

Chemical Analysis Report

SW-DIST-2019-09-17-01

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

Event Description: **Hunter, Wire, Beulah w/Dup&Blank**

Request ID: **RQ-2019-09-16-04**

Customer: **SW-DIST**

Project ID: **SMP**

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Date Certified: 10-OCT-2019 15:22



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: LAKE WIRE WEST

Collection Date/Time: 09/16/2019 09:45

Field ID: G2SW0056

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2119796	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P370836	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P371124	
		Sulfate	0.38	I	mg SO4/L	P371128	
		Color (true)	12		PCU	P370942	
	SM 2320 B-97	Total Alkalinity	39		mg CaCO3/L	P371113	
	SM 2540 C-97	TDS	54		mg/L	P371458	
	SM 2540 D-97	TSS	2	U	mg/L	P371391	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P371117	
2119802	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P370996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P370969	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P370970	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P370982	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P371108	
2119808	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370818	
2119832	EPA 200.7 Rev. 4.4	Barium	10.7		ug/L	P371002	
		Calcium	15.0		mg/L	P371002	
		Iron	30	U	ug/L	P371002	
		Magnesium	1.12		mg/L	P371002	
		Potassium	0.30	U	mg/L	P371002	
		Sodium	2.1		mg/L	P371002	
		Zinc	5.0	U	ug/L	P371002	
	EPA 200.8 Rev. 5.4	Aluminum	15	I	ug/L	P371002	
		Antimony	0.23		ug/L	P371002	
		Arsenic	1.23		ug/L	P371002	
		Boron**	21.7		ug/L	P371002	
		Cadmium	0.020	U	ug/L	P371002	
		Chromium	0.40	U	ug/L	P371002	
		Copper	0.40	U	ug/L	P371002	
		Lead	1.11		ug/L	P371002	
		Nickel	0.50	U	ug/L	P371002	
		Selenium	0.20	U	ug/L	P371002	
		Silver	0.010	U	ug/L	P371002	
		Thallium	0.10	U	ug/L	P371002	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 10/07/2019.

Sample Location: LAKE HUNTER @ CENTER

Collection Date/Time: 09/16/2019 10:25

Field ID: G2SW0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2119797	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P370836	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P371124	
		Sulfate	2.3		mg SO4/L	P371128	
		Color (true)	21		PCU	P370943	
	SM 2120 B	Total Alkalinity	50		mg CaCO3/L	P371113	
	SM 2540 C-97	TDS	75		mg/L	P371458	
	SM 2540 D-97	TSS	26		mg/L	P371391	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P371117	
2119803	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P370996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P370969	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370970	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P371313	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P371108	
2119809	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P370819	
2119833	EPA 200.7 Rev. 4.4	Barium	7.4		ug/L	P371002	
		Calcium	19.5		mg/L	P371002	
		Iron	150		ug/L	P371002	
		Magnesium	1.77		mg/L	P371002	
		Potassium	1.2		mg/L	P371002	
		Sodium	4.8		mg/L	P371002	
		Zinc	5.0	U	ug/L	P371002	
	EPA 200.8 Rev. 5.4	Aluminum	292		ug/L	P371002	
		Antimony	0.41		ug/L	P371002	
		Arsenic	0.68		ug/L	P371002	
		Boron**	181		ug/L	P371002	
		Cadmium	0.020	U	ug/L	P371002	
		Chromium	0.40	U	ug/L	P371002	
		Copper	0.66	I	ug/L	P371002	
		Lead	0.83		ug/L	P371002	
		Nickel	0.50	U	ug/L	P371002	
		Selenium	0.20	U	ug/L	P371002	
		Silver	0.010	U	ug/L	P371002	
		Thallium	0.10	U	ug/L	P371002	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE HUNTER @ CENTER

Collection Date/Time: 09/16/2019 10:30

Field ID: g2sw0076_dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2119798	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P370836	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P371124	
		Sulfate	2.3		mg SO4/L	P371128	
		Color (true)	21		PCU	P370943	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P371113	
	SM 2540 C-97	TDS	73		mg/L	P371458	
	SM 2540 D-97	TSS	25		mg/L	P371391	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P371117	
2119804	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P370996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P370969	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370970	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P371313	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P371108	
2119810	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P370819	
2119834	EPA 200.7 Rev. 4.4	Barium	7.1		ug/L	P371002	
		Calcium	19.2		mg/L	P371002	
		Iron	140		ug/L	P371002	
		Magnesium	1.73		mg/L	P371002	
		Potassium	1.3		mg/L	P371002	
		Sodium	5.0		mg/L	P371002	
		Zinc	5.0	U	ug/L	P371002	
	EPA 200.8 Rev. 5.4	Aluminum	293		ug/L	P371002	
		Antimony	0.42		ug/L	P371002	
		Arsenic	0.68		ug/L	P371002	
		Boron**	190		ug/L	P371002	
		Cadmium	0.020	U	ug/L	P371002	
		Chromium	0.40	U	ug/L	P371002	
		Copper	0.59	I	ug/L	P371002	
		Lead	0.83		ug/L	P371002	
		Nickel	0.50	U	ug/L	P371002	
		Selenium	0.20	U	ug/L	P371002	
		Silver	0.010	U	ug/L	P371002	
		Thallium	0.10	U	ug/L	P371002	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Field_Blank

Collection Date/Time: 09/16/2019 11:00

Field ID: FB 09162019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2119799	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P370836	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P371124	
		Sulfate	0.20	U	mg SO4/L	P371128	
		Color (true)	2.5	U	PCU	P370942	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P371114	
	SM 2540 C-97	TDS	15	U	mg/L	P371455	
	SM 2540 D-97	TSS	2	U	mg/L	P371388	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P371118	
2119805	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P370969	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P370971	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P371065	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P371108	
2119811	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370819	
2119835	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P371002	
		Calcium	0.075	U	mg/L	P371002	
		Iron	30	U	ug/L	P371002	
		Magnesium	0.040	U	mg/L	P371002	
		Potassium	0.30	U	mg/L	P371002	
		Sodium	0.50	U	mg/L	P371002	
		Zinc	5.0	U	ug/L	P371002	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P371002	
		Antimony	0.050	U	ug/L	P371002	
		Arsenic	0.050	U	ug/L	P371002	
		Boron**	2.0	U	ug/L	P371002	
		Cadmium	0.020	U	ug/L	P371002	
		Chromium	0.40	U	ug/L	P371002	
		Copper	0.40	U	ug/L	P371002	
		Lead	0.20	U	ug/L	P371002	
		Nickel	0.50	U	ug/L	P371002	
		Selenium	0.20	U	ug/L	P371002	
		Silver	0.010	U	ug/L	P371002	
		Thallium	0.10	U	ug/L	P371002	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: The result was confirmed on 09/23/2019.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 10/01/2019.

Sample Location: LAKE BEULAH SW

Collection Date/Time: 09/16/2019 11:15

Field ID: G2SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2119800	EPA 180.1 Rev. 2.0	Turbidity	51		NTU	P370836	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P371124	
		Sulfate	3.0		mg SO4/L	P371128	
		Color (true)	7.4	A	PCU	P370944	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P371114	
	SM 2540 C-97	TDS	71		mg/L	P371458	
	SM 2540 D-97	TSS	27		mg/L	P371391	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P371118	
2119806	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P370996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.4		mg N/L	P370969	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370971	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P370982	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P371108	
2119812	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370819	
2119836	EPA 200.7 Rev. 4.4	Barium	4.9		ug/L	P371002	
		Calcium	19.0		mg/L	P371002	
		Iron	59	I	ug/L	P371002	
		Magnesium	1.70		mg/L	P371002	
		Potassium	2.4		mg/L	P371002	
		Sodium	2.5		mg/L	P371002	
		Zinc	5.0	U	ug/L	P371002	
	EPA 200.8 Rev. 5.4	Aluminum	21		ug/L	P371002	
		Antimony	0.14	I	ug/L	P371002	
		Arsenic	0.58		ug/L	P371002	
		Boron**	130		ug/L	P371002	
		Cadmium	0.020	U	ug/L	P371002	
		Chromium	0.40	U	ug/L	P371002	
		Copper	0.40	U	ug/L	P371002	
		Lead	0.20	U	ug/L	P371002	
		Nickel	0.50	U	ug/L	P371002	
		Selenium	0.20	U	ug/L	P371002	
		Silver	0.010	U	ug/L	P371002	
		Thallium	0.10	U	ug/L	P371002	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE HUNTER NORTH

Collection Date/Time: 09/16/2019 10:45

Field ID: G2SW0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2119801	EPA 180.1 Rev. 2.0	Turbidity	14	A	NTU	P370836	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P371124	
		Sulfate	2.4		mg SO4/L	P371128	
		Color (true)	21	A	PCU	P370943	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P371114	
	SM 2540 C-97	TDS	76		mg/L	P371458	
	SM 2540 D-97	TSS	23	I	mg/L	P371391	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P371118	
2119807	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P370996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P370961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370971	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P370982	
	SM 5310 B-00	Organic Carbon	8.1		mg C/L	P371108	
2119813	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370819	
2119837	EPA 200.7 Rev. 4.4	Barium	7.5		ug/L	P371002	
		Calcium	19.7		mg/L	P371002	
		Iron	130		ug/L	P371002	
		Magnesium	1.78		mg/L	P371002	
		Potassium	1.3		mg/L	P371002	
		Sodium	5.0		mg/L	P371002	
		Zinc	5.0	U	ug/L	P371002	
	EPA 200.8 Rev. 5.4	Aluminum	274		ug/L	P371002	
		Antimony	0.41		ug/L	P371002	
		Arsenic	0.65		ug/L	P371002	
		Boron**	193		ug/L	P371002	
		Cadmium	0.020	U	ug/L	P371002	
		Chromium	0.40	U	ug/L	P371002	
		Copper	1.07		ug/L	P371002	
		Lead	0.67		ug/L	P371002	
		Nickel	0.50	U	ug/L	P371002	
		Selenium	0.20	U	ug/L	P371002	
		Silver	0.010	U	ug/L	P371002	
		Thallium	0.10	U	ug/L	P371002	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370836

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P371002

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P371002

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	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
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371124

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371128

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370996

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370961

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370969

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370970

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370971

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370982

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371313

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370818

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370819

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P370942

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P370943

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P370944

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P371113

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

Reference Method: SM 2320 B-97
Batch ID: P371114

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

Reference Method: SM 2540 C-97
Batch ID: P371455

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P371458

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P371388

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P371391

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P371117

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P371118

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P371108

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: P371002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	108		P	85 - 115
Iron	107		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	104		P	85 - 115
Sodium	107		P	85 - 115
Zinc	97.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P371002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.3		P	85 - 115
Antimony	99.7		P	85 - 115
Arsenic	102		P	85 - 115
Boron	101		P	85 - 115
Cadmium	96.3		P	85 - 115
Chromium	95.2		P	85 - 115
Copper	101		P	85 - 115
Lead	98.7		P	85 - 115
Nickel	100		P	85 - 115
Selenium	100		P	85 - 115
Silver	101		P	85 - 115
Thallium	99.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371124

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371128

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370996

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370961

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370969

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370970

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370971

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370982

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370818

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370819

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

Reference Method: SM 2120 B
Batch ID: P370942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P370943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P370944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P371113

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

Reference Method: SM 2320 B-97
Batch ID: P371114

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

Reference Method: SM 4500 F-C-97
Batch ID: P371117

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

Reference Method: SM 4500 F-C-97
Batch ID: P371118

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

Reference Method: SM 5310 B-00
Batch ID: P371108

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P371002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119832	Barium	103	99.8	P/P	80 - 120
2119832	Calcium	101		P	80 - 120
2119832	Iron	110	109	P/P	80 - 120
2119832	Magnesium	113	110	P/P	80 - 120
2119832	Potassium	109	108	P/P	80 - 120
2119832	Sodium	105	105	P/P	80 - 120
2119832	Zinc	101	97.6	P/P	80 - 120
2120147	Barium	95.2		P	80 - 120
2120147	Calcium	105		P	80 - 120
2120147	Iron	103		P	80 - 120
2120147	Magnesium	99.1		P	80 - 120
2120147	Potassium	97.1		P	80 - 120
2120147	Sodium	97.6		P	80 - 120
2120147	Zinc	95.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P371002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119832	Aluminum	98.1	97.4	P/P	80 - 120
2119832	Antimony	101	100	P/P	80 - 120
2119832	Arsenic	102	102	P/P	80 - 120
2119832	Boron	104	105	P/P	80 - 120
2119832	Cadmium	99.2	97.6	P/P	80 - 120
2119832	Chromium	95.3	94.9	P/P	80 - 120
2119832	Copper	107	102	P/P	80 - 120
2119832	Lead	99.9	100	P/P	80 - 120
2119832	Nickel	102	101	P/P	80 - 120
2119832	Selenium	99.6	99.4	P/P	80 - 120
2119832	Silver	105	102	P/P	80 - 120
2119832	Thallium	103	103	P/P	80 - 120
2120147	Aluminum	96.0		P	80 - 120
2120147	Antimony	101		P	80 - 120
2120147	Arsenic	103		P	80 - 120
2120147	Boron	101		P	80 - 120
2120147	Cadmium	95.4		P	80 - 120
2120147	Chromium	95.4		P	80 - 120
2120147	Copper	101		P	80 - 120
2120147	Lead	99.5		P	80 - 120
2120147	Nickel	99.6		P	80 - 120
2120147	Selenium	98.6		P	80 - 120
2120147	Silver	99.8		P	80 - 120
2120147	Thallium	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119683	Chloride	99.2		P	90 - 110
2119797	Chloride	99.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119797	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119802	Ammonia-N	96.5	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120031	Kjeldahl Nitrogen	103	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119779	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119802	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119806	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119802	Total-P	96.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120214	Total-P	96.7	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2121266	Total-P	99.6	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119808	O-Phosphate-P	97.2	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119812	O-Phosphate-P	97.8	97.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P371117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120409	Fluoride	96.9	95.4	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P371118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120062	Fluoride	98.1	97.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P371108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119806	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119801	Turbidity	4.38	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P371002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119832	Barium	3.34	Spike	P	0 - 20
2119832	Calcium	1.90	Spike	P	0 - 20
2119832	Iron	1.40	Spike	P	0 - 20
2119832	Magnesium	2.14	Spike	P	0 - 20
2119832	Potassium	0.782	Spike	P	0 - 20
2119832	Sodium	0.428	Spike	P	0 - 20
2119832	Zinc	3.27	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P371002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119832	Aluminum	0.769	Spike	P	0 - 20
2119832	Antimony	0.464	Spike	P	0 - 20
2119832	Arsenic	0.280	Spike	P	0 - 20
2119832	Boron	0.307	Spike	P	0 - 20
2119832	Cadmium	1.63	Spike	P	0 - 20
2119832	Chromium	0.511	Spike	P	0 - 20
2119832	Copper	4.58	Spike	P	0 - 20
2119832	Lead	0.121	Spike	P	0 - 20
2119832	Nickel	1.21	Spike	P	0 - 20
2119832	Selenium	0.197	Spike	P	0 - 20
2119832	Silver	2.80	Spike	P	0 - 20
2119832	Thallium	0.0415	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119683	Chloride	1.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119683	Sulfate	1.69	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119802	Ammonia-N	0.548	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120031	Kjeldahl Nitrogen	2.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119779	Kjeldahl Nitrogen	1.59	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119802	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119806	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119802	Total-P	4.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120214	Total-P	2.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2121266	Total-P	1.69	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119808	O-Phosphate-P	1.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119812	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P370942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119665	Color (true)	1.34	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P370943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119801	Color (true)	0.499	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P370944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119800	Color (true)	9.03	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P371113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120409	Total Alkalinity	1.95	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P371114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120062	Total Alkalinity	0.468	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P371455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119562	TDS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P371458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119857	TDS	5.93	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P371117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120409	Fluoride	1.47	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P371118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120062	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P371108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119806	Organic Carbon	0.421	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94268

Included Lab Sample IDs: 2119796, 2119797, 2119798, 2119799, 2119800, 2119801

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94279

Included Lab Sample IDs: 2119808, 2119809, 2119810, 2119811, 2119812, 2119813

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94291

Included Lab Sample IDs: 2119796, 2119797, 2119798, 2119799, 2119800, 2119801

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

Reference Method: SM 2120 B

Run ID: A94335

Included Lab Sample IDs: 2119796, 2119797, 2119798, 2119799, 2119800, 2119801

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94338

Included Lab Sample IDs: 2119802, 2119803, 2119804, 2119805, 2119806, 2119807

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94340

Included Lab Sample IDs: 2119802, 2119803, 2119804, 2119805, 2119806, 2119807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	99.7	P/P	90 - 110
Ammonia-N	99.7	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94380

Included Lab Sample IDs: 2119806, 2119807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.9	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94386

Included Lab Sample IDs: 2119832, 2119833, 2119834, 2119835, 2119836, 2119837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.4	98.3	P/P	90 - 110
Aluminum	99.5	98.4	P/P	90 - 110
Boron	101	103	P/P	90 - 110
Boron	102	101	P/P	90 - 110
Thallium	93.6	93.0	P/P	90 - 110
Thallium	94.2	93.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A94387

Included Lab Sample IDs: 2119832, 2119833, 2119834, 2119835, 2119836, 2119837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	103	P/P	90 - 110
Barium	98.0	101	P/P	90 - 110
Barium	98.8	98.0	P/P	95 - 105
Calcium	100	108	P/P	90 - 110
Calcium	102	100	P/P	95 - 105
Calcium	108	105	P/P	90 - 110
Iron	100	110	P/P	90 - 110
Iron	104	100	P/P	95 - 105
Iron	110	107	P/P	90 - 110
Magnesium	102	100	P/P	95 - 105
Magnesium	109	106	P/P	90 - 110
Magnesium	100	109	P/P	90 - 110
Potassium	102	99.7	P/P	95 - 105
Potassium	109	107	P/P	90 - 110
Potassium	99.7	109	P/P	90 - 110
Sodium	102	102	P/P	95 - 105
Zinc	95.8	97.6	P/P	95 - 105
Zinc	97.6	98.4	P/P	90 - 110
Zinc	98.4	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A94398

Included Lab Sample IDs: 2119796, 2119797, 2119798, 2119799, 2119800, 2119801

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

Reference Method: SM 4500 F-C-97

Run ID: A94398

Included Lab Sample IDs: 2119796, 2119797, 2119798, 2119799, 2119800, 2119801

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.1	P/P	90 - 110
Fluoride	99.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A94399

Included Lab Sample IDs: 2119802, 2119803, 2119804, 2119805, 2119806, 2119807

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94411

Included Lab Sample IDs: 2119807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94412

Included Lab Sample IDs: 2119802, 2119803, 2119804, 2119805, 2119806

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	97.2	P/P	90 - 110
Kjeldahl Nitrogen	97.2	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94415

Included Lab Sample IDs: 2119802

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A94416

Included Lab Sample IDs: 2119832, 2119833, 2119834, 2119836, 2119837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	96.8	97.5	P/P	90 - 110
Sodium	98.4	96.8	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94422

Included Lab Sample IDs: 2119805

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94517

Included Lab Sample IDs: 2119803, 2119804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A9471

Included Lab Sample IDs: 2119832, 2119833, 2119834, 2119835, 2119836, 2119837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	95.7	95.8	P/P	90 - 110
Nickel	101	102	P/P	90 - 110
Selenium	99.4	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94722

Included Lab Sample IDs: 2119832, 2119833, 2119834, 2119835, 2119836, 2119837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	101	P/P	90 - 110
Cadmium	95.4	96.3	P/P	90 - 110
Chromium	93.7	96.0	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	99.6	101	P/P	90 - 110
Silver	98.0	98.3	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity								4.38	
EPA 200.7 Rev. 4.4	Barium	100			103	99.8	95.2			3.34
	Calcium	108			101	105				1.90
	Iron	107			110	109	103			1.40
	Magnesium	110			113	110	99.1			2.14
	Potassium	104			109	108	97.1			0.782
	Sodium	107			105	105	97.6			0.428
	Zinc	97.4			101	97.6	95.5			3.27
EPA 200.8 Rev. 5.4	Aluminum	97.3			98.1	97.4	96.0			0.769
	Antimony	99.7			101	100	101			0.464
	Arsenic	102			102	102	103			0.280
	Boron	101			104	105	101			0.307
	Cadmium	96.3			99.2	97.6	95.4			1.63
	Chromium	95.2			95.3	94.9	95.4			0.511
	Copper	101			107	102	101			4.58
	Lead	98.7			99.9	100	99.5			0.121
	Nickel	100			102	101	99.6			1.21
	Selenium	100			99.6	99.4	98.6			0.197
	Silver	101			105	102	99.8			2.80
	Thallium	99.6			103	103	101			0.0415
EPA 300.0 Rev. 2.1	Chloride	98.3			99.2	99.8			1.08	
	Sulfate	99.5			102				1.69	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0			96.5	97.1				0.548
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103			103	99.8				2.32
	Kjeldahl Nitrogen	101			99.0	101				1.59
EPA 353.2 Rev. 2.0	NO2NO3-N	100			101	102				0.962
	NO2NO3-N	99.5			103	102				1.47
EPA 365.1 Rev. 2.0	Total-P	97.4			96.4	101				4.17
	Total-P	99.8			96.7	99.2				2.53
	Total-P	97.2			99.6	102				1.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4			97.2	98.4				1.23
	O-Phosphate-P	102			97.8	97.8				0.0
SM 2120 B	Color (true)	102							1.34	
	Color (true)	102							0.499	
	Color (true)	101							9.03	
SM 2320 B-97	Total Alkalinity	103							1.95	
	Total Alkalinity	104							0.468	
SM 2540 C-97	TDS								0.0	
	TDS								5.93	
SM 4500 F-C-97	Fluoride	97.2			96.9	95.4				1.47
	Fluoride	97.2			98.1	97.4				0.476
SM 5310 B-00	Organic Carbon	103			102	103				0.421

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2119832, 2119833, 2119834, 2119835, 2119836, 2119837
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2119832, 2119833, 2119834, 2119835, 2119836, 2119837
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2119796, 2119797, 2119798, 2119799, 2119800, 2119801

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2119802, 2119803, 2119804, 2119805, 2119806, 2119807
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2119802, 2119803, 2119804, 2119805, 2119806, 2119807
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2119802, 2119803, 2119804, 2119805, 2119806, 2119807
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2119802, 2119803, 2119804, 2119805, 2119806, 2119807
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2119808, 2119809, 2119810, 2119811, 2119812, 2119813
SM 2120 B / E31780	True Color measured at 450 nm	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2119802, 2119803, 2119804, 2119805, 2119806, 2119807

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	09/17/2019			09/17/2019 15:16	Samantha Davila	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
EPA 200.7 Rev. 4.4	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/20/2019 13:44	Alexander Thompson	2119835
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/20/2019 15:21	Alexander Thompson	2119832
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/20/2019 16:15	Alexander Thompson	2119833
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/20/2019 16:22	Alexander Thompson	2119834
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/20/2019 16:29	Alexander Thompson	2119836
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/20/2019 16:37	Alexander Thompson	2119837
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/23/2019 11:25	Alexander Thompson	2119832
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/23/2019 11:52	Alexander Thompson	2119833
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/23/2019 11:58	Alexander Thompson	2119834
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/23/2019 12:15	Alexander Thompson	2119836
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/23/2019 12:21	Alexander Thompson	2119837
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/21/2019 02:41	Justin Cutchin	2119835
EPA 200.8 Rev. 5.4	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/21/2019 04:36	Justin Cutchin	2119832
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/21/2019 05:04	Justin Cutchin	2119833
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/21/2019 05:14	Justin Cutchin	2119834
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/21/2019 05:23	Justin Cutchin	2119836
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	09/21/2019 05:33	Justin Cutchin	2119837
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/04/2019 02:49	Justin Cutchin	2119832
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/04/2019 03:18	Justin Cutchin	2119833
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/04/2019 03:27	Justin Cutchin	2119834
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/04/2019 03:37	Justin Cutchin	2119835
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/04/2019 03:46	Justin Cutchin	2119836
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/04/2019 03:56	Justin Cutchin	2119837
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/05/2019 05:28	Justin Cutchin	2119832
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/05/2019 05:56	Justin Cutchin	2119833
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/05/2019 06:06	Justin Cutchin	2119834
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/05/2019 06:15	Justin Cutchin	2119835
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/05/2019 06:25	Justin Cutchin	2119836
	09/17/2019	09/19/2019 16:45	Elliott D. Healy	10/05/2019 06:34	Justin Cutchin	2119837
EPA 300.0 Rev. 2.1	09/17/2019			09/20/2019 17:29	Jhamieka S. Greenwood	2119797
	09/17/2019			09/20/2019 19:55	Jhamieka S. Greenwood	2119796
	09/17/2019			09/20/2019 20:07	Jhamieka S. Greenwood	2119798
	09/17/2019			09/20/2019 20:19	Jhamieka S. Greenwood	2119799
	09/17/2019			09/20/2019 20:31	Jhamieka S. Greenwood	2119800
	09/17/2019			09/20/2019 20:43	Jhamieka S. Greenwood	2119801
EPA 350.1 Rev. 2.0	09/17/2019			09/19/2019 13:12	Ping Hua	2119802
	09/17/2019			09/19/2019 13:16	Ping Hua	2119804
	09/17/2019			09/19/2019 13:18	Ping Hua	2119803

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	09/17/2019			09/19/2019 13:19	Ping Hua	2119806
	09/17/2019			09/19/2019 13:21	Ping Hua	2119805
	09/17/2019			09/19/2019 13:28	Ping Hua	2119807
EPA 351.2 Rev. 2.0	09/17/2019	09/19/2019 12:30	Sima Feizi	09/20/2019 12:36	Julia Storbeck	2119807
	09/17/2019	09/19/2019 14:00	Sima Feizi	09/20/2019 17:42	Julia Storbeck	2119802
	09/17/2019	09/19/2019 14:00	Sima Feizi	09/20/2019 17:47	Julia Storbeck	2119803
	09/17/2019	09/19/2019 14:00	Sima Feizi	09/20/2019 17:48	Julia Storbeck	2119804
	09/17/2019	09/19/2019 14:00	Sima Feizi	09/20/2019 17:50	Julia Storbeck	2119805
	09/17/2019	09/19/2019 14:00	Sima Feizi	09/20/2019 17:51	Julia Storbeck	2119806
EPA 353.2 Rev. 2.0	09/17/2019			09/19/2019 10:39	Beverly Y. Sanders	2119802
	09/17/2019			09/19/2019 10:40	Beverly Y. Sanders	2119803
	09/17/2019			09/19/2019 10:42	Beverly Y. Sanders	2119804
	09/17/2019			09/19/2019 10:49	Beverly Y. Sanders	2119806
	09/17/2019			09/19/2019 10:55	Beverly Y. Sanders	2119805
	09/17/2019			09/19/2019 10:56	Beverly Y. Sanders	2119807
EPA 365.1 Rev. 2.0	09/17/2019	09/19/2019 14:14	Lipi Saha	09/20/2019 12:49	Rosalyn Ballman	2119806
	09/17/2019	09/19/2019 14:14	Lipi Saha	09/20/2019 12:50	Rosalyn Ballman	2119807
	09/17/2019	09/19/2019 14:14	Lipi Saha	09/20/2019 16:54	Rosalyn Ballman	2119802
	09/17/2019	09/20/2019 13:45	Lipi Saha	09/23/2019 20:36	Rosalyn Ballman	2119805
	09/17/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 11:26	Lipi Saha	2119803
	09/17/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 11:27	Lipi Saha	2119804
EPA 365.1 Rev. 2.0 dissolved	09/17/2019			09/17/2019 15:00	Jhamieka S. Greenwood	2119808
	09/17/2019			09/17/2019 15:05	Jhamieka S. Greenwood	2119812
	09/17/2019			09/17/2019 15:32	Jhamieka S. Greenwood	2119813
	09/17/2019			09/17/2019 15:39	Jhamieka S. Greenwood	2119809, 2119811
	09/17/2019			09/17/2019 15:40	Jhamieka S. Greenwood	2119810
SM 2120 B	09/17/2019			09/17/2019 18:46	Madeline Funaro	2119796
	09/17/2019			09/17/2019 18:47	Madeline Funaro	2119799
	09/17/2019			09/17/2019 18:51	Madeline Funaro	2119797
	09/17/2019			09/17/2019 18:52	Madeline Funaro	2119798
	09/17/2019			09/17/2019 18:54	Madeline Funaro	2119801
SM 2320 B-97	09/17/2019			09/17/2019 18:58	Madeline Funaro	2119800
	09/17/2019			09/20/2019 09:26	Dale L. Simmons	2119796
	09/17/2019			09/20/2019 09:39	Dale L. Simmons	2119797
	09/17/2019			09/20/2019 09:52	Dale L. Simmons	2119798
	09/17/2019			09/20/2019 12:16	Dale L. Simmons	2119799
SM 2540 C-97	09/17/2019			09/20/2019 12:28	Dale L. Simmons	2119800
	09/17/2019			09/20/2019 12:41	Dale L. Simmons	2119801
	09/17/2019			09/20/2019 15:02	Yijie Li	2119796, 2119797, 2119798, 2119799, 2119800, 2119801

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-97	09/17/2019			09/20/2019 15:02	Yijie Li	2119796, 2119797, 2119798, 2119799, 2119800, 2119801
SM 4500 F-C-97	09/17/2019			09/20/2019 09:26	Dale L. Simmons	2119796
	09/17/2019			09/20/2019 09:39	Dale L. Simmons	2119797
	09/17/2019			09/20/2019 09:52	Dale L. Simmons	2119798
	09/17/2019			09/20/2019 12:16	Dale L. Simmons	2119799
	09/17/2019			09/20/2019 12:28	Dale L. Simmons	2119800
SM 5310 B-00	09/17/2019			09/20/2019 12:41	Dale L. Simmons	2119801
	09/17/2019			09/20/2019 13:54	Madeline Funaro	2119806
	09/17/2019			09/20/2019 14:46	Madeline Funaro	2119807
	09/17/2019			09/20/2019 16:15	Madeline Funaro	2119802
	09/17/2019			09/20/2019 16:28	Madeline Funaro	2119803
	09/17/2019			09/20/2019 16:42	Madeline Funaro	2119804
	09/17/2019			09/20/2019 16:54	Madeline Funaro	2119805