

Chemical Analysis Report

SO-DIST-2019-07-23-01

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

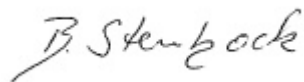
Event Description: **CALOOSA LT**
Request ID: **RQ-2019-07-08-17**
Customer: **SO-DIST**
Project ID: **BMAP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 20-AUG-2019 19:07



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: MARKER # 38

Collection Date/Time: 07/22/2019 12:16

Field ID: G3SD0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105019	SM 5310 B-00 dissolved	Organic Carbon	18		mg C/L	P367965	
2105027	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P368306	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P368007	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P367809	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P367965	
2105035	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.092		mg P/L	P367788	
2105063	EPA 200.7 Rev. 4.4	Calcium	66.6		mg/L	P367921	
		Iron	210		ug/L	P367921	
		Magnesium	17.2		mg/L	P367921	
		Potassium	8.2		mg/L	P367921	
		Sodium	91.4		mg/L	P367921	
		Zinc	6.2	I	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	2.26		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.65	I	ug/L	P367921	
		Copper	1.55		ug/L	P367921	
		Lead	0.20	I	ug/L	P367921	
		Nickel	0.76	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Sample Location: MARKER # 28

Collection Date/Time: 07/22/2019 12:30

Field ID: G3SD0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105020	SM 5310 B-00 dissolved	Organic Carbon	19		mg C/L	P367965	
2105028	EPA 350.1 Rev. 2.0	Ammonia-N	0.076		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P368007	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P367965	
2105036	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.078		mg P/L	P367788	
2105064	EPA 200.7 Rev. 4.4	Calcium	68.1		mg/L	P367921	
		Iron	270		ug/L	P367921	
		Magnesium	10.2		mg/L	P367921	
		Potassium	5.3		mg/L	P367921	
		Sodium	32.7		mg/L	P367921	
		Zinc	5.3	I	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	1.92		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.46	I	ug/L	P367921	
		Copper	1.08		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.70	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Sample Location: MARKER # 22

Collection Date/Time: 07/22/2019 12:45

Field ID: G3SD0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105021	SM 5310 B-00 dissolved	Organic Carbon	18		mg C/L	P367965	
2105029	EPA 350.1 Rev. 2.0	Ammonia-N	0.080		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P368007	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P367965	
2105037	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.076		mg P/L	P367788	
2105065	EPA 200.7 Rev. 4.4	Calcium	68.3		mg/L	P367921	
		Iron	200		ug/L	P367921	
		Magnesium	9.94		mg/L	P367921	
		Potassium	5.1		mg/L	P367921	
		Sodium	31.9		mg/L	P367921	
		Zinc	5.0	U	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	1.88		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.40	U	ug/L	P367921	
		Copper	0.91		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.66	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Sample Location: OLD SWING BRIDGE

Collection Date/Time: 07/22/2019 12:55

Field ID: G3SD0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105022	SM 5310 B-00 dissolved	Organic Carbon	18		mg C/L	P367965	
2105030	EPA 350.1 Rev. 2.0	Ammonia-N	0.075		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P368009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P367965	
2105038	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.075		mg P/L	P367788	
2105066	EPA 200.7 Rev. 4.4	Calcium	69.8		mg/L	P367921	
		Iron	240		ug/L	P367921	
		Magnesium	9.84		mg/L	P367921	
		Potassium	5.1		mg/L	P367921	
		Sodium	31.0		mg/L	P367921	
		Zinc	5.0	U	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	1.90		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.42	I	ug/L	P367921	
		Copper	0.80		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.68	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: USGSStation-PuntaBlanca

Collection Date/Time: 07/22/2019 10:12

Field ID: G3SD0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105003	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P367939	
	SM 4500 F-C-97	Fluoride	0.82		mg F/L	P367942	
2105007	SM 5310 B-00 dissolved	Organic Carbon	10		mg C/L	P367966	
2105011	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P368303	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P367878	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P367874	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P367807	
	SM 5310 B-00	Organic Carbon	8.5		mg C/L	P367966	
2105015	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P367789	
2105059	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P368222	
		Manganese	7.4	I	ug/L	P368222	
		Zinc	20	U	ug/L	P368222	
	EPA 200.8 Rev. 5.4	Arsenic	2.73		ug/L	P368222	
		Cadmium	0.080	U	ug/L	P368222	
		Chromium	4.0	U	ug/L	P368222	
		Copper	1.6	U	ug/L	P368222	
		Lead	0.80	U	ug/L	P368222	
		Nickel	2.0	U	ug/L	P368222	
		Silver	0.040	U	ug/L	P368222	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: The sample required dilution due to matrix interference.

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

Sample Location: USGS Station-ShellPoint

Collection Date/Time: 07/22/2019 10:45

Field ID: G3SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105004	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P367939	
	SM 4500 F-C-97	Fluoride	0.69		mg F/L	P367942	
2105008	SM 5310 B-00 dissolved	Organic Carbon	10		mg C/L	P367966	
2105012	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P368303	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P367878	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367874	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P367807	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P367966	
2105016	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P367789	
2105060	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P368222	
		Manganese	8.1	I	ug/L	P368222	
		Zinc	15	U	ug/L	P368222	
	EPA 200.8 Rev. 5.4	Arsenic	2.80		ug/L	P368222	
		Cadmium	0.080	U	ug/L	P368222	
		Chromium	4.0	U	ug/L	P368222	
		Copper	1.6	U	ug/L	P368222	
		Lead	0.80	U	ug/L	P368222	
		Nickel	5.0	U	ug/L	P368222	
		Silver	0.040	U	ug/L	P368222	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: The sample required dilution due to matrix interference.

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

Sample Location: Marker # 76

Collection Date/Time: 07/22/2019 11:10

Field ID: G3SD0110

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105005	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P367939	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P367942	
2105009	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P367965	
2105013	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P368303	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P367878	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367874	
	EPA 365.1 Rev. 2.0	Total-P	0.097		mg P/L	P367807	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P367965	
2105017	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.068		mg P/L	P367789	
2105061	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P368222	
		Manganese	11	I	ug/L	P368222	
		Zinc	15	U	ug/L	P368222	
	EPA 200.8 Rev. 5.4	Arsenic	2.96		ug/L	P368222	
		Cadmium	0.080	U	ug/L	P368222	
		Chromium	4.0	U	ug/L	P368222	
		Copper	1.6	U	ug/L	P368222	
		Lead	0.80	U	ug/L	P368222	
		Nickel	5.0	U	ug/L	P368222	
		Silver	0.040	U	ug/L	P368222	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: The sample required dilution due to matrix interference.

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

Sample Location: MIDCHANNEL @ ORANGE RIVER

Collection Date/Time: 07/22/2019 13:15

Field ID: G3SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105023	SM 5310 B-00 dissolved	Organic Carbon	18		mg C/L	P367965	
2105031	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P368009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P367965	
2105039	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.071		mg P/L	P367788	
2105067	EPA 200.7 Rev. 4.4	Calcium	68.7		mg/L	P367921	
		Iron	310		ug/L	P367921	
		Magnesium	9.75		mg/L	P367921	
		Potassium	4.6		mg/L	P367921	
		Sodium	30.6		mg/L	P367921	
		Zinc	5.0	U	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	1.92		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.47	I	ug/L	P367921	
		Copper	1.04		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.67	I	ug/L	P367921	
		Silver	0.021	I	ug/L	P367921	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: UPSTREAM OF POWER PLANT

Collection Date/Time: 07/22/2019 13:30

Field ID: G3SD0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105024	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P367965	
2105032	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P368009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P367965	
2105040	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.091		mg P/L	P367788	
2105068	EPA 200.7 Rev. 4.4	Calcium	68.2		mg/L	P367921	
		Iron	210		ug/L	P367921	
		Magnesium	9.77		mg/L	P367921	
		Potassium	6.1		mg/L	P367921	
		Sodium	29.3		mg/L	P367921	
		Zinc	5.0	U	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	2.00		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.41	I	ug/L	P367921	
		Copper	0.94		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.70	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MIDCHANNEL OFF OXBOW

Collection Date/Time: 07/22/2019 13:45

Field ID: G3SD0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105025	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P367965	
2105033	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P368009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.093		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P367965	
2105041	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.064		mg P/L	P367790	
2105069	EPA 200.7 Rev. 4.4	Calcium	68.8		mg/L	P367921	
		Iron	230		ug/L	P367921	
		Magnesium	9.33		mg/L	P367921	
		Potassium	5.8		mg/L	P367921	
		Sodium	26.8		mg/L	P367921	
		Zinc	5.0	U	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	1.93		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.40	U	ug/L	P367921	
		Copper	0.93		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.89	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MIDCHANNEL OFF POINT

Collection Date/Time: 07/22/2019 13:55

Field ID: G3SD0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105026	SM 5310 B-00 dissolved	Organic Carbon	20		mg C/L	P367965	
2105034	EPA 350.1 Rev. 2.0	Ammonia-N	0.092		mg N/L	P368341	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P368009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P367800	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P367883	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P367965	
2105042	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P367790	
2105070	EPA 200.7 Rev. 4.4	Calcium	71.8		mg/L	P367921	
		Iron	220		ug/L	P367921	
		Magnesium	9.56		mg/L	P367921	
		Potassium	6.2		mg/L	P367921	
		Sodium	26.7		mg/L	P367921	
		Zinc	5.0	U	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	2.03		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.40	U	ug/L	P367921	
		Copper	0.82		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.74	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MARKER # 52

Collection Date/Time: 07/22/2019 11:50

Field ID: G3SD0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105006	SM 2320 B-97	Total Alkalinity	159		mg CaCO3/L	P367974	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P367976	
2105010	SM 5310 B-00 dissolved	Organic Carbon	17		mg C/L	P367965	
2105014	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P368306	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P367897	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P367799	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P367809	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P367965	
2105018	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.092		mg P/L	P367788	
2105062	EPA 200.7 Rev. 4.4	Iron	190		ug/L	P367921	
		Zinc	5.8	I	ug/L	P367921	
	EPA 200.8 Rev. 5.4	Arsenic	2.30		ug/L	P367921	
		Cadmium	0.020	U	ug/L	P367921	
		Chromium	0.40	I	ug/L	P367921	
		Copper	1.63		ug/L	P367921	
		Lead	0.20	U	ug/L	P367921	
		Nickel	0.74	I	ug/L	P367921	
		Silver	0.010	U	ug/L	P367921	

Non-Conformance Report

NCR ID: 7804

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SO-DIST-2019-07-23-01	TLH-2019-07-23-03	2105006	
SO-DIST-2019-07-23-01	TLH-2019-07-23-06	2105062	

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples incorrectly preserved in the field.
The ALKALINITY & W-F sample container was preserved with nitric acid and the W-ICPMS sample container was not preserved.

Resolution: LIMS Labels switched during the container labeling process.
The ALKALINITY & W-F LIMS label was affixed to the improperly preserved W-ICPMS sample container.
The W-ICPMS LIMS label was affixed to the improperly preserved ALKALINITY & W-F sample container.

Authorized by/Date: Joshua Ayres 7/25/2019

NCR ID: 7805

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SO-DIST-2019-07-23-01	TLH-2019-07-23-03	2105020	
SO-DIST-2019-07-23-01	TLH-2019-07-23-03	2105036	

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples incorrectly preserved in the field.
The W-PO4-F sample container was preserved with sulfuric acid and the W-DOC sample container was not preserved.

Resolution: LIMS Labels switched during the container labeling process.
The W-DOC LIMS label was affixed to the improperly preserved W-PO4-F container.
The W-PO4-F LIMS label was affixed to the improperly preserved W-DOC container.

Authorized by/Date: Joshua Ayres 7/25/2019

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: P367921

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: P368222

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P367921

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: P368222

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: P368303

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368306

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: P368341

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367878

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367897

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368007

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368009

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367799

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367800

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367874

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367807

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367809

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367883

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367788

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367789

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367790

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

Reference Method: SM 2320 B-97
Batch ID: P367939

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

Reference Method: SM 2320 B-97
Batch ID: P367974

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

Reference Method: SM 4500 F-C-97
Batch ID: P367942

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P367976

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P367965

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

Reference Method: SM 5310 B-00
Batch ID: P367966

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P367965

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P367966

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: P367921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	101		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	97.9		P	85 - 115
Sodium	97.8		P	85 - 115
Zinc	95.8		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	104		P	85 - 115
Manganese	100		P	85 - 115
Zinc	98.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P367921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	99.3		P	85 - 115
Chromium	95.4		P	85 - 115
Copper	100		P	85 - 115
Lead	94.3		P	85 - 115
Nickel	101		P	85 - 115
Silver	93.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	97.5		P	85 - 115
Copper	97.7		P	85 - 115
Lead	102		P	85 - 115
Nickel	99.6		P	85 - 115
Silver	103		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368303

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368306

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368341

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367878

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: P367897

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368007

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368009

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367799

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367800

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367874

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367807

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367809

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367788

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367789

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P367939

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

Reference Method: SM 2320 B-97
Batch ID: P367974

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

Reference Method: SM 4500 F-C-97
Batch ID: P367942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P367976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P367965

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

Reference Method: SM 5310 B-00
Batch ID: P367966

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P367965

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P367966

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: P367921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105067	Calcium	103		P	80 - 120
2105067	Iron	102		P	80 - 120
2105067	Magnesium	104		P	80 - 120
2105067	Potassium	103		P	80 - 120
2105067	Sodium	101		P	80 - 120
2105067	Zinc	96.4		P	80 - 120
2105320	Calcium	105		P	80 - 120
2105320	Iron	106	107	P/P	80 - 120
2105320	Magnesium	103		P	80 - 120
2105320	Potassium	101	100	P/P	80 - 120
2105320	Sodium	99.7		P	80 - 120
2105320	Zinc	101	101	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105061	Iron	99.1		P	70 - 130
2105061	Manganese	93.9		P	70 - 130
2105061	Zinc	101		P	70 - 130
2106936	Iron	98.3	97.6	P/P	70 - 130
2106936	Manganese	93.9	94.0	P/P	70 - 130
2106936	Zinc	99.4	100	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P367921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105067	Arsenic	104		P	80 - 120
2105067	Cadmium	100		P	80 - 120
2105067	Chromium	93.1		P	80 - 120
2105067	Copper	97.2		P	80 - 120
2105067	Lead	95.8		P	80 - 120
2105067	Nickel	97.6		P	80 - 120
2105067	Silver	92.6		P	80 - 120
2105320	Arsenic	105	104	P/P	80 - 120
2105320	Cadmium	98.8	96.1	P/P	80 - 120
2105320	Chromium	92.9	91.1	P/P	80 - 120
2105320	Copper	99.4	98.3	P/P	80 - 120
2105320	Lead	97.0	94.2	P/P	80 - 120
2105320	Nickel	98.6	97.2	P/P	80 - 120
2105320	Silver	93.4	92.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105061	Arsenic	117		P	70 - 130
2105061	Cadmium	102		P	70 - 130
2105061	Chromium	91.0		P	70 - 130
2105061	Copper	71.5		P	70 - 130
2105061	Lead	110		P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P368222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105061	Nickel	107		P	70 - 130
2105061	Silver	101		P	70 - 130
2106936	Arsenic	108	102	P/P	70 - 130
2106936	Cadmium	99.2	93.5	P/P	70 - 130
2106936	Chromium	91.1	86.3	P/P	70 - 130
2106936	Copper	98.7	94.3	P/P	70 - 130
2106936	Lead	101	94.1	P/P	70 - 130
2106936	Nickel	98.1	94.1	P/P	70 - 130
2106936	Silver	97.4	93.3	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P368303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105011	Ammonia-N	104	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P368306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2104790	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P368341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105104	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P367878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2103850	Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P367897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2104962	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105029	Kjeldahl Nitrogen	100	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P367799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2103447	NO2NO3-N	99.0	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P367800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105027	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P367874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2104617	NO2NO3-N	96.6	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P367807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2104249	Total-P	93.1	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P367809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2104932	Total-P	100	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P367883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105028	Total-P	98.4	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P367788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2104966	O-Phosphate-P	97.2	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P367789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105016	O-Phosphate-P	94.7	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P367790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105107	O-Phosphate-P	94.7	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P367942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2103439	Fluoride	97.1	97.1	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P367976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105513	Fluoride	95.8	96.5	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P367965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105013	Organic Carbon	105	104	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P367966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105011	Organic Carbon	105	104	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P367965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105013	Organic Carbon	105	104	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P367966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105011	Organic Carbon	105	104	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P367921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105320	Calcium	0.260	Spike	P	0 - 20
2105320	Iron	0.544	Spike	P	0 - 20
2105320	Magnesium	0.560	Spike	P	0 - 20
2105320	Potassium	0.432	Spike	P	0 - 20
2105320	Sodium	0.219	Spike	P	0 - 20
2105320	Zinc	0.0139	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106936	Iron	0.714	Spike	P	0 - 20
2106936	Manganese	0.122	Spike	P	0 - 20
2106936	Zinc	0.644	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P367921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105320	Arsenic	1.27	Spike	P	0 - 20
2105320	Cadmium	2.78	Spike	P	0 - 20
2105320	Chromium	1.87	Spike	P	0 - 20
2105320	Copper	1.12	Spike	P	0 - 20
2105320	Lead	2.92	Spike	P	0 - 20
2105320	Nickel	1.40	Spike	P	0 - 20
2105320	Silver	1.03	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106936	Arsenic	5.47	Spike	P	0 - 20
2106936	Cadmium	5.91	Spike	P	0 - 20
2106936	Chromium	5.31	Spike	P	0 - 20
2106936	Copper	4.59	Spike	P	0 - 20
2106936	Lead	6.75	Spike	P	0 - 20
2106936	Nickel	4.18	Spike	P	0 - 20
2106936	Silver	4.29	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105011	Ammonia-N	2.61	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2104790	Ammonia-N	1.60	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105104	Ammonia-N	0.751	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103850	Kjeldahl Nitrogen	2.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2104962	Kjeldahl Nitrogen	1.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105029	Kjeldahl Nitrogen	3.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105032	Kjeldahl Nitrogen	2.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103447	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105027	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2104617	NO2NO3-N	0.964	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2104249	Total-P	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2104932	Total-P	4.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105028	Total-P	0.406	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2104966	O-Phosphate-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105016	O-Phosphate-P	0.490	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105107	O-Phosphate-P	1.30	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P367939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103280	Total Alkalinity	0.554	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P367974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105513	Total Alkalinity	0.0517	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
 Batch ID: P367942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103439	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P367976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105513	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P367965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105013	Organic Carbon	0.832	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P367966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105011	Organic Carbon	0.318	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
 Batch ID: P367965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105013	Organic Carbon	0.832	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
 Batch ID: P367966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105011	Organic Carbon	0.318	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: A92967

Included Lab Sample IDs: 2105015, 2105016, 2105017, 2105018, 2105035, 2105036, 2105037, 2105038, 2105039, 2105040, 2105041, 2105042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110
O-Phosphate-P	98.5	98.9	P/P	90 - 110
O-Phosphate-P	98.7	97.6	P/P	90 - 110
O-Phosphate-P	98.9	98.7	P/P	90 - 110
O-Phosphate-P	99.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92975

Included Lab Sample IDs: 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93009

Included Lab Sample IDs: 2105014, 2105027

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93017

Included Lab Sample IDs: 2105011, 2105012, 2105013

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93020

Included Lab Sample IDs: 2105011, 2105012, 2105013

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

Reference Method: SM 2320 B-97

Run ID: A93033

Included Lab Sample IDs: 2105003, 2105004, 2105005

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

Reference Method: SM 4500 F-C-97

Run ID: A93033

Included Lab Sample IDs: 2105003, 2105004, 2105005

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A93041

Included Lab Sample IDs: 2105011, 2105012, 2105013, 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	105	P/P	90 - 110
Organic Carbon	106	106	P/P	90 - 110
Organic Carbon	106	106	P/P	90 - 110
Organic Carbon	106	104	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A93041

Included Lab Sample IDs: 2105007, 2105008, 2105009, 2105010, 2105019, 2105020, 2105021, 2105022, 2105023, 2105024, 2105025, 2105026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	106	P/P	90 - 110
Organic Carbon	106	106	P/P	90 - 110
Organic Carbon	106	106	P/P	90 - 110
Organic Carbon	106	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93046

Included Lab Sample IDs: 2105006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93046

Included Lab Sample IDs: 2105006

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93048

Included Lab Sample IDs: 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.7	P/P	90 - 110
Total-P	99.7	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93054

Included Lab Sample IDs: 2105011, 2105012, 2105013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93073

Included Lab Sample IDs: 2105014

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93076

Included Lab Sample IDs: 2105062, 2105063, 2105064, 2105065, 2105066, 2105067, 2105068, 2105069, 2105070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	95 - 105
Calcium	102	105	P/P	90 - 110
Iron	103	107	P/P	90 - 110
Iron	104	103	P/P	95 - 105
Magnesium	102	106	P/P	90 - 110
Magnesium	103	102	P/P	95 - 105
Potassium	102	102	P/P	95 - 105
Potassium	102	104	P/P	90 - 110
Sodium	101	103	P/P	90 - 110
Sodium	99.0	101	P/P	95 - 105
Zinc	101	101	P/P	95 - 105
Zinc	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93102

Included Lab Sample IDs: 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.7	96.6	P/P	90 - 110
Kjeldahl Nitrogen	99.0	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93196

Included Lab Sample IDs: 2105011, 2105012, 2105013, 2105014, 2105027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	103	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93211

Included Lab Sample IDs: 2105059, 2105060, 2105061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	101	P/P	90 - 110
Manganese	102	102	P/P	90 - 110
Zinc	99.1	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93214

Included Lab Sample IDs: 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93246

Included Lab Sample IDs: 2105059

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: A93246

Included Lab Sample IDs: 2105059

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93262

Included Lab Sample IDs: 2105062, 2105063, 2105064, 2105065, 2105066, 2105067, 2105068, 2105069, 2105070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	101	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Cadmium	98.6	98.8	P/P	90 - 110
Cadmium	98.8	98.8	P/P	90 - 110
Chromium	96.2	96.6	P/P	90 - 110
Chromium	96.6	96.3	P/P	90 - 110
Copper	102	102	P/P	90 - 110
Copper	102	102	P/P	90 - 110
Lead	97.8	97.6	P/P	90 - 110
Lead	98.2	97.8	P/P	90 - 110
Nickel	102	102	P/P	90 - 110
Nickel	102	102	P/P	90 - 110
Silver	95.9	96.0	P/P	90 - 110
Silver	96.0	96.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93596

Included Lab Sample IDs: 2105059, 2105060, 2105061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	102	P/P	90 - 110
Cadmium	99.9	100	P/P	90 - 110
Chromium	98.2	96.3	P/P	90 - 110
Copper	100	101	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Nickel	100	99.8	P/P	90 - 110
Nickel	99.8	102	P/P	90 - 110
Silver	105	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93642

Included Lab Sample IDs: 2105060, 2105061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	99.0	99.8	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	102	103	105				0.260
	Iron	101	102	106	107			0.544
	Iron	104	99.1	98.3	97.6			0.714
	Magnesium	102	104	103				0.560
	Manganese	100	93.9	93.9	94.0			0.122
	Potassium	97.9	103	101	100			0.432
	Sodium	97.8	101	99.7				0.219
	Zinc	95.8	96.4	101	101			0.0139
	Zinc	98.4	101	99.4	100			0.644
EPA 200.8 Rev. 5.4	Arsenic	103	104	105	104			1.27
	Arsenic	101	117	108	102			5.47
	Cadmium	99.3	100	98.8	96.1			2.78
	Cadmium	101	102	99.2	93.5			5.91
	Chromium	95.4	93.1	92.9	91.1			1.87
	Chromium	97.5	91.0	91.1	86.3			5.31
	Copper	100	97.2	99.4	98.3			1.12
	Copper	97.7	71.5	98.7	94.3			4.59
	Lead	94.3	95.8	97.0	94.2			2.92
	Lead	102	110	101	94.1			6.75
	Nickel	101	97.6	98.6	97.2			1.40
	Nickel	99.6	107	98.1	94.1			4.18
	Silver	93.8	92.6	93.4	92.4			1.03
	Silver	103	101	97.4	93.3			4.29
EPA 350.1 Rev. 2.0	Ammonia-N	105	104	108				2.61
	Ammonia-N	104	103	102				1.60
	Ammonia-N	104	103	104				0.751
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	105				2.81
	Kjeldahl Nitrogen	106	104	106				1.38
	Kjeldahl Nitrogen	104	100	107				3.57
	Kjeldahl Nitrogen	102						2.73
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.0	99.0				0.0
	NO2NO3-N	99.5	99.5	99.5				0.0
	NO2NO3-N	100	96.6	97.6				0.964
EPA 365.1 Rev. 2.0	Total-P	102	93.1	95.0				1.87
	Total-P	97.0	100	105				4.57
	Total-P	98.3	98.4	98.9				0.406
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	97.2	98.6				1.01
	O-Phosphate-P	99.9	94.7	95.3				0.490
	O-Phosphate-P	97.7	94.7	96.3				1.30
SM 2320 B-97	Total Alkalinity	103					0.554	
	Total Alkalinity	103					0.0517	
SM 4500 F-C-97	Fluoride	97.6	97.1	97.1				0.0
	Fluoride	97.2	95.8	96.5				0.476
SM 5310 B-00	Organic Carbon	105	105	104				0.832
	Organic Carbon	105	105	104				0.318
SM 5310 B-00 dissolved	Organic Carbon	105	105	104				0.832
	Organic Carbon	105	105	104				0.318

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	2105059, 2105060, 2105061, 2105062, 2105063, 2105064, 2105065, 2105066, 2105067, 2105068, 2105069, 2105070
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2105059, 2105060, 2105061, 2105062, 2105063, 2105064, 2105065, 2105066, 2105067, 2105068, 2105069, 2105070
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2105011, 2105012, 2105013, 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2105011, 2105012, 2105013, 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2105011, 2105012, 2105013, 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2105011, 2105012, 2105013, 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2105015, 2105016, 2105017, 2105018, 2105035, 2105036, 2105037, 2105038, 2105039, 2105040, 2105041, 2105042
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2105003, 2105004, 2105005, 2105006
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2105003, 2105004, 2105005, 2105006
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2105011, 2105012, 2105013, 2105014, 2105027, 2105028, 2105029, 2105030, 2105031, 2105032, 2105033, 2105034
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2105007, 2105008, 2105009, 2105010, 2105019, 2105020, 2105021, 2105022, 2105023, 2105024, 2105025, 2105026

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	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 13:59	Betina Topolski	2105062
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 14:10	Betina Topolski	2105063
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 14:17	Betina Topolski	2105064
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 14:23	Betina Topolski	2105065
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 14:54	Betina Topolski	2105066
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 15:01	Betina Topolski	2105067
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 15:21	Betina Topolski	2105068
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 15:27	Betina Topolski	2105069
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	07/26/2019 15:35	Betina Topolski	2105070
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/01/2019 17:27	Betina Topolski	2105059
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/01/2019 17:34	Betina Topolski	2105060
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/01/2019 17:42	Betina Topolski	2105061
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/02/2019 17:36	Betina Topolski	2105059
EPA 200.8 Rev. 5.4	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 03:34	Robert K Palmer	2105062
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 03:43	Robert K Palmer	2105063
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 03:53	Robert K Palmer	2105064
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 04:02	Robert K Palmer	2105065
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 04:12	Robert K Palmer	2105066
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 04:50	Robert K Palmer	2105067
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 05:09	Robert K Palmer	2105068
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 05:18	Robert K Palmer	2105069
	07/23/2019	07/25/2019 16:40	Elliott D. Healy	08/03/2019 05:28	Robert K Palmer	2105070
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/16/2019 17:33	Martin Acosta	2105059
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/16/2019 17:42	Martin Acosta	2105060
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/16/2019 17:52	Martin Acosta	2105061
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/16/2019 22:38	Martin Acosta	2105059
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/16/2019 22:48	Martin Acosta	2105060
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/16/2019 22:57	Martin Acosta	2105061
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/20/2019 10:04	Martin Acosta	2105060
	07/23/2019	07/31/2019 15:35	Elliott D. Healy	08/20/2019 10:14	Martin Acosta	2105061
EPA 350.1 Rev. 2.0	07/23/2019			07/31/2019 13:29	Virginia P. Brown	2105011
	07/23/2019			07/31/2019 13:31	Virginia P. Brown	2105012
	07/23/2019			07/31/2019 13:32	Virginia P. Brown	2105013
	07/23/2019			07/31/2019 14:46	Virginia P. Brown	2105014
	07/23/2019			07/31/2019 14:47	Virginia P. Brown	2105027
	07/23/2019			08/01/2019 15:45	Virginia P. Brown	2105029
	07/23/2019			08/01/2019 15:52	Virginia P. Brown	2105030
	07/23/2019			08/01/2019 15:54	Virginia P. Brown	2105031
	07/23/2019			08/01/2019 15:55	Virginia P. Brown	2105032
	07/23/2019			08/01/2019 15:57	Virginia P. Brown	2105033

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	07/23/2019			08/01/2019 15:58	Virginia P. Brown	2105034
	07/23/2019			08/01/2019 16:01	Virginia P. Brown	2105028
EPA 351.2 Rev. 2.0	07/23/2019	07/25/2019 12:00	Adrian Shelby	07/26/2019 09:43	Joseph Suarez	2105011
	07/23/2019	07/25/2019 12:00	Adrian Shelby	07/26/2019 09:45	Joseph Suarez	2105012
	07/23/2019	07/25/2019 12:00	Adrian Shelby	07/26/2019 09:46	Joseph Suarez	2105013
	07/23/2019	07/25/2019 12:00	Adrian Shelby	07/26/2019 14:55	Joseph Suarez	2105014
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 10:11	Joseph Suarez	2105027
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 10:13	Joseph Suarez	2105028
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 10:14	Joseph Suarez	2105029
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 11:01	Joseph Suarez	2105030
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 11:03	Joseph Suarez	2105031
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 11:04	Joseph Suarez	2105032
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 11:09	Joseph Suarez	2105033
	07/23/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 11:10	Joseph Suarez	2105034
EPA 353.2 Rev. 2.0	07/23/2019			07/24/2019 09:04	Beverly Y. Sanders	2105014
	07/23/2019			07/24/2019 09:11	Beverly Y. Sanders	2105027
	07/23/2019			07/24/2019 09:17	Beverly Y. Sanders	2105028
	07/23/2019			07/24/2019 09:18	Beverly Y. Sanders	2105029
	07/23/2019			07/24/2019 09:19	Beverly Y. Sanders	2105030
	07/23/2019			07/24/2019 09:20	Beverly Y. Sanders	2105031
	07/23/2019			07/24/2019 09:21	Beverly Y. Sanders	2105032
	07/23/2019			07/24/2019 09:23	Beverly Y. Sanders	2105033
	07/23/2019			07/24/2019 09:24	Beverly Y. Sanders	2105034
	07/23/2019			07/25/2019 09:39	Beverly Y. Sanders	2105011
	07/23/2019			07/25/2019 09:40	Beverly Y. Sanders	2105012
	07/23/2019			07/25/2019 09:41	Beverly Y. Sanders	2105013
EPA 365.1 Rev. 2.0	07/23/2019	07/24/2019 11:15	Vijayalakshmi Reddy	07/25/2019 09:32	Lipi Saha	2105014
	07/23/2019	07/24/2019 11:15	Vijayalakshmi Reddy	07/25/2019 09:33	Lipi Saha	2105027
	07/23/2019	07/24/2019 11:15	Vijayalakshmi Reddy	07/25/2019 12:28	Lipi Saha	2105011
	07/23/2019	07/24/2019 11:15	Vijayalakshmi Reddy	07/25/2019 12:29	Lipi Saha	2105012
	07/23/2019	07/24/2019 11:15	Vijayalakshmi Reddy	07/25/2019 12:30	Lipi Saha	2105013
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:28	Lipi Saha	2105028
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:35	Lipi Saha	2105029
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:36	Lipi Saha	2105030
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:38	Lipi Saha	2105031
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:39	Lipi Saha	2105032
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:40	Lipi Saha	2105033
	07/23/2019	07/25/2019 12:40	Vijayalakshmi Reddy	07/26/2019 10:41	Lipi Saha	2105034
EPA 365.1 Rev. 2.0 dissolved	07/23/2019			07/23/2019 15:53	Jhamieka S. Greenwood	2105016
	07/23/2019			07/23/2019 16:14	Jhamieka S. Greenwood	2105018

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	07/23/2019			07/23/2019 16:15	Jhamieka S. Greenwood	2105035
	07/23/2019			07/23/2019 16:16	Jhamieka S. Greenwood	2105036
	07/23/2019			07/23/2019 16:17	Jhamieka S. Greenwood	2105037
	07/23/2019			07/23/2019 16:18	Jhamieka S. Greenwood	2105038, 2105039
	07/23/2019			07/23/2019 16:19	Jhamieka S. Greenwood	2105040
	07/23/2019			07/23/2019 16:25	Jhamieka S. Greenwood	2105015
	07/23/2019			07/23/2019 16:26	Jhamieka S. Greenwood	2105017
	07/23/2019			07/23/2019 16:42	Jhamieka S. Greenwood	2105042
	07/23/2019			07/23/2019 16:55	Jhamieka S. Greenwood	2105041
SM 2320 B-97	07/23/2019			07/25/2019 08:45	Dale L. Simmons	2105005
	07/23/2019			07/25/2019 09:44	Dale L. Simmons	2105003
	07/23/2019			07/25/2019 09:57	Dale L. Simmons	2105004
SM 4500 F-C-97	07/23/2019			07/26/2019 02:27	Dale L. Simmons	2105006
	07/23/2019			07/25/2019 06:24	Dale L. Simmons	2105005
	07/23/2019			07/25/2019 07:10	Dale L. Simmons	2105003
	07/23/2019			07/25/2019 08:10	Dale L. Simmons	2105004
SM 5310 B-00	07/23/2019			07/26/2019 02:27	Dale L. Simmons	2105006
	07/23/2019			07/25/2019 04:27	Madeline Funaro	2105014
	07/23/2019			07/25/2019 04:41	Madeline Funaro	2105027
	07/23/2019			07/25/2019 04:54	Madeline Funaro	2105028
	07/23/2019			07/25/2019 05:08	Madeline Funaro	2105029
	07/23/2019			07/25/2019 05:22	Madeline Funaro	2105030
	07/23/2019			07/25/2019 05:35	Madeline Funaro	2105031
	07/23/2019			07/25/2019 05:49	Madeline Funaro	2105032
	07/23/2019			07/25/2019 06:03	Madeline Funaro	2105033
	07/23/2019			07/25/2019 06:44	Madeline Funaro	2105034
	07/23/2019			07/25/2019 07:27	Madeline Funaro	2105011
	07/23/2019			07/25/2019 09:40	Madeline Funaro	2105012
	07/23/2019			07/25/2019 12:23	Madeline Funaro	2105013
SM 5310 B-00 dissolved	07/23/2019			07/25/2019 01:44	Madeline Funaro	2105009
	07/23/2019			07/25/2019 01:58	Madeline Funaro	2105010
	07/23/2019			07/25/2019 02:11	Madeline Funaro	2105019
	07/23/2019			07/25/2019 02:24	Madeline Funaro	2105020
	07/23/2019			07/25/2019 02:38	Madeline Funaro	2105021
	07/23/2019			07/25/2019 02:52	Madeline Funaro	2105022
	07/23/2019			07/25/2019 03:05	Madeline Funaro	2105023
	07/23/2019			07/25/2019 03:19	Madeline Funaro	2105024
	07/23/2019			07/25/2019 04:00	Madeline Funaro	2105025
	07/23/2019			07/25/2019 04:13	Madeline Funaro	2105026
	07/23/2019			07/25/2019 08:47	Madeline Funaro	2105007

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00 dissolved	07/23/2019			07/25/2019 09:27	Madeline Funaro	2105008