

Chemical Analysis Report

NW-DIST-2019-07-24-02

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

Event Description: **Bay Walton County Run**
Request ID: **RQ-2019-07-22-13**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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: 09-AUG-2019 12:19



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: SEVEN RUNS UPSTREAM OF HWY 81

Collection Date/Time: 07/23/2019 10:15

Field ID: G3NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105581	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P367856	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P367958	
		Sulfate	2.3		mg SO4/L	P367960	
	SM 2120 B	Color (true)	33		PCU	P367907	
	SM 2320 B-97	Total Alkalinity	1.1	I	mg CaCO3/L	P367975	
	SM 2540 C-97	TDS	15	I	mg/L	P368344	
	SM 2540 D-97	TSS	3	I	mg/L	P368001	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367977	
2105586	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P368421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P368012	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P367987	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P367983	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P367969	
2105591	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367843	
2105611	EPA 200.7 Rev. 4.4	Barium	6.5		ug/L	P368145	
		Calcium	1.30		mg/L	P368145	
		Iron	130		ug/L	P368145	
		Magnesium	0.49		mg/L	P368145	
		Potassium	0.53	I	mg/L	P368145	
		Sodium	1.3	I	mg/L	P368145	
		Zinc	5.0	U	ug/L	P368145	
		Aluminum	101		ug/L	P368145	
		Antimony	0.050	U	ug/L	P368145	
		Arsenic	0.10	I	ug/L	P368145	
	EPA 200.8 Rev. 5.4	Boron**	6.5	I	ug/L	P368145	
		Cadmium	0.020	U	ug/L	P368145	
		Chromium	0.40	U	ug/L	P368145	
		Copper	0.40	U	ug/L	P368145	
		Lead	0.20	U	ug/L	P368145	
		Nickel	0.50	U	ug/L	P368145	
		Selenium	0.20	U	ug/L	P368145	
		Silver	0.010	U	ug/L	P368145	
		Thallium	0.10	U	ug/L	P368145	

Ref. Method and Comment:

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

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

Sample Location: OTTER CREEK UPSTREAM OF OTTER CREEK BRIDGE RD **Collection Date/Time: 07/23/2019 11:00**

Field ID: G3NW0133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105582	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P367856	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P367958	
		Sulfate	12		mg SO4/L	P367960	
	SM 2120 B	Color (true)	55		PCU	P367908	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P367975	
	SM 2540 C-97	TDS	133	A	mg/L	P368345	
	SM 2540 D-97	TSS	3	IA	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367977	
2105587	EPA 350.1 Rev. 2.0	Ammonia-N	2.1		mg N/L	P368421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P368013	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P367987	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P367983	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P367969	
2105592	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367843	
2105612	EPA 200.7 Rev. 4.4	Barium	19.7		ug/L	P368145	
		Calcium	12.7		mg/L	P368145	
		Iron	660		ug/L	P368145	
		Magnesium	2.73		mg/L	P368145	
		Potassium	6.3		mg/L	P368145	
		Sodium	25.3		mg/L	P368145	
		Zinc	5.0	U	ug/L	P368145	
	EPA 200.8 Rev. 5.4	Aluminum	87		ug/L	P368145	
		Antimony	0.050	U	ug/L	P368145	
		Arsenic	0.43		ug/L	P368145	
		Boron**	134		ug/L	P368145	
		Cadmium	0.020	U	ug/L	P368145	
		Chromium	0.40	U	ug/L	P368145	
		Copper	0.40	U	ug/L	P368145	
		Lead	0.20	U	ug/L	P368145	
		Nickel	0.50	U	ug/L	P368145	
		Selenium	0.20	U	ug/L	P368145	
		Silver	0.010	U	ug/L	P368145	
		Thallium	0.10	U	ug/L	P368145	

Ref. Method and Comment:

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

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

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

Sample Location: PINE LOG CREEK UPSTREAM OF HWY 79

Collection Date/Time: 07/23/2019 11:15

Field ID: G3NW0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105583	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	2.3		mg Cl/L	P367958	
		Sulfate	0.86		mg SO4/L	P367960	
	SM 2120 B	Color (true)	110		PCU	P367908	
	SM 2320 B-97	Total Alkalinity	2.9		mg CaCO3/L	P367975	
	SM 2540 C-97	TDS	16	I	mg/L	P368345	
	SM 2540 D-97	TSS	7	I	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367977	
2105588	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P368421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P368013	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P367987	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P367983	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P367969	
2105593	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367845	
2105613	EPA 200.7 Rev. 4.4	Barium	5.1		ug/L	P368145	
		Calcium	2.40		mg/L	P368145	
		Iron	300		ug/L	P368145	
		Magnesium	0.44		mg/L	P368145	
		Potassium	0.30	U	mg/L	P368145	
		Sodium	1.6	I	mg/L	P368145	
		Zinc	5.0	U	ug/L	P368145	
		Aluminum	204		ug/L	P368145	
	EPA 200.8 Rev. 5.4	Antimony	0.050	U	ug/L	P368145	
		Arsenic	0.27		ug/L	P368145	
		Boron**	9.4		ug/L	P368145	
		Cadmium	0.020	U	ug/L	P368145	
		Chromium	0.40	U	ug/L	P368145	
		Copper	0.40	U	ug/L	P368145	
		Lead	0.23	I	ug/L	P368145	
		Nickel	0.50	U	ug/L	P368145	
		Selenium	0.20	U	ug/L	P368145	
		Silver	0.010	U	ug/L	P368145	
		Thallium	0.10	U	ug/L	P368145	

Ref. Method and Comment:

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

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

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

Sample Location: LITTLE BLACK CREEK UPSTREAM OF BLACK CREEK **Collection Date/Time: 07/23/2019 11:45**

Field ID: G3NW0200

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105584	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P367958	
		Sulfate	0.69		mg SO4/L	P367960	
		Color (true)	50		PCU	P367908	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P367975	
	SM 2540 C-97	TDS	15	I	mg/L	P368345	
	SM 2540 D-97	TSS	2	U	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367977	
2105589	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P368421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P368013	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P367987	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P367983	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P367969	
2105594	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367845	
2105614	EPA 200.7 Rev. 4.4	Barium	5.5		ug/L	P368145	
		Calcium	0.86		mg/L	P368145	
		Iron	290		ug/L	P368145	
		Magnesium	0.41		mg/L	P368145	
		Potassium	0.30	U	mg/L	P368145	
		Sodium	1.5	I	mg/L	P368145	
		Zinc	5.0	U	ug/L	P368145	
	EPA 200.8 Rev. 5.4	Aluminum	93		ug/L	P368145	
		Antimony	0.050	U	ug/L	P368145	
		Arsenic	0.24		ug/L	P368145	
		Boron**	8.4		ug/L	P368145	
		Cadmium	0.020	U	ug/L	P368145	
		Chromium	0.40	U	ug/L	P368145	
		Copper	0.40	U	ug/L	P368145	
		Lead	0.20	U	ug/L	P368145	
		Nickel	0.50	U	ug/L	P368145	
		Selenium	0.20	U	ug/L	P368145	
		Silver	0.010	U	ug/L	P368145	
		Thallium	0.10	U	ug/L	P368145	

Ref. Method and Comment:

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

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

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

Sample Location: BLACK CREEK UPSTREAM OF HWY 20

Collection Date/Time: 07/23/2019 12:05

Field ID: G3NW0148

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105596	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P367958	
		Sulfate	1.3		mg SO4/L	P367960	
	SM 2120 B	Color (true)	72		PCU	P367908	
	SM 2320 B-97	Total Alkalinity	0.88	I	mg CaCO3/L	P367975	
	SM 2540 C-97	TDS	20	I	mg/L	P368345	
	SM 2540 D-97	TSS	2	I	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367977	
2105597	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P368421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P368085	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P367987	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P367983	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P367969	
2105598	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367845	

Ref. Method and Comment:

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

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

Sample Location: BAY BRANCH UPSTREAM OF HWY 331

Collection Date/Time: 07/23/2019 13:30

Field ID: G3NW0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105585	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P367958	
		Sulfate	0.76		mg SO4/L	P367960	
		Color (true)	93	A	PCU	P367908	
	SM 2320 B-97	Total Alkalinity	7.9		mg CaCO3/L	P367975	
	SM 2540 C-97	TDS	25		mg/L	P368345	
	SM 2540 D-97	TSS	3	I	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367977	
2105590	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P368421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P368013	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P367987	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P367983	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P367969	
2105595	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367845	
2105615	EPA 200.7 Rev. 4.4	Barium	11.3		ug/L	P368145	
		Calcium	3.74		mg/L	P368145	
		Iron	1.03E+03		ug/L	P368145	
		Magnesium	0.80		mg/L	P368145	
		Potassium	0.30	U	mg/L	P368145	
		Sodium	2.4		mg/L	P368145	
		Zinc	6.0	I	ug/L	P368145	
	EPA 200.8 Rev. 5.4	Aluminum	279		ug/L	P368145	
		Antimony	0.050	U	ug/L	P368145	
		Arsenic	0.55		ug/L	P368145	
		Boron**	11.7		ug/L	P368145	
		Cadmium	0.020	U	ug/L	P368145	
		Chromium	0.40	U	ug/L	P368145	
		Copper	0.40	U	ug/L	P368145	
		Lead	0.44		ug/L	P368145	
		Nickel	0.50	U	ug/L	P368145	
		Selenium	0.20	U	ug/L	P368145	
		Silver	0.011	I	ug/L	P368145	
		Thallium	0.10	U	ug/L	P368145	

Ref. Method and Comment:

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

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367856

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367857

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368145

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: P368145

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: P367958

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368421

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368012

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368013

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367987

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367983

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367843

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

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

Reference Method: SM 2120 B
Batch ID: P367907

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P367908

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P367975

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

Reference Method: SM 2540 C-97
Batch ID: P368344

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P368345

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368001

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368002

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P367977

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P367969

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: P368145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	109		P	85 - 115
Iron	104		P	85 - 115
Magnesium	114		P	85 - 115
Potassium	109		P	85 - 115
Sodium	110		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	96.3		P	85 - 115
Arsenic	103		P	85 - 115
Boron	104		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	97.5		P	85 - 115
Copper	100		P	85 - 115
Lead	96.3		P	85 - 115
Nickel	101		P	85 - 115
Selenium	104		P	85 - 115
Silver	95.4		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367958

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368421

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368012

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: P368013

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367987

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: P367983

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P367907

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

Reference Method: SM 2120 B
Batch ID: P367908

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

Reference Method: SM 2320 B-97
Batch ID: P367975

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P367977

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

Reference Method: SM 5310 B-00
Batch ID: P367969

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105959	Barium	98.2	101	P/P	80 - 120
2105959	Calcium	106	108	P/P	80 - 120
2105959	Iron	102	104	P/P	80 - 120
2105959	Magnesium	109	112	P/P	80 - 120
2105959	Potassium	112	112	P/P	80 - 120
2105959	Sodium	111	113	P/P	80 - 120
2105959	Zinc	97.7	103	P/P	80 - 120
2105969	Barium	102		P	80 - 120
2105969	Calcium	108		P	80 - 120
2105969	Iron	105		P	80 - 120
2105969	Magnesium	113		P	80 - 120
2105969	Potassium	107		P	80 - 120
2105969	Sodium	111		P	80 - 120
2105969	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105959	Aluminum	102	102	P/P	80 - 120
2105959	Antimony	97.4	97.4	P/P	80 - 120
2105959	Arsenic	104	104	P/P	80 - 120
2105959	Boron	107	106	P/P	80 - 120
2105959	Cadmium	105	106	P/P	80 - 120
2105959	Chromium	99.1	98.0	P/P	80 - 120
2105959	Copper	103	104	P/P	80 - 120
2105959	Lead	98.3	98.3	P/P	80 - 120
2105959	Nickel	102	102	P/P	80 - 120
2105959	Selenium	103	104	P/P	80 - 120
2105959	Silver	96.9	97.2	P/P	80 - 120
2105959	Thallium	103	103	P/P	80 - 120
2105969	Aluminum	102		P	80 - 120
2105969	Antimony	95.1		P	80 - 120
2105969	Arsenic	104		P	80 - 120
2105969	Boron	105		P	80 - 120
2105969	Cadmium	104		P	80 - 120
2105969	Chromium	98.5		P	80 - 120
2105969	Copper	103		P	80 - 120
2105969	Lead	96.1		P	80 - 120
2105969	Nickel	103		P	80 - 120
2105969	Selenium	103		P	80 - 120
2105969	Silver	95.5		P	80 - 120
2105969	Thallium	99.9		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105365	Chloride	100	99.2	P/P	90 - 110
2105582	Chloride	95.4		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105365	Sulfate	101	100	P/P	90 - 110
2105582	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105514	Ammonia-N	110	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105424	Kjeldahl Nitrogen	98.6	90.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105687	Kjeldahl Nitrogen	94.6	91.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105514	NO2NO3-N	98.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105589	Total-P	96.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105591	O-Phosphate-P	96.8	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105594	O-Phosphate-P	97.4	97.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P367969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105514	Organic Carbon	98.0	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105458	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105628	Turbidity	3.98	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105959	Barium	2.69	Spike	P	0 - 20
2105959	Calcium	1.58	Spike	P	0 - 20
2105959	Iron	1.72	Spike	P	0 - 20
2105959	Magnesium	2.01	Spike	P	0 - 20
2105959	Potassium	0.416	Spike	P	0 - 20
2105959	Sodium	1.42	Spike	P	0 - 20
2105959	Zinc	5.22	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105959	Aluminum	0.362	Spike	P	0 - 20
2105959	Antimony	0.0367	Spike	P	0 - 20
2105959	Arsenic	0.125	Spike	P	0 - 20
2105959	Boron	0.737	Spike	P	0 - 20
2105959	Cadmium	0.831	Spike	P	0 - 20
2105959	Chromium	1.12	Spike	P	0 - 20
2105959	Copper	0.218	Spike	P	0 - 20
2105959	Lead	0.00154	Spike	P	0 - 20
2105959	Nickel	0.457	Spike	P	0 - 20
2105959	Selenium	0.939	Spike	P	0 - 20
2105959	Silver	0.242	Spike	P	0 - 20
2105959	Thallium	0.317	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105365	Chloride	0.783	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105365	Sulfate	0.825	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105514	Ammonia-N	5.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105424	Kjeldahl Nitrogen	4.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105587	Kjeldahl Nitrogen	3.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105687	Kjeldahl Nitrogen	2.11	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105514	NO2NO3-N	0.900	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105589	Total-P	3.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105591	O-Phosphate-P	1.13	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105594	O-Phosphate-P	0.103	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105513	Color (true)	0.158	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105585	Color (true)	0.309	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P367975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105288	Total Alkalinity	0.922	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P368344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105513	TDS	0.332	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P368345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105582	TDS	3.01	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P367977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105288	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P367969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105514	Organic Carbon	0.143	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92954

Included Lab Sample IDs: 2105581, 2105582, 2105583, 2105584, 2105585, 2105596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	99.6	101	P/P	90 - 110
Sulfate	100	102	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92997

Included Lab Sample IDs: 2105591, 2105592, 2105593, 2105594, 2105595, 2105598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.8	P/P	90 - 110
O-Phosphate-P	97.3	96.4	P/P	90 - 110
O-Phosphate-P	98.8	98.3	P/P	90 - 110
O-Phosphate-P	98.8	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93008

Included Lab Sample IDs: 2105581, 2105582, 2105583, 2105584, 2105585, 2105596

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

Reference Method: SM 2120 B

Run ID: A93029

Included Lab Sample IDs: 2105581, 2105582, 2105583, 2105584, 2105585, 2105596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	100	102	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A93042

Included Lab Sample IDs: 2105586, 2105587, 2105588, 2105589, 2105590, 2105597

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

Reference Method: SM 2320 B-97

Run ID: A93046

Included Lab Sample IDs: 2105581, 2105582, 2105583, 2105584, 2105585, 2105596

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

Reference Method: SM 4500 F-C-97

Run ID: A93046

Included Lab Sample IDs: 2105581, 2105582, 2105583, 2105584, 2105585, 2105596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A93046

Included Lab Sample IDs: 2105581, 2105582, 2105583, 2105584, 2105585, 2105596

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93050

Included Lab Sample IDs: 2105586, 2105587, 2105588, 2105589, 2105590, 2105597

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93094

Included Lab Sample IDs: 2105586, 2105587, 2105588, 2105589, 2105590, 2105597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93116

Included Lab Sample IDs: 2105586, 2105587, 2105588, 2105589, 2105590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	95.2	P/P	90 - 110
Kjeldahl Nitrogen	95.2	96.7	P/P	90 - 110
Kjeldahl Nitrogen	96.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93125

Included Lab Sample IDs: 2105597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	95.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93175

Included Lab Sample IDs: 2105611, 2105612, 2105613, 2105614, 2105615

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	103	P/P	95 - 105
Barium	103	103	P/P	90 - 110
Calcium	103	103	P/P	95 - 105
Calcium	103	103	P/P	90 - 110
Iron	102	102	P/P	95 - 105
Iron	102	103	P/P	90 - 110
Magnesium	102	104	P/P	95 - 105
Magnesium	104	105	P/P	90 - 110
Potassium	100	99.7	P/P	95 - 105
Potassium	99.7	102	P/P	90 - 110
Sodium	101	104	P/P	95 - 105
Sodium	104	105	P/P	90 - 110
Zinc	105	105	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93175

Included Lab Sample IDs: 2105611, 2105612, 2105613, 2105614, 2105615

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93243

Included Lab Sample IDs: 2105586, 2105587, 2105588, 2105589, 2105590, 2105597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	106	P/P	90 - 110
Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93277

Included Lab Sample IDs: 2105611, 2105612, 2105613, 2105614, 2105615

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	99.6	P/P	90 - 110
Antimony	92.6	92.4	P/P	90 - 110
Arsenic	99.7	100	P/P	90 - 110
Boron	104	101	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Chromium	96.4	96.4	P/P	90 - 110
Copper	99.7	100	P/P	90 - 110
Lead	98.6	98.8	P/P	90 - 110
Nickel	99.0	99.7	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Silver	95.5	95.0	P/P	90 - 110
Thallium	95.4	95.2	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					1.19	
	Turbidity					3.98	
EPA 200.7 Rev. 4.4	Barium	100	98.2	101	102		2.69
	Calcium	109	106	108	108		1.58
	Iron	104	102	104	105		1.72
	Magnesium	114	109	112	113		2.01
	Potassium	109	112	112	107		0.416
	Sodium	110	111	113	111		1.42
	Zinc	102	97.7	103	101		5.22
EPA 200.8 Rev. 5.4	Aluminum	101	102	102	102		0.362
	Antimony	96.3	97.4	97.4	95.1		0.0367
	Arsenic	103	104	104	104		0.125
	Boron	104	107	106	105		0.737
	Cadmium	104	105	106	104		0.831
	Chromium	97.5	99.1	98.0	98.5		1.12
	Copper	100	103	104	103		0.218
	Lead	96.3	98.3	98.3	96.1		0.0015
	Nickel	101	102	102	103		0.457
	Selenium	104	103	104	103		0.939
	Silver	95.4	96.9	97.2	95.5		0.242
	Thallium	101	103	103	99.9		0.317
EPA 300.0 Rev. 2.1	Chloride	100	100	99.2	95.4		0.783
	Sulfate	101	101	100	98.4		0.825
EPA 350.1 Rev. 2.0	Ammonia-N	108	110	101			5.69
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	90.7	98.6			4.23
	Kjeldahl Nitrogen	105					3.64
	Kjeldahl Nitrogen	105	94.6	91.8			2.11
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0	99.5			0.900
EPA 365.1 Rev. 2.0	Total-P	98.9	96.8	100			3.27
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1	96.8	97.9			1.13
	O-Phosphate-P	99.2	97.4	97.5			0.103
SM 2120 B	Color (true)	102				0.158	
	Color (true)	102				0.309	
SM 2320 B-97	Total Alkalinity	104				0.922	
SM 2540 C-97	TDS					0.332	
	TDS					3.01	
SM 4500 F-C-97	Fluoride	97.6					0.0
SM 5310 B-00	Organic Carbon	100	98.0	97.8			0.143

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2105611, 2105612, 2105613, 2105614, 2105615
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2105611, 2105612, 2105613, 2105614, 2105615
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2105586, 2105587, 2105588, 2105589, 2105590, 2105597

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2105586, 2105587, 2105588, 2105589, 2105590, 2105597
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2105586, 2105587, 2105588, 2105589, 2105590, 2105597
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2105586, 2105587, 2105588, 2105589, 2105590, 2105597
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2105591, 2105592, 2105593, 2105594, 2105595, 2105598
SM 2120 B / E31780	True Color measured at 450 nm	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2105586, 2105587, 2105588, 2105589, 2105590, 2105597

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	07/24/2019			07/24/2019 17:04	Adrian Shelby	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
EPA 200.7 Rev. 4.4	07/24/2019	07/30/2019 14:25	Elliott D. Healy	07/31/2019 13:14	Betina Topolski	2105611
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	07/31/2019 13:19	Betina Topolski	2105612
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	07/31/2019 13:26	Betina Topolski	2105613
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	07/31/2019 13:31	Betina Topolski	2105614
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	07/31/2019 14:00	Betina Topolski	2105615
EPA 200.8 Rev. 5.4	07/24/2019	07/30/2019 14:25	Elliott D. Healy	08/05/2019 22:16	Robert K Palmer	2105611
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	08/05/2019 22:26	Robert K Palmer	2105612
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	08/05/2019 22:36	Robert K Palmer	2105613
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	08/05/2019 22:46	Robert K Palmer	2105614
	07/24/2019	07/30/2019 14:25	Elliott D. Healy	08/05/2019 22:55	Robert K Palmer	2105615
EPA 300.0 Rev. 2.1	07/24/2019			07/25/2019 16:08	Jhamieka S. Greenwood	2105582
	07/24/2019			07/25/2019 18:34	Jhamieka S. Greenwood	2105581
	07/24/2019			07/25/2019 18:46	Jhamieka S. Greenwood	2105583
	07/24/2019			07/25/2019 18:58	Jhamieka S. Greenwood	2105584
	07/24/2019			07/25/2019 19:10	Jhamieka S. Greenwood	2105585
	07/24/2019			07/25/2019 19:22	Jhamieka S. Greenwood	2105596
EPA 350.1 Rev. 2.0	07/24/2019			08/02/2019 14:15	Virginia P. Brown	2105586
	07/24/2019			08/02/2019 14:20	Virginia P. Brown	2105589
	07/24/2019			08/02/2019 14:21	Virginia P. Brown	2105590
	07/24/2019			08/02/2019 14:23	Virginia P. Brown	2105597
	07/24/2019			08/02/2019 15:58	Virginia P. Brown	2105587
	07/24/2019			08/02/2019 15:59	Virginia P. Brown	2105588
EPA 351.2 Rev. 2.0	07/24/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 15:09	Joseph Suarez	2105586
	07/24/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 15:26	Joseph Suarez	2105587
	07/24/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 15:34	Joseph Suarez	2105588
	07/24/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 15:36	Joseph Suarez	2105589
	07/24/2019	07/26/2019 13:00	Adrian Shelby	07/29/2019 15:37	Joseph Suarez	2105590
	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:17	Joseph Suarez	2105597
EPA 353.2 Rev. 2.0	07/24/2019			07/26/2019 09:56	Beverly Y. Sanders	2105586
	07/24/2019			07/26/2019 09:57	Beverly Y. Sanders	2105587
	07/24/2019			07/26/2019 09:58	Beverly Y. Sanders	2105588
	07/24/2019			07/26/2019 09:59	Beverly Y. Sanders	2105589
	07/24/2019			07/26/2019 10:00	Beverly Y. Sanders	2105590
	07/24/2019			07/26/2019 10:01	Beverly Y. Sanders	2105597
EPA 365.1 Rev. 2.0	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:04	Lipi Saha	2105589
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:13	Lipi Saha	2105586
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:14	Lipi Saha	2105587
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:15	Lipi Saha	2105588

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	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:16	Lipi Saha	2105590
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:17	Lipi Saha	2105597
EPA 365.1 Rev. 2.0 dissolved	07/24/2019			07/24/2019 16:18	Jhamieka S. Greenwood	2105591
	07/24/2019			07/24/2019 16:30	Jhamieka S. Greenwood	2105594
	07/24/2019			07/24/2019 16:57	Jhamieka S. Greenwood	2105593
	07/24/2019			07/24/2019 16:58	Jhamieka S. Greenwood	2105595, 2105598
	07/24/2019			07/24/2019 17:21	Jhamieka S. Greenwood	2105592
SM 2120 B	07/24/2019			07/24/2019 17:39	Madeline Funaro	2105581
	07/24/2019			07/24/2019 17:43	Madeline Funaro	2105582, 2105583
	07/24/2019			07/24/2019 17:44	Madeline Funaro	2105584
	07/24/2019			07/24/2019 17:46	Madeline Funaro	2105585, 2105596
SM 2320 B-97	07/24/2019			07/26/2019 07:11	Dale L. Simmons	2105581
	07/24/2019			07/26/2019 07:25	Dale L. Simmons	2105582
	07/24/2019			07/26/2019 07:36	Dale L. Simmons	2105583
	07/24/2019			07/26/2019 07:48	Dale L. Simmons	2105584
	07/24/2019			07/26/2019 08:00	Dale L. Simmons	2105585
SM 2540 C-97	07/24/2019			07/26/2019 08:11	Dale L. Simmons	2105596
	07/24/2019			07/25/2019 13:30	Sima Feizi	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 2540 D-97	07/24/2019			07/25/2019 13:30	Sima Feizi	2105581, 2105582, 2105583, 2105584, 2105585, 2105596
SM 4500 F-C-97	07/24/2019			07/26/2019 07:11	Dale L. Simmons	2105581
	07/24/2019			07/26/2019 07:25	Dale L. Simmons	2105582
	07/24/2019			07/26/2019 07:36	Dale L. Simmons	2105583
	07/24/2019			07/26/2019 07:48	Dale L. Simmons	2105584
	07/24/2019			07/26/2019 08:00	Dale L. Simmons	2105585
SM 5310 B-00	07/24/2019			07/26/2019 08:11	Dale L. Simmons	2105596
	07/24/2019			07/26/2019 00:23	Madeline Funaro	2105586
	07/24/2019			07/26/2019 00:35	Madeline Funaro	2105587
	07/24/2019			07/26/2019 00:48	Madeline Funaro	2105588
	07/24/2019			07/26/2019 01:00	Madeline Funaro	2105589
	07/24/2019			07/26/2019 01:38	Madeline Funaro	2105590
	07/24/2019			07/26/2019 01:51	Madeline Funaro	2105597