	100		P	80 - 120
2114481	Chromium	91.1		P	80 - 120
2114481	Copper	97.0		P	80 - 120
2114481	Lead	99.3		P	80 - 120
2114481	Nickel	95.1		P	80 - 120
2114481	Silver	99.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P369941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114477	Arsenic	112	111	P/P	70 - 130
2114477	Cadmium	97.2	98.9	P/P	70 - 130
2114477	Chromium	97.1	96.5	P/P	70 - 130
2114477	Copper	99.3	100	P/P	70 - 130
2114477	Lead	103	104	P/P	70 - 130
2114477	Nickel	100	100	P/P	70 - 130
2114477	Silver	95.4	95.2	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114201	Ammonia-N	97.5	97.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114718	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114387	Ammonia-N	97.9	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114407	Ammonia-N	96.7	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114342	Kjeldahl Nitrogen	93.7	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114235	Kjeldahl Nitrogen	97.9	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114407	Kjeldahl Nitrogen	102	92.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114530	Kjeldahl Nitrogen	94.1	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115037	Kjeldahl Nitrogen	108	110	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114235	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114372	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114345	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114816	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114232	Total-P	92.4	90.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114388	Total-P	91.8	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114390	Total-P	94.2	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114298	O-Phosphate-P	98.0	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114377	O-Phosphate-P	98.6	98.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111922	Fluoride	98.7	101	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114341	Fluoride	95.6	96.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P369739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114409	Organic Carbon	94.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114328	Organic Carbon	96.2	95.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114394	Organic Carbon	100	101	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P369739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114409	Organic Carbon	94.4		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P370040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114328	Organic Carbon	96.2	95.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114357	Calcium	0.224	Spike	P	0 - 20
2114357	Iron	2.36	Spike	P	0 - 20
2114357	Magnesium	1.95	Spike	P	0 - 20
2114357	Potassium	0.697	Spike	P	0 - 20
2114357	Sodium	0.146	Spike	P	0 - 20
2114357	Zinc	1.16	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114477	Iron	2.82	Spike	P	0 - 20
2114477	Zinc	0.160	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114357	Arsenic	1.63	Spike	P	0 - 20
2114357	Cadmium	0.326	Spike	P	0 - 20
2114357	Chromium	2.98	Spike	P	0 - 20
2114357	Copper	2.00	Spike	P	0 - 20
2114357	Lead	0.681	Spike	P	0 - 20
2114357	Nickel	1.85	Spike	P	0 - 20
2114357	Silver	1.98	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114477	Arsenic	0.691	Spike	P	0 - 20
2114477	Cadmium	1.79	Spike	P	0 - 20
2114477	Chromium	0.675	Spike	P	0 - 20
2114477	Copper	0.812	Spike	P	0 - 20
2114477	Lead	0.123	Spike	P	0 - 20
2114477	Nickel	0.0686	Spike	P	0 - 20
2114477	Silver	0.128	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114201	Ammonia-N	0.167	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114718	Ammonia-N	0.490	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114387	Ammonia-N	0.0257	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114407	Ammonia-N	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114342	Kjeldahl Nitrogen	2.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114235	Kjeldahl Nitrogen	0.339	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114407	Kjeldahl Nitrogen	5.96	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114530	Kjeldahl Nitrogen	8.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115037	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114235	NO2NO3-N	0.480	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114372	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114345	NO2NO3-N	0.342	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114816	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114232	Total-P	2.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114388	Total-P	2.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114390	Total-P	2.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114298	O-Phosphate-P	0.0599	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114377	O-Phosphate-P	0.182	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P369891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113602	Total Alkalinity	0.622	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P370025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Total Alkalinity	0.390	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111922	Fluoride	1.91	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Fluoride	0.516	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P369739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114409	Organic Carbon	0.605	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P370040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114328	Organic Carbon	0.709	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P370222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114394	Organic Carbon	0.415	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00 dissolved
Batch ID: P369739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114409	Organic Carbon	0.605	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P370040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114328	Organic Carbon	0.709	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93757

Included Lab Sample IDs: 2114401, 2114402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93803

Included Lab Sample IDs: 2114371, 2114372

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

Reference Method: SM 5310 B-00

Run ID: A93808

Included Lab Sample IDs: 2114388, 2114389, 2114390, 2114391, 2114392, 2114393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.4	P/P	90 - 110
Organic Carbon	95.4	95.0	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A93808

Included Lab Sample IDs: 2114380, 2114381, 2114382, 2114383, 2114384, 2114385, 2114386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.2	P/P	90 - 110
Organic Carbon	95.2	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93818

Included Lab Sample IDs: 2114373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93860

Included Lab Sample IDs: 2114371, 2114372, 2114373, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	101	99.6	P/P	90 - 110
Total-P	99.8	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93863

Included Lab Sample IDs: 2114363

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A93863

Included Lab Sample IDs: 2114363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93865

Included Lab Sample IDs: 2114375, 2114376, 2114377, 2114378, 2114395, 2114396, 2114397, 2114398, 2114399, 2114400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.9	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93884

Included Lab Sample IDs: 2114371, 2114374, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.3	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93888

Included Lab Sample IDs: 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93889

Included Lab Sample IDs: 2114372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93901

Included Lab Sample IDs: 2114478, 2114479, 2114480, 2114481, 2114482, 2114483, 2114484, 2114485, 2114486, 2114487, 2114488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	100	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	100	97.9	P/P	90 - 110
Zinc	98.7	99.5	P/P	90 - 110
Zinc	99.5	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93923

Included Lab Sample IDs: 2114373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93923

Included Lab Sample IDs: 2114373

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93925

Included Lab Sample IDs: 2114387, 2114394

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

Reference Method: SM 2320 B-97

Run ID: A93928

Included Lab Sample IDs: 2114364, 2114365, 2114366

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

Reference Method: SM 4500 F-C-97

Run ID: A93928

Included Lab Sample IDs: 2114364, 2114365, 2114366

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93933

Included Lab Sample IDs: 2114373

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

Reference Method: SM 5310 B-00

Run ID: A93938

Included Lab Sample IDs: 2114371, 2114372, 2114373, 2114374, 2114387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A93938

Included Lab Sample IDs: 2114367, 2114368, 2114369, 2114370, 2114379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93961

Included Lab Sample IDs: 2114477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93961

Included Lab Sample IDs: 2114477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	100	102	P/P	95 - 105
Zinc	100	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93962

Included Lab Sample IDs: 2114371, 2114372, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	99.2	99.6	P/P	90 - 110
Ammonia-N	99.3	99.2	P/P	90 - 110
Ammonia-N	99.9	99.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94014

Included Lab Sample IDs: 2114394

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94164

Included Lab Sample IDs: 2114477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	101	P/P	90 - 110
Cadmium	96.8	95.8	P/P	90 - 110
Copper	97.7	98.2	P/P	90 - 110
Lead	94.9	94.8	P/P	90 - 110
Nickel	98.1	99.5	P/P	90 - 110
Silver	97.1	96.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94206

Included Lab Sample IDs: 2114478, 2114479, 2114480, 2114481, 2114482, 2114483, 2114484, 2114485, 2114486, 2114487, 2114488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	100	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Cadmium	99.7	101	P/P	90 - 110
Copper	100	99.7	P/P	90 - 110
Copper	101	100	P/P	90 - 110
Lead	96.8	97.3	P/P	90 - 110
Lead	97.3	95.8	P/P	90 - 110
Nickel	100	99.3	P/P	90 - 110
Nickel	99.3	98.9	P/P	90 - 110
Silver	98.1	98.7	P/P	90 - 110
Silver	98.7	98.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94208

Included Lab Sample IDs: 2114478, 2114479, 2114480, 2114481, 2114482, 2114483, 2114484, 2114485, 2114486, 2114487, 2114488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.9	101	P/P	90 - 110
Chromium	99.1	98.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94248

Included Lab Sample IDs: 2114477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	102	99.6	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 200.7 Rev. 4.4	Calcium	106	106	103				0.224
	Iron	107	107	105	105			2.36
	Iron	107	103	99.9				2.82
	Magnesium	113	110	106	104			1.95
	Potassium	105	106	105				0.697
	Sodium	104	103	99.0				0.146
	Zinc	102	105	104	103			1.16
	Zinc	103	106	106				0.160
EPA 200.8 Rev. 5.4	Arsenic	102	99.9	98.3	102			1.63
	Arsenic	103	112	111				0.691
	Cadmium	98.2	97.6	97.3	100			0.326
	Cadmium	100	97.2	98.9				1.79
	Chromium	96.0	95.9	93.1	91.1			2.98
	Chromium	100	97.1	96.5				0.675
	Copper	99.9	98.6	96.7	97.0			2.00
	Copper	99.5	99.3	100				0.812
	Lead	95.1	97.4	96.8	99.3			0.681
	Lead	98.0	103	104				0.123
	Nickel	99.3	97.2	95.4	95.1			1.85
	Nickel	101	100	100				0.0686
EPA 350.1 Rev. 2.0	Silver	99.5	99.5	97.6	99.6			1.98
	Silver	101	95.4	95.2				0.128
	Ammonia-N	96.1	97.5	97.3				0.167
	Ammonia-N	97.9	101	101				0.490
EPA 351.2 Rev. 2.0	Ammonia-N	96.7	97.9	97.9				0.0257
	Ammonia-N	95.3	96.7	97.9				1.05
	Kjeldahl Nitrogen	95.6	93.7	97.2				2.84
	Kjeldahl Nitrogen	94.5	97.9	98.3				0.339
	Kjeldahl Nitrogen	97.0	102	92.5				5.96
EPA 353.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	94.1	105				8.69
	Kjeldahl Nitrogen	105	108	110				1.94
	NO2NO3-N	101	101	101				0.480
	NO2NO3-N	99.5	98.5					0.0
	NO2NO3-N	101	101	102				0.342
EPA 365.1 Rev. 2.0	NO2NO3-N	102	103	102				0.487
	Total-P	95.9	92.4	90.3				2.27
	Total-P	90.6	91.8	95.5				2.81
	Total-P	93.9	94.2	97.0				2.09
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	98.0	98.1				0.0599
	O-Phosphate-P	101	98.6	98.2				0.182
SM 2320 B-97	Total Alkalinity	103					0.622	
	Total Alkalinity	104					0.390	
SM 4500 F-C-97	Fluoride	96.7	98.7	101				1.91
	Fluoride	97.1	95.6	96.1				0.516
SM 5310 B-00	Organic Carbon	92.7	94.4					0.605
	Organic Carbon	97.0	96.2	95.1				0.709
	Organic Carbon	99.7	100	101				0.415
SM 5310 B-00 dissolved	Organic Carbon	92.7	94.4					0.605
	Organic Carbon	97.0	96.2	95.1				0.709

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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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	2114477, 2114478, 2114479, 2114480, 2114481, 2114482, 2114483, 2114484, 2114485, 2114486, 2114487, 2114488
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2114477, 2114478, 2114479, 2114480, 2114481, 2114482, 2114483, 2114484, 2114485, 2114486, 2114487, 2114488
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2114371, 2114372, 2114373, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2114371, 2114372, 2114373, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2114371, 2114372, 2114373, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2114371, 2114372, 2114373, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2114375, 2114376, 2114377, 2114378, 2114395, 2114396, 2114397, 2114398, 2114399, 2114400, 2114401, 2114402
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2114363, 2114364, 2114365, 2114366
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2114363, 2114364, 2114365, 2114366
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2114371, 2114372, 2114373, 2114374, 2114387, 2114388, 2114389, 2114390, 2114391, 2114392, 2114393, 2114394
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2114367, 2114368, 2114369, 2114370, 2114379, 2114380, 2114381, 2114382, 2114383, 2114384, 2114385, 2114386

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 10:56	Alexander Thompson	2114478
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 11:03	Alexander Thompson	2114479
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 11:11	Alexander Thompson	2114480
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 11:42	Alexander Thompson	2114481
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:00	Alexander Thompson	2114482
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:07	Alexander Thompson	2114483
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:13	Alexander Thompson	2114484
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:19	Alexander Thompson	2114485
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:25	Alexander Thompson	2114486
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:31	Alexander Thompson	2114487
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 12:37	Alexander Thompson	2114488
	08/23/2019	08/29/2019 16:50	Elliott D. Healy	09/03/2019 10:21	Alexander Thompson	2114477
EPA 200.8 Rev. 5.4	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 03:32	Robert K Palmer	2114478
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 03:42	Robert K Palmer	2114479
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 03:51	Robert K Palmer	2114480
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 04:01	Robert K Palmer	2114481
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 04:50	Robert K Palmer	2114482
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 05:00	Robert K Palmer	2114483
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 05:10	Robert K Palmer	2114484
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 05:20	Robert K Palmer	2114485
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 05:29	Robert K Palmer	2114486
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 05:39	Robert K Palmer	2114487
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 05:49	Robert K Palmer	2114488
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 06:14	Robert K Palmer	2114478
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 06:19	Robert K Palmer	2114479
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 06:25	Robert K Palmer	2114480
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 06:31	Robert K Palmer	2114481
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 06:59	Robert K Palmer	2114482
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 07:05	Robert K Palmer	2114483
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 07:11	Robert K Palmer	2114484
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 07:16	Robert K Palmer	2114485
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 07:22	Robert K Palmer	2114486
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 07:28	Robert K Palmer	2114487
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 07:33	Robert K Palmer	2114488
	08/23/2019	08/29/2019 16:50	Elliott D. Healy	09/11/2019 21:36	Justin Cutchin	2114477
	08/23/2019	08/29/2019 16:50	Elliott D. Healy	09/16/2019 14:52	Justin Cutchin	2114477
EPA 350.1 Rev. 2.0	08/23/2019			08/30/2019 14:22	Ping Hua	2114373
	08/23/2019			09/03/2019 11:35	Ping Hua	2114371
	08/23/2019			09/03/2019 11:36	Ping Hua	2114372
	08/23/2019			09/03/2019 13:26	Ping Hua	2114387

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	08/23/2019			09/03/2019 13:30	Ping Hua	2114374
	08/23/2019			09/03/2019 13:32	Ping Hua	2114388
	08/23/2019			09/03/2019 13:33	Ping Hua	2114389
	08/23/2019			09/03/2019 13:41	Ping Hua	2114390
	08/23/2019			09/03/2019 13:42	Ping Hua	2114391
	08/23/2019			09/03/2019 13:44	Ping Hua	2114392
	08/23/2019			09/03/2019 13:45	Ping Hua	2114393
	08/23/2019			09/03/2019 14:03	Ping Hua	2114394
	08/23/2019					
EPA 351.2 Rev. 2.0	08/23/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:54	Julia Storbeck	2114373
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 16:51	Julia Storbeck	2114371
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:03	Julia Storbeck	2114374
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:06	Julia Storbeck	2114388
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:08	Julia Storbeck	2114389
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:09	Julia Storbeck	2114390
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:11	Julia Storbeck	2114391
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:12	Julia Storbeck	2114392
	08/23/2019	08/27/2019 11:30	Sima Feizi	08/28/2019 17:14	Julia Storbeck	2114393
	08/23/2019	08/27/2019 13:00	Sima Feizi	08/29/2019 13:52	Julia Storbeck	2114372
	08/23/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 12:00	Joseph Suarez	2114387
	08/23/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 12:01	Joseph Suarez	2114394
	08/23/2019					
	08/23/2019					
EPA 353.2 Rev. 2.0	08/23/2019			08/27/2019 09:42	Beverly Y. Sanders	2114371
	08/23/2019			08/27/2019 09:49	Beverly Y. Sanders	2114372
	08/23/2019			08/29/2019 12:55	Beverly Y. Sanders	2114374
	08/23/2019			08/29/2019 12:56	Beverly Y. Sanders	2114387
	08/23/2019			08/29/2019 12:57	Beverly Y. Sanders	2114388
	08/23/2019			08/29/2019 12:59	Beverly Y. Sanders	2114389
	08/23/2019			08/29/2019 13:00	Beverly Y. Sanders	2114390
	08/23/2019			08/29/2019 13:01	Beverly Y. Sanders	2114391
	08/23/2019			08/29/2019 13:02	Beverly Y. Sanders	2114392
	08/23/2019			08/29/2019 13:03	Beverly Y. Sanders	2114393
	08/23/2019			08/29/2019 13:05	Beverly Y. Sanders	2114394
	08/23/2019			08/30/2019 10:21	Beverly Y. Sanders	2114373
	08/23/2019					
	08/23/2019					
EPA 365.1 Rev. 2.0	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:04	Lipi Saha	2114371
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:05	Lipi Saha	2114372
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:09	Lipi Saha	2114388
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:20	Lipi Saha	2114373
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:21	Lipi Saha	2114374
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:22	Lipi Saha	2114387
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:23	Lipi Saha	2114389
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:29	Lipi Saha	2114390

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Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:33	Lipi Saha	2114391
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:34	Lipi Saha	2114392
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:35	Lipi Saha	2114393
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:36	Lipi Saha	2114394
EPA 365.1 Rev. 2.0 dissolved	08/23/2019			08/23/2019 14:30	Lipi Saha	2114377
	08/23/2019			08/23/2019 14:55	Lipi Saha	2114375
	08/23/2019			08/23/2019 14:56	Lipi Saha	2114376
	08/23/2019			08/23/2019 14:57	Lipi Saha	2114378
	08/23/2019			08/23/2019 14:58	Lipi Saha	2114395, 2114396
	08/23/2019			08/23/2019 14:59	Lipi Saha	2114397
	08/23/2019			08/23/2019 15:00	Lipi Saha	2114398
	08/23/2019			08/23/2019 15:01	Lipi Saha	2114399
	08/23/2019			08/23/2019 15:02	Lipi Saha	2114400
	08/23/2019			08/23/2019 16:34	Lipi Saha	2114401
	08/23/2019			08/23/2019 16:35	Lipi Saha	2114402
	08/23/2019			08/29/2019 00:07	Dale L. Simmons	2114363
SM 2320 B-97	08/23/2019			08/30/2019 07:06	Dale L. Simmons	2114366
	08/23/2019			08/30/2019 10:10	Dale L. Simmons	2114365
	08/23/2019			08/30/2019 10:36	Dale L. Simmons	2114364
	08/23/2019			08/30/2019 10:36	Dale L. Simmons	2114364
SM 4500 F-C-97	08/23/2019			08/28/2019 21:41	Dale L. Simmons	2114363
	08/23/2019			08/30/2019 07:06	Dale L. Simmons	2114366
	08/23/2019			08/30/2019 10:10	Dale L. Simmons	2114365
	08/23/2019			08/30/2019 10:36	Dale L. Simmons	2114364
SM 5310 B-00	08/23/2019			08/27/2019 10:36	Madeline Funaro	2114388
	08/23/2019			08/27/2019 11:13	Madeline Funaro	2114389
	08/23/2019			08/27/2019 11:25	Madeline Funaro	2114390
	08/23/2019			08/27/2019 11:37	Madeline Funaro	2114391
	08/23/2019			08/27/2019 11:50	Madeline Funaro	2114392
	08/23/2019			08/27/2019 12:02	Madeline Funaro	2114393
	08/23/2019			08/31/2019 00:57	Madeline Funaro	2114371
	08/23/2019			08/31/2019 01:11	Madeline Funaro	2114372
	08/23/2019			08/31/2019 01:26	Madeline Funaro	2114373
	08/23/2019			08/31/2019 01:38	Madeline Funaro	2114374
	08/23/2019			08/31/2019 01:50	Madeline Funaro	2114387
	08/23/2019			09/04/2019 15:09	Madeline Funaro	2114394
SM 5310 B-00 dissolved	08/23/2019			08/27/2019 08:45	Madeline Funaro	2114380
	08/23/2019			08/27/2019 08:58	Madeline Funaro	2114381
	08/23/2019			08/27/2019 09:10	Madeline Funaro	2114382
	08/23/2019			08/27/2019 09:47	Madeline Funaro	2114383
	08/23/2019			08/27/2019 09:59	Madeline Funaro	2114384

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Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00 dissolved	08/23/2019			08/27/2019 10:12	Madeline Funaro	2114385
	08/23/2019			08/27/2019 10:24	Madeline Funaro	2114386
	08/23/2019			08/30/2019 23:30	Madeline Funaro	2114367
	08/23/2019			08/30/2019 23:44	Madeline Funaro	2114368
	08/23/2019			08/30/2019 23:56	Madeline Funaro	2114369
	08/23/2019			08/31/2019 00:08	Madeline Funaro	2114370
	08/23/2019			08/31/2019 00:20	Madeline Funaro	2114379