

Chemical Analysis Report

NW-DIST-2019-07-10-02

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

Event Description: **Defuniak Run**
Request ID: **RQ-2019-07-08-33**
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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 29-JUL-2019 15:10



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: TURKEY CREEK ABOVE WILLIAMS ROAD

Collection Date/Time: 07/09/2019 11:00

Field ID: G4NW0409

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2101252	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P366979	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P367221	
		Sulfate	1.1		mg SO4/L	P367223	
		Color (true)	25		PCU	P366993	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P367446	
	SM 2540 C-97	TDS	16	I	mg/L	P367314	
	SM 2540 D-97	TSS	4	I	mg/L	P367321	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367450	
2101254	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P367712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P367152	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.54		mg N/L	P367046	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P367155	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P367869	
2101256	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P366986	

Sample Location: CANEY CREEK ABOVE HWY 2A

Collection Date/Time: 07/09/2019 11:30

Field ID: G4NW0397

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2101253	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P366980	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P367221	
		Sulfate	0.39	I	mg SO4/L	P367223	
	SM 2120 B	Color (true)	34		PCU	P366993	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P367446	
	SM 2540 C-97	TDS	23	I	mg/L	P367314	
	SM 2540 D-97	TSS	2	U	mg/L	P367321	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367450	
2101255	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P367712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P367152	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P367046	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P367155	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P367344	
2101257	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P366986	

**Sample Location: EIGHTMILE CREEK UPSTREAM OF CR 181
(SOUTH OF)**

Collection Date/Time: 07/09/2019 12:15

Field ID: G3NW0136

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2101243	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P366979	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P367147	
		Sulfate	1.1		mg SO4/L	P367150	
	SM 2120 B	Color (true)	21		PCU	P366993	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P367446	
	SM 2540 C-97	TDS	62		mg/L	P367314	
	SM 2540 D-97	TSS	2	U	mg/L	P367321	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P367450	
2101246	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P367712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P367103	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P367045	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P367154	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P367869	
2101249	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P366986	
2101279	EPA 200.7 Rev. 4.4	Barium	14.7		ug/L	P367077	
		Calcium	18.5		mg/L	P367077	
		Iron	220		ug/L	P367077	
		Magnesium	3.32		mg/L	P367077	
		Potassium	0.42	I	mg/L	P367077	
		Sodium	1.7	I	mg/L	P367077	
		Zinc	5.0	U	ug/L	P367077	
	EPA 200.8 Rev. 5.4	Aluminum	65		ug/L	P367077	
		Antimony	0.050	U	ug/L	P367077	
		Arsenic	0.37		ug/L	P367077	
		Boron**	7.2	I	ug/L	P367077	
		Cadmium	0.020	U	ug/L	P367077	
		Chromium	0.43	I	ug/L	P367077	
		Copper	0.40	U	ug/L	P367077	
		Lead	0.20	U	ug/L	P367077	
		Nickel	0.50	U	ug/L	P367077	
		Selenium	0.20	U	ug/L	P367077	
		Silver	0.010	U	ug/L	P367077	
		Thallium	0.10	U	ug/L	P367077	

Sample Location: HUCKLEBERRY CREEK

Collection Date/Time: 07/09/2019 12:50

Field ID: G3NW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2101244	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P366979	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P367221	
		Sulfate	1.4		mg SO4/L	P367223	
	SM 2120 B	Color (true)	82		PCU	P366993	
	SM 2320 B-97	Total Alkalinity	3.1		mg CaCO3/L	P367446	
	SM 2540 C-97	TDS	35		mg/L	P367314	
	SM 2540 D-97	TSS	6	I	mg/L	P367321	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367450	
2101247	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P367712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P367152	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P367045	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P367155	
	SM 5310 B-00	Organic Carbon	8.6		mg C/L	P367344	
2101250	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P366986	
2101280	EPA 200.7 Rev. 4.4	Barium	16.0		ug/L	P367077	
		Calcium	2.12		mg/L	P367077	
		Iron	950		ug/L	P367077	
		Magnesium	0.98		mg/L	P367077	
		Potassium	0.83	I	mg/L	P367077	
		Sodium	2.2		mg/L	P367077	
		Zinc	5.0	U	ug/L	P367077	
	EPA 200.8 Rev. 5.4	Aluminum	298		ug/L	P367077	
		Antimony	0.050	U	ug/L	P367077	
		Arsenic	0.45		ug/L	P367077	
		Boron**	11.0		ug/L	P367077	
		Cadmium	0.020	U	ug/L	P367077	
		Chromium	0.40	U	ug/L	P367077	
		Copper	0.40	U	ug/L	P367077	
		Lead	0.34	I	ug/L	P367077	
		Nickel	0.50	U	ug/L	P367077	
		Selenium	0.20	U	ug/L	P367077	
		Silver	0.010	U	ug/L	P367077	
		Thallium	0.10	U	ug/L	P367077	

Sample Location: HUCKLEBERRY CREEK

Collection Date/Time: 07/09/2019 12:55

Field ID: G3NW0135_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2101245	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P366979	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P367221	
		Sulfate	1.4		mg SO4/L	P367223	
	SM 2120 B	Color (true)	82		PCU	P366993	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P367446	
	SM 2540 C-97	TDS	33		mg/L	P367314	
	SM 2540 D-97	TSS	7	I	mg/L	P367321	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367450	
2101248	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P367712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P367152	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P367045	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P367155	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P367344	
2101251	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P366986	
2101281	EPA 200.7 Rev. 4.4	Barium	16.2		ug/L	P367077	
		Calcium	2.14		mg/L	P367077	
		Iron	950		ug/L	P367077	
		Magnesium	1.00		mg/L	P367077	
		Potassium	0.82	I	mg/L	P367077	
		Sodium	2.2		mg/L	P367077	
		Zinc	5.0	U	ug/L	P367077	
	EPA 200.8 Rev. 5.4	Aluminum	302		ug/L	P367077	
		Antimony	0.050	U	ug/L	P367077	
		Arsenic	0.43		ug/L	P367077	
		Boron**	10.6		ug/L	P367077	
		Cadmium	0.020	U	ug/L	P367077	
		Chromium	0.40	U	ug/L	P367077	
		Copper	0.40	U	ug/L	P367077	
		Lead	0.31	I	ug/L	P367077	
		Nickel	0.50	U	ug/L	P367077	
		Selenium	0.20	U	ug/L	P367077	
		Silver	0.010	U	ug/L	P367077	
		Thallium	0.10	U	ug/L	P367077	

Sample Location: HUCKLEBERRY CREEK

Collection Date/Time: 07/09/2019 13:00

Field ID: FB_09072019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2101258	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P366980	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P367221	
		Sulfate	0.20	U	mg SO4/L	P367223	
		Color (true)	2.5	U	PCU	P366993	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P367446	
	SM 2540 C-97	TDS	15	U	mg/L	P367310	
	SM 2540 D-97	TSS	2	U	mg/L	P367317	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P367450	
2101259	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P367712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P367152	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367046	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P367155	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P367344	
2101260	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P366986	
2101282	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P367077	
		Calcium	0.075	U	mg/L	P367077	
		Iron	30	U	ug/L	P367077	
		Magnesium	0.040	U	mg/L	P367077	
		Potassium	0.30	U	mg/L	P367077	
		Sodium	0.50	U	mg/L	P367077	
		Zinc	5.0	U	ug/L	P367077	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P367077	
		Antimony	0.050	U	ug/L	P367077	
		Arsenic	0.050	U	ug/L	P367077	
		Boron**	2.0	U	ug/L	P367077	
		Cadmium	0.020	U	ug/L	P367077	
		Chromium	0.40	U	ug/L	P367077	
		Copper	0.40	U	ug/L	P367077	
		Lead	0.20	U	ug/L	P367077	
		Nickel	0.50	U	ug/L	P367077	
		Selenium	0.20	U	ug/L	P367077	
		Silver	0.010	U	ug/L	P367077	
		Thallium	0.10	U	ug/L	P367077	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P366979

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P366980

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P367077

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: P367077

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: P367147

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367150

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367221

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367223

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367103

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367152

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367045

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367046

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367154

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367155

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366986

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

Reference Method: SM 2120 B
Batch ID: P366993

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P367446

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

Reference Method: SM 2540 C-97
Batch ID: P367310

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P367314

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P367317

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P367321

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P367450

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P367344

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P367869

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: P367077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	109		P	85 - 115
Iron	105		P	85 - 115
Magnesium	111		P	85 - 115
Potassium	110		P	85 - 115
Sodium	107		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P367077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	106		P	85 - 115
Boron	104		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	101		P	85 - 115
Copper	104		P	85 - 115
Lead	104		P	85 - 115
Nickel	105		P	85 - 115
Selenium	104		P	85 - 115
Silver	104		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367147

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367221

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367223

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367103

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367152

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367045

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367046

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367154

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367155

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366986

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

Reference Method: SM 2120 B
Batch ID: P366993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P367446

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

Reference Method: SM 4500 F-C-97
Batch ID: P367450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P367344

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P367869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P367077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101041	Barium	99.3	100	P/P	80 - 120
2101041	Calcium	107	104	P/P	80 - 120
2101041	Iron	104	102	P/P	80 - 120
2101041	Magnesium	108	107	P/P	80 - 120
2101041	Potassium	114	113	P/P	80 - 120
2101041	Sodium	100	103	P/P	80 - 120
2101041	Zinc	99.9	101	P/P	80 - 120
2101279	Barium	101		P	80 - 120
2101279	Calcium	102		P	80 - 120
2101279	Iron	103		P	80 - 120
2101279	Magnesium	106		P	80 - 120
2101279	Potassium	108		P	80 - 120
2101279	Sodium	109		P	80 - 120
2101279	Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P367077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101041	Aluminum	102	102	P/P	80 - 120
2101041	Antimony	102	102	P/P	80 - 120
2101041	Arsenic	104	104	P/P	80 - 120
2101041	Boron	105	105	P/P	80 - 120
2101041	Cadmium	105	105	P/P	80 - 120
2101041	Chromium	104	104	P/P	80 - 120
2101041	Copper	104	106	P/P	80 - 120
2101041	Lead	106	105	P/P	80 - 120
2101041	Nickel	104	104	P/P	80 - 120
2101041	Selenium	102	101	P/P	80 - 120
2101041	Silver	105	105	P/P	80 - 120
2101041	Thallium	105	107	P/P	80 - 120
2101279	Aluminum	102		P	80 - 120
2101279	Antimony	102		P	80 - 120
2101279	Arsenic	105		P	80 - 120
2101279	Boron	107		P	80 - 120
2101279	Cadmium	104		P	80 - 120
2101279	Chromium	103		P	80 - 120
2101279	Copper	102		P	80 - 120
2101279	Lead	105		P	80 - 120
2101279	Nickel	102		P	80 - 120
2101279	Selenium	103		P	80 - 120
2101279	Silver	106		P	80 - 120
2101279	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2100961	Chloride	95.6		P	90 - 110
2101044	Chloride	98.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2100961	Sulfate	96.5		P	90 - 110
2101044	Sulfate	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101244	Chloride	101	102	P/P	90 - 110
2101338	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101244	Sulfate	101	103	P/P	90 - 110
2101338	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101246	Ammonia-N	96.5	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101207	Kjeldahl Nitrogen	103	110	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101321	Kjeldahl Nitrogen	97.6	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101197	NO2NO3-N	95.6	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101328	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101207	Total-P	101	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101321	Total-P	107	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101257	O-Phosphate-P	97.3	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P367450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101338	Fluoride	96.8	96.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P367344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101390	Organic Carbon	101	101	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P367869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101200	Organic Carbon	94.6	94.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P366979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101199	Turbidity	4.82	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P366980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101327	Turbidity	0.749	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P367077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101041	Barium	0.701	Spike	P	0 - 20
2101041	Calcium	1.79	Spike	P	0 - 20
2101041	Iron	1.25	Spike	P	0 - 20
2101041	Magnesium	1.28	Spike	P	0 - 20
2101041	Potassium	0.977	Spike	P	0 - 20
2101041	Sodium	1.22	Spike	P	0 - 20
2101041	Zinc	0.642	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P367077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101041	Aluminum	0.390	Spike	P	0 - 20
2101041	Antimony	0.132	Spike	P	0 - 20
2101041	Arsenic	0.0823	Spike	P	0 - 20
2101041	Boron	0.466	Spike	P	0 - 20
2101041	Cadmium	0.723	Spike	P	0 - 20
2101041	Chromium	0.100	Spike	P	0 - 20
2101041	Copper	1.24	Spike	P	0 - 20
2101041	Lead	0.344	Spike	P	0 - 20
2101041	Nickel	0.151	Spike	P	0 - 20
2101041	Selenium	0.721	Spike	P	0 - 20
2101041	Silver	0.141	Spike	P	0 - 20
2101041	Thallium	1.62	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P367147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2100961	Chloride	0.212	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2100961	Sulfate	0.156	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101244	Chloride	1.16	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101244	Sulfate	1.52	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101246	Ammonia-N	1.96	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101207	Kjeldahl Nitrogen	4.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101321	Kjeldahl Nitrogen	0.316	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101197	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101328	NO2NO3-N	0.471	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101207	Total-P	4.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101321	Total-P	4.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101257	O-Phosphate-P	0.617	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P366993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101204	Color (true)	2.11	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P367446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101338	Total Alkalinity	0.427	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P367310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2100627	TDS	5.93	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P367314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101239	TDS	4.91	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P367321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101239	TSS	6.45	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P367450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101338	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P367344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101390	Organic Carbon	0.0737	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P367869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101200	Organic Carbon	0.184	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92640

Included Lab Sample IDs: 2101243, 2101244, 2101245, 2101252, 2101253, 2101258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.9	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Chloride	99.9	100	P/P	90 - 110
Sulfate	100	99.5	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	99.5	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A92685

Included Lab Sample IDs: 2101243, 2101244, 2101245, 2101252, 2101253, 2101258

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92686

Included Lab Sample IDs: 2101249, 2101250, 2101251, 2101256, 2101257, 2101260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	97.8	P/P	90 - 110
O-Phosphate-P	97.6	97.7	P/P	90 - 110
O-Phosphate-P	97.7	98.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A92687

Included Lab Sample IDs: 2101243, 2101244, 2101245, 2101252, 2101253, 2101258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92703

Included Lab Sample IDs: 2101246, 2101247, 2101248, 2101254, 2101255, 2101259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92755

Included Lab Sample IDs: 2101246, 2101247, 2101248, 2101254, 2101255, 2101259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.8	P/P	90 - 110
Total-P	99.8	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92761

Included Lab Sample IDs: 2101247, 2101248, 2101254, 2101255, 2101259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	106	P/P	90 - 110
Kjeldahl Nitrogen	106	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92763

Included Lab Sample IDs: 2101246

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

Reference Method: SM 5310 B-00

Run ID: A92811

Included Lab Sample IDs: 2101247, 2101248, 2101255, 2101259

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A92819

Included Lab Sample IDs: 2101279, 2101280, 2101281, 2101282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	95 - 105
Barium	101	102	P/P	90 - 110
Barium	102	102	P/P	90 - 110
Calcium	98.8	99.2	P/P	90 - 110
Calcium	98.9	98.8	P/P	95 - 105
Calcium	99.2	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	98.8	101	P/P	90 - 110
Iron	99.3	98.8	P/P	95 - 105
Magnesium	102	101	P/P	90 - 110
Magnesium	99.5	102	P/P	90 - 110
Magnesium	99.9	99.5	P/P	95 - 105
Potassium	102	102	P/P	90 - 110
Potassium	98.9	102	P/P	90 - 110
Potassium	99.7	98.9	P/P	95 - 105
Sodium	100	102	P/P	90 - 110
Sodium	102	107	P/P	90 - 110
Sodium	98.0	100	P/P	95 - 105
Zinc	101	102	P/P	95 - 105
Zinc	102	103	P/P	90 - 110
Zinc	103	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92846

Included Lab Sample IDs: 2101243, 2101244, 2101245, 2101252, 2101253, 2101258

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A92846

Included Lab Sample IDs: 2101243, 2101244, 2101245, 2101252, 2101253, 2101258

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

Reference Method: SM 4500 F-C-97

Run ID: A92846

Included Lab Sample IDs: 2101243, 2101244, 2101245, 2101252, 2101253, 2101258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110
Fluoride	99.5	98.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92868

Included Lab Sample IDs: 2101279, 2101280, 2101281, 2101282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Aluminum	102	101	P/P	90 - 110
Antimony	101	101	P/P	90 - 110
Antimony	101	102	P/P	90 - 110
Arsenic	103	103	P/P	90 - 110
Arsenic	104	103	P/P	90 - 110
Boron	101	104	P/P	90 - 110
Boron	104	102	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Chromium	100	103	P/P	90 - 110
Chromium	103	104	P/P	90 - 110
Copper	102	103	P/P	90 - 110
Copper	104	102	P/P	90 - 110
Lead	103	104	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Nickel	103	102	P/P	90 - 110
Nickel	104	103	P/P	90 - 110
Selenium	103	104	P/P	90 - 110
Selenium	104	104	P/P	90 - 110
Silver	102	102	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Thallium	97.4	98.3	P/P	90 - 110
Thallium	98.3	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92956

Included Lab Sample IDs: 2101246, 2101247, 2101248, 2101254, 2101255, 2101259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	99.1	99.9	P/P	90 - 110
Ammonia-N	99.9	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A93016

Included Lab Sample IDs: 2101246, 2101254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	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					4.82	
	Turbidity					0.749	
EPA 200.7 Rev. 4.4	Barium	102	99.3	100	101		0.701
	Calcium	109	107	104	102		1.79
	Iron	105	104	102	103		1.25
	Magnesium	111	108	107	106		1.28
	Potassium	110	114	113	108		0.977
	Sodium	107	100	103	109		1.22
	Zinc	101	99.9	101	100		0.642
EPA 200.8 Rev. 5.4	Aluminum	102	102	102	102		0.390
	Antimony	101	102	102	102		0.132
	Arsenic	106	104	104	105		0.0823
	Boron	104	105	105	107		0.466
	Cadmium	102	105	105	104		0.723
	Chromium	101	104	104	103		0.100
	Copper	104	104	106	102		1.24
	Lead	104	106	105	105		0.344
	Nickel	105	104	104	102		0.151
	Selenium	104	102	101	103		0.721
	Silver	104	105	105	106		0.141
	Thallium	104	105	107	105		1.62
EPA 300.0 Rev. 2.1	Chloride	97.1	95.6	98.1		0.212	
	Chloride	101	101	102	101		1.16
	Sulfate	96.5	96.5	98.2		0.156	
	Sulfate	101	101	103	101		1.52
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	96.5	98.7			1.96
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	110			4.15
	Kjeldahl Nitrogen	102	97.6	98.2			0.316
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	95.6	95.6			0.0
	NO ₂ NO ₃ -N	103	99.5	100			0.471
EPA 365.1 Rev. 2.0	Total-P	105	101	105			4.30
	Total-P	102	107	101			4.06
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	97.3	98.1			0.617
SM 2120 B	Color (true)	104				2.11	
SM 2320 B-97	Total Alkalinity	104				0.427	
SM 2540 C-97	TDS					5.93	
	TDS					4.91	
SM 2540 D-97	TSS					6.45	
SM 4500 F-C-97	Fluoride	98.0	96.8	96.8			0.0
SM 5310 B-00	Organic Carbon	99.2	101	101			0.0737
	Organic Carbon	94.7	94.6	94.9			0.184

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2101279, 2101280, 2101281, 2101282
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2101279, 2101280, 2101281, 2101282
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2101243, 2101244, 2101245, 2101252, 2101253, 2101258

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2101246, 2101247, 2101248, 2101254, 2101255, 2101259
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2101246, 2101247, 2101248, 2101254, 2101255, 2101259
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2101246, 2101247, 2101248, 2101254, 2101255, 2101259
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2101246, 2101247, 2101248, 2101254, 2101255, 2101259
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2101249, 2101250, 2101251, 2101256, 2101257, 2101260
SM 2120 B / E31780	True Color measured at 450 nm	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2101246, 2101247, 2101248, 2101254, 2101255, 2101259

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	07/10/2019			07/10/2019 16:04	Adrian Shelby	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
EPA 200.7 Rev. 4.4	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/16/2019 10:42	Betina Topolski	2101282
	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/16/2019 12:24	Betina Topolski	2101279
	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/16/2019 12:43	Betina Topolski	2101280
	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/16/2019 13:11	Betina Topolski	2101281
EPA 200.8 Rev. 5.4	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/17/2019 14:04	Robert K Palmer	2101282
	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/17/2019 16:50	Robert K Palmer	2101279
	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/17/2019 17:20	Robert K Palmer	2101280
	07/10/2019	07/11/2019 15:55	Elliott D. Healy	07/17/2019 17:29	Robert K Palmer	2101281
EPA 300.0 Rev. 2.1	07/10/2019			07/11/2019 17:05	Jhamieka S. Greenwood	2101243
	07/10/2019			07/12/2019 12:07	Jhamieka S. Greenwood	2101244
	07/10/2019			07/12/2019 14:21	Jhamieka S. Greenwood	2101245
	07/10/2019			07/12/2019 14:33	Jhamieka S. Greenwood	2101252
	07/10/2019			07/12/2019 14:45	Jhamieka S. Greenwood	2101253
	07/10/2019			07/12/2019 14:57	Jhamieka S. Greenwood	2101258
EPA 350.1 Rev. 2.0	07/10/2019			07/22/2019 15:52	Julia Storbeck	2101246
	07/10/2019			07/22/2019 16:03	Julia Storbeck	2101247
	07/10/2019			07/22/2019 16:04	Julia Storbeck	2101248
	07/10/2019			07/22/2019 16:06	Julia Storbeck	2101254
	07/10/2019			07/22/2019 16:07	Julia Storbeck	2101255
	07/10/2019			07/22/2019 16:19	Julia Storbeck	2101259
EPA 351.2 Rev. 2.0	07/10/2019	07/12/2019 11:55	Sima Feizi	07/15/2019 10:39	Virginia P. Brown	2101247
	07/10/2019	07/12/2019 11:55	Sima Feizi	07/15/2019 10:41	Virginia P. Brown	2101248
	07/10/2019	07/12/2019 11:55	Sima Feizi	07/15/2019 10:45	Virginia P. Brown	2101254
	07/10/2019	07/12/2019 11:55	Sima Feizi	07/15/2019 10:47	Virginia P. Brown	2101255
	07/10/2019	07/12/2019 11:55	Sima Feizi	07/15/2019 10:49	Virginia P. Brown	2101259
	07/10/2019	07/12/2019 11:55	Sima Feizi	07/15/2019 14:35	Virginia P. Brown	2101246
EPA 353.2 Rev. 2.0	07/10/2019			07/11/2019 11:29	Beverly Y. Sanders	2101246
	07/10/2019			07/11/2019 11:30	Beverly Y. Sanders	2101247
	07/10/2019			07/11/2019 11:31	Beverly Y. Sanders	2101248
	07/10/2019			07/11/2019 12:36	Beverly Y. Sanders	2101254
	07/10/2019			07/11/2019 12:37	Beverly Y. Sanders	2101255
	07/10/2019			07/11/2019 12:38	Beverly Y. Sanders	2101259
EPA 365.1 Rev. 2.0	07/10/2019	07/12/2019 12:55	Sima Feizi	07/15/2019 11:23	Lipi Saha	2101246
	07/10/2019	07/12/2019 12:55	Sima Feizi	07/15/2019 11:32	Lipi Saha	2101247
	07/10/2019	07/12/2019 12:55	Sima Feizi	07/15/2019 11:33	Lipi Saha	2101248
	07/10/2019	07/12/2019 12:55	Sima Feizi	07/15/2019 11:34	Lipi Saha	2101254
	07/10/2019	07/12/2019 12:55	Sima Feizi	07/15/2019 11:35	Lipi Saha	2101255
	07/10/2019	07/12/2019 12:55	Sima Feizi	07/15/2019 11:36	Lipi Saha	2101259

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	07/10/2019			07/10/2019 15:46	Jhamieka S. Greenwood	2101257
	07/10/2019			07/10/2019 16:23	Jhamieka S. Greenwood	2101249
	07/10/2019			07/10/2019 16:24	Jhamieka S. Greenwood	2101250
	07/10/2019			07/10/2019 16:25	Jhamieka S. Greenwood	2101251
	07/10/2019			07/10/2019 16:26	Jhamieka S. Greenwood	2101256
	07/10/2019			07/10/2019 16:31	Jhamieka S. Greenwood	2101260
SM 2120 B	07/10/2019			07/10/2019 17:28	Madeline Funaro	2101243
	07/10/2019			07/10/2019 17:29	Madeline Funaro	2101244
	07/10/2019			07/10/2019 17:30	Madeline Funaro	2101245, 2101252
	07/10/2019			07/10/2019 17:31	Madeline Funaro	2101253
	07/10/2019			07/10/2019 17:32	Madeline Funaro	2101258
SM 2320 B-97	07/10/2019			07/17/2019 01:41	Dale L. Simmons	2101243
	07/10/2019			07/17/2019 01:54	Dale L. Simmons	2101244
	07/10/2019			07/17/2019 02:07	Dale L. Simmons	2101245
	07/10/2019			07/17/2019 02:20	Dale L. Simmons	2101252
	07/10/2019			07/17/2019 02:33	Dale L. Simmons	2101253
	07/10/2019			07/17/2019 03:15	Dale L. Simmons	2101258
SM 2540 C-97	07/10/2019			07/11/2019 15:31	Yijie Li	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 2540 D-97	07/10/2019			07/11/2019 15:31	Yijie Li	2101243, 2101244, 2101245, 2101252, 2101253, 2101258
SM 4500 F-C-97	07/10/2019			07/17/2019 01:41	Dale L. Simmons	2101243
	07/10/2019			07/17/2019 01:54	Dale L. Simmons	2101244
	07/10/2019			07/17/2019 02:07	Dale L. Simmons	2101245
	07/10/2019			07/17/2019 02:20	Dale L. Simmons	2101252
	07/10/2019			07/17/2019 02:33	Dale L. Simmons	2101253
SM 5310 B-00	07/10/2019			07/17/2019 03:15	Dale L. Simmons	2101258
	07/10/2019			07/15/2019 19:48	Madeline Funaro	2101247
	07/10/2019			07/15/2019 20:00	Madeline Funaro	2101248
	07/10/2019			07/15/2019 20:37	Madeline Funaro	2101255
	07/10/2019			07/15/2019 20:49	Madeline Funaro	2101259
	07/10/2019			07/17/2019 03:33	Madeline Funaro	2101246
	07/10/2019			07/17/2019 03:46	Madeline Funaro	2101254