

Chemical Analysis Report

NW-DIST-2020-06-16-01

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

Event Description: **Pace Run Two**
Request ID: **RQ-2020-06-08-37**
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: Colin Wright, Program Administrator

Date Certified: 07-JUL-2020 16:15

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular background.

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: Clear Creek upstream of Pat Brown Road

Collection Date/Time: 06/15/2020 11:00

Field ID: G4NW0360

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2176980	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P383295	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P383436	
		Sulfate	0.40	I	mg SO4/L	P383438	
	SM 2120 B-2011	Color (true)	16		PCU	P383301	
	SM 2320 B-2011	Total Alkalinity	3.4	Q	mg CaCO3/L	P383852	
	SM 2540 C-2011	TDS	21	I	mg/L	P383663	
	SM 2540 D-2011	TSS	2	I	mg/L	P383599	
2176982	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P383404	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P383467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P383360	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.89		mg N/L	P383316	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P383349	
2176984	SM 5310 B-2011	Organic Carbon	1.4		mg C/L	P383365	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P383299	
2177021	EPA 200.7 Rev. 4.4	Barium	29.7		ug/L	P383338	
		Calcium	1.41		mg/L	P383338	
		Iron	890		ug/L	P383338	
		Magnesium	1.24		mg/L	P383338	
		Potassium	0.32	I	mg/L	P383338	
		Sodium	2.4		mg/L	P383338	
		Zinc	5.0	U	ug/L	P383338	
	EPA 200.8 Rev. 5.4	Aluminum	95		ug/L	P383338	
		Antimony	0.050	U	ug/L	P383338	
		Arsenic	0.33		ug/L	P383338	
		Barium	26.4		ug/L	P383338	
		Beryllium	0.021	I	ug/L	P383338	
		Boron**	7.9	I	ug/L	P383338	
		Cadmium	0.020	U	ug/L	P383745	
		Chromium	0.40	U	ug/L	P383338	
		Cobalt	0.230		ug/L	P383338	
		Copper	0.40	U	ug/L	P383338	
		Lead	0.32	I	ug/L	P383745	
		Manganese	14.2		ug/L	P383338	
		Molybdenum	0.15	U	ug/L	P383338	
		Nickel	0.50	U	ug/L	P383338	
		Selenium	0.20	U	ug/L	P383338	
		Silver	0.010	U	ug/L	P383338	
		Thallium	0.10	U	ug/L	P383745	
		Hardness	8.6		mg/L	P383338	
	SM 2340B						

Ref. Method and Comment:

SM 2320 B-2011: Sample reanalyzed out of holding time because of analytical difficulties.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Manning Creek at Whitfield Road (North Side) Collection Date/Time: 06/15/2020 11:45

Field ID: G4NW0200

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2176986	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P383295	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P383437	
		Sulfate	0.49	I	mg SO4/L	P383439	
	SM 2120 B-2011	Color (true)	45		PCU	P383301	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P383551	
	SM 2540 C-2011	TDS	22	I	mg/L	P383663	
	SM 2540 D-2011	TSS	2	I	mg/L	P383599	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P383555	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P383467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20		mg N/L	P383397	
2176988	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P383316	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P383349	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P383365	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	I	mg P/L	P383299	
	dissolved						

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Manning Creek upstream of Manning Creek Rd. Collection Date/Time: 06/15/2020 12:05

Field ID: G4NW0435

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2176981	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P383295	
	EPA 300.0 Rev. 2.1	Chloride	4.9	A	mg Cl/L	P383437	
		Sulfate	0.60	A	mg SO4/L	P383439	
		Color (true)	31		PCU	P383301	
	SM 2120 B-2011	Total Alkalinity	1.9	I	mg CaCO3/L	P383551	
	SM 2540 C-2011	TDS	31		mg/L	P383663	
	SM 2540 D-2011	TSS	2	I	mg/L	P383599	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P383555	
2176983	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P383467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P383397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P383316	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P383349	
	SM 5310 B-2011	Organic Carbon	3.2		mg C/L	P383365	
2176985	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P383299	
2177022	EPA 200.7 Rev. 4.4	Barium	51.3		ug/L	P383338	
		Calcium	2.01		mg/L	P383338	
		Iron	360		ug/L	P383338	
		Magnesium	1.61		mg/L	P383338	
		Potassium	1.1	I	mg/L	P383338	
		Sodium	2.2		mg/L	P383338	
		Zinc	5.0	U	ug/L	P383338	
		Aluminum	124		ug/L	P383338	
	EPA 200.8 Rev. 5.4	Antimony	0.050	U	ug/L	P383338	
		Arsenic	0.26		ug/L	P383338	
		Barium	45.2		ug/L	P383338	
		Beryllium	0.047		ug/L	P383338	
		Boron**	11.5		ug/L	P383338	
		Cadmium	0.020	U	ug/L	P383745	
		Chromium	0.40	U	ug/L	P383338	
		Cobalt	0.229		ug/L	P383338	
		Copper	0.49	I	ug/L	P383338	
		Lead	0.23	I	ug/L	P383745	
		Manganese	27.5		ug/L	P383338	
		Molybdenum	0.15	U	ug/L	P383338	
		Nickel	0.59	I	ug/L	P383338	
		Selenium	0.20	U	ug/L	P383338	
		Silver	0.010	U	ug/L	P383338	
		Thallium	0.10	U	ug/L	P383745	
	SM 2340B	Hardness	11.7		mg/L	P383338	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Clear Creek upstream of Hwy 87A

Collection Date/Time: 06/15/2020 12:30

Field ID: G4NW0510

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2176987	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P383296	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P383437	
		Sulfate	0.29	I	mg SO4/L	P383439	
	SM 2120 B-2011	Color (true)	8.4		PCU	P383301	
	SM 2320 B-2011	Total Alkalinity	3.7		mg CaCO3/L	P383551	
	SM 2540 C-2011	TDS	28		mg/L	P383663	
	SM 2540 D-2011	TSS	4	I	mg/L	P383599	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P383555	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P383467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P383397	
2176989	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P383316	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P383349	
	SM 5310 B-2011	Organic Carbon	1.5		mg C/L	P383365	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P383299	
2176991	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P383299	

Ref. Method and Comment:

SM 2540 D-2011: 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: P383295

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383296

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P383338

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: P383338

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383745

Component	Result	Code	Units
Cadmium	0.020	U	ug/L
Lead	0.20	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383436

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383437

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383438

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383439

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383467

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383360

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383316

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383349

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383299

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P383301

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P383551

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

Reference Method: SM 2320 B-2011
Batch ID: P383852

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

Reference Method: SM 2540 C-2011
Batch ID: P383663

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P383599

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383404

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383555

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383365

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: P383338

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	103		P	85 - 115
Iron	105		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	100		P	85 - 115
Sodium	103		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383338

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	91.3		P	85 - 115
Antimony	94.1		P	85 - 115
Arsenic	94.2		P	85 - 115
Barium	95.8		P	85 - 115
Beryllium	87.2		P	85 - 115
Boron	94.3		P	85 - 115
Chromium	96.4		P	85 - 115
Cobalt	94.1		P	85 - 115
Copper	93.2		P	85 - 115
Manganese	94.2		P	85 - 115
Molybdenum	93.8		P	85 - 115
Nickel	92.4		P	85 - 115
Selenium	90.5		P	85 - 115
Silver	97.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cadmium	106		P	85 - 115
Lead	111		P	85 - 115
Thallium	106		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383438

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383439

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383467

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383360

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383316

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383349

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383299

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

Reference Method: SM 2120 B-2011
Batch ID: P383301

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

Reference Method: SM 2320 B-2011
Batch ID: P383551

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	93 - 104

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P383852

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P383404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P383555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383365

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P383338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177021	Barium	104		P	80 - 120
2177021	Calcium	106		P	80 - 120
2177021	Iron	101		P	80 - 120
2177021	Magnesium	104		P	80 - 120
2177021	Potassium	97.6		P	80 - 120
2177021	Sodium	99.1		P	80 - 120
2177021	Zinc	105		P	80 - 120
2177175	Barium	104	104	P/P	80 - 120
2177175	Calcium	105		P	80 - 120
2177175	Iron	106	106	P/P	80 - 120
2177175	Magnesium	108	110	P/P	80 - 120
2177175	Potassium	105	105	P/P	80 - 120
2177175	Sodium	105	105	P/P	80 - 120
2177175	Zinc	107	107	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177021	Aluminum	89.8		P	80 - 120
2177021	Antimony	91.1		P	80 - 120
2177021	Arsenic	91.9		P	80 - 120
2177021	Barium	91.8		P	80 - 120
2177021	Beryllium	82.9		P	80 - 120
2177021	Boron	90.3		P	80 - 120
2177021	Chromium	95.8		P	80 - 120
2177021	Cobalt	92.0		P	80 - 120
2177021	Copper	93.2		P	80 - 120
2177021	Manganese	91.8		P	80 - 120
2177021	Molybdenum	92.8		P	80 - 120
2177021	Nickel	92.5		P	80 - 120
2177021	Selenium	89.3		P	80 - 120
2177021	Silver	94.5		P	80 - 120
2177175	Aluminum	91.3	91.8	P/P	80 - 120
2177175	Antimony	93.7	94.7	P/P	80 - 120
2177175	Arsenic	95.6	95.3	P/P	80 - 120
2177175	Barium	94.3	95.7	P/P	80 - 120
2177175	Beryllium	86.2	86.7	P/P	80 - 120
2177175	Boron	93.2	93.9	P/P	80 - 120
2177175	Chromium	96.6	97.0	P/P	80 - 120
2177175	Cobalt	94.3	94.3	P/P	80 - 120
2177175	Copper	94.3	94.4	P/P	80 - 120
2177175	Manganese	93.7	94.8	P/P	80 - 120
2177175	Molybdenum	95.1	95.4	P/P	80 - 120
2177175	Nickel	92.4	94.1	P/P	80 - 120
2177175	Selenium	91.1	90.9	P/P	80 - 120
2177175	Silver	95.5	97.5	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176927	Cadmium	110	107	P/P	80 - 120
2176927	Lead	113	112	P/P	80 - 120
2176927	Thallium	116	110	P/P	80 - 120
2176928	Cadmium	108		P	80 - 120
2176928	Lead	112		P	80 - 120
2176928	Thallium	112		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176855	Chloride	96.4		P	90 - 110
2176919	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176981	Chloride	98.1		P	90 - 110
2177145	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176855	Sulfate	97.6		P	90 - 110
2176919	Sulfate	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176981	Sulfate	97.9		P	90 - 110
2177145	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176921	Ammonia-N	99.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176970	Kjeldahl Nitrogen	94.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177127	Kjeldahl Nitrogen	104	97.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176922	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176957	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176984	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P383404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176956	Fluoride	101	101	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P383555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177151	Fluoride	105	102	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P383365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176907	Organic Carbon	103	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176968	Turbidity	12.8	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177046	Turbidity	1.76	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P383338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177175	Barium	0.363	Spike	P	0 - 20
2177175	Calcium	0.461	Spike	P	0 - 20
2177175	Iron	0.648	Spike	P	0 - 20
2177175	Magnesium	1.11	Spike	P	0 - 20
2177175	Potassium	0.603	Spike	P	0 - 20
2177175	Sodium	0.284	Spike	P	0 - 20
2177175	Zinc	0.0568	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177175	Aluminum	0.534	Spike	P	0 - 20
2177175	Antimony	1.07	Spike	P	0 - 20
2177175	Arsenic	0.320	Spike	P	0 - 20
2177175	Barium	1.31	Spike	P	0 - 20
2177175	Beryllium	0.507	Spike	P	0 - 20
2177175	Boron	0.710	Spike	P	0 - 20
2177175	Chromium	0.419	Spike	P	0 - 20
2177175	Cobalt	0.0596	Spike	P	0 - 20
2177175	Copper	0.0781	Spike	P	0 - 20
2177175	Manganese	0.967	Spike	P	0 - 20
2177175	Molybdenum	0.259	Spike	P	0 - 20
2177175	Nickel	1.75	Spike	P	0 - 20
2177175	Selenium	0.188	Spike	P	0 - 20
2177175	Silver	2.03	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176927	Cadmium	2.33	Spike	P	0 - 20
2176927	Lead	0.402	Spike	P	0 - 20
2176927	Thallium	5.72	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176855	Chloride	1.99	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176981	Chloride	0.0163	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176855	Sulfate	2.21	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176981	Sulfate	0.684	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176921	Ammonia-N	1.55	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176970	Kjeldahl Nitrogen	3.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177127	Kjeldahl Nitrogen	4.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176922	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176957	Total-P	0.0151	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176984	O-Phosphate-P	0.299	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176956	Color (true)	0.991	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P383551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177151	Total Alkalinity	0.644	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P383852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178210	Total Alkalinity	4.78	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P383663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177126	TDS	4.53	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P383404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176956	Fluoride	0.502	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P383555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177151	Fluoride	2.53	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P383365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176907	Organic Carbon	0.425	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A99351

Included Lab Sample IDs: 2176980, 2176981, 2176986, 2176987

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A99352

Included Lab Sample IDs: 2176984, 2176985, 2176990, 2176991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	98.4	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A99353

Included Lab Sample IDs: 2176980, 2176981, 2176986, 2176987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99370

Included Lab Sample IDs: 2176982, 2176983, 2176988, 2176989

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

Reference Method: SM 5310 B-2011

Run ID: A99393

Included Lab Sample IDs: 2176982, 2176983, 2176988, 2176989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A99401

Included Lab Sample IDs: 2176980, 2176981, 2176986, 2176987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.1	97.6	P/P	90 - 110
Chloride	97.6	96.7	P/P	90 - 110
Sulfate	97.9	98.2	P/P	90 - 110
Sulfate	98.2	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A99406

Included Lab Sample IDs: 2176980

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99413

Included Lab Sample IDs: 2176982, 2176983, 2176988, 2176989

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99420

Included Lab Sample IDs: 2176982, 2176983, 2176988, 2176989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	99.2	P/P	90 - 110
Kjeldahl Nitrogen	99.2	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99434

Included Lab Sample IDs: 2176982, 2176983, 2176988, 2176989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99462

Included Lab Sample IDs: 2176981, 2176986, 2176987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A99462

Included Lab Sample IDs: 2176981, 2176986, 2176987

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A99477

Included Lab Sample IDs: 2177021, 2177022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	103	P/P	90 - 110
Calcium	102	104	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	103	104	P/P	90 - 110
Potassium	97.8	98.3	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Zinc	104	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99537

Included Lab Sample IDs: 2177021, 2177022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	90.3	91.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99537

Included Lab Sample IDs: 2177021, 2177022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	91.5	90.2	P/P	90 - 110
Antimony	90.7	91.8	P/P	90 - 110
Antimony	91.8	91.1	P/P	90 - 110
Arsenic	91.6	93.1	P/P	90 - 110
Arsenic	93.1	92.1	P/P	90 - 110
Barium	91.5	91.9	P/P	90 - 110
Barium	91.9	91.7	P/P	90 - 110
Beryllium	91.9	93.2	P/P	90 - 110
Beryllium	93.2	92.0	P/P	90 - 110
Boron	90.1	90.2	P/P	90 - 110
Boron	90.2	91.1	P/P	90 - 110
Chromium	93.3	93.5	P/P	90 - 110
Chromium	93.5	91.6	P/P	90 - 110
Cobalt	90.7	91.9	P/P	90 - 110
Cobalt	91.9	91.0	P/P	90 - 110
Copper	91.1	91.9	P/P	90 - 110
Copper	91.9	92.1	P/P	90 - 110
Manganese	91.7	92.3	P/P	90 - 110
Manganese	92.3	91.4	P/P	90 - 110
Molybdenum	91.0	92.4	P/P	90 - 110
Molybdenum	92.4	91.0	P/P	90 - 110
Nickel	91.8	92.6	P/P	90 - 110
Nickel	92.6	92.1	P/P	90 - 110
Selenium	92.0	92.2	P/P	90 - 110
Selenium	92.2	91.3	P/P	90 - 110
Silver	91.9	93.0	P/P	90 - 110
Silver	93.0	92.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99591

Included Lab Sample IDs: 2176980

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99666

Included Lab Sample IDs: 2177021, 2177022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	101	101	P/P	90 - 110
Lead	105	105	P/P	90 - 110
Thallium	95.8	95.1	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					12.8	
	Turbidity					1.76	
EPA 200.7 Rev. 4.4	Barium	104	104	104	104		0.363
	Calcium	103	106	105			0.461
	Iron	105	101	106	106		0.648
	Magnesium	107	104	108	110		1.11
	Potassium	100	97.6	105	105		0.603
	Sodium	103	99.1	105	105		0.284
	Zinc	106	105	107	107		0.0568
EPA 200.8 Rev. 5.4	Aluminum	91.3	91.3	91.8	89.8		0.534
	Antimony	94.1	93.7	94.7	91.1		1.07
	Arsenic	94.2	95.6	95.3	91.9		0.320
	Barium	95.8	94.3	95.7	91.8		1.31
	Beryllium	87.2	86.2	86.7	82.9		0.507
	Boron	94.3	93.2	93.9	90.3		0.710
	Cadmium	106	110	107	108		2.33
	Chromium	96.4	96.6	97.0	95.8		0.419
	Cobalt	94.1	94.3	94.3	92.0		0.0596
	Copper	93.2	94.3	94.4	93.2		0.0781
	Lead	111	113	112	112		0.402
	Manganese	94.2	93.7	94.8	91.8		0.967
	Molybdenum	93.8	95.1	95.4	92.8		0.259
	Nickel	92.4	92.4	94.1	92.5		1.75
	Selenium	90.5	91.1	90.9	89.3		0.188
	Silver	97.8	95.5	97.5	94.5		2.03
	Thallium	106	116	110	112		5.72
EPA 300.0 Rev. 2.1	Chloride	98.1	96.4	99.8		1.99	
	Chloride	98.1	98.1	98.5		0.0163	
	Sulfate	99.5	97.6	99.5		2.21	
	Sulfate	98.5	97.9	99.8		0.684	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.7	101			1.55
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	94.0	100			3.46
	Kjeldahl Nitrogen	99.5	104	97.8			4.21
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	108	108	108			0.0151
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	100	100			0.299
SM 2120 B-2011	Color (true)	104				0.991	
SM 2320 B-2011	Total Alkalinity	99.4				0.644	
	Total Alkalinity	103				4.78	
SM 2540 C-2011	TDS					4.53	
SM 4500 F-C-2011	Fluoride	100	101	101			0.502
	Fluoride	97.1	105	102			2.53
SM 5310 B-2011	Organic Carbon	102	103	102			0.425

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2176980, 2176981, 2176986, 2176987
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2177021, 2177022
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2177021, 2177022
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2176980, 2176981, 2176986, 2176987

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2176980, 2176981, 2176986, 2176987
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2176982, 2176983, 2176988, 2176989
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2176982, 2176983, 2176988, 2176989
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2176982, 2176983, 2176988, 2176989
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2176982, 2176983, 2176988, 2176989
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2176984, 2176985, 2176990, 2176991
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2176980, 2176981, 2176986, 2176987
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2176980, 2176981, 2176986, 2176987
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2177021, 2177022
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2176980, 2176981, 2176986, 2176987
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2176980, 2176981, 2176986, 2176987
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2176980, 2176981, 2176986, 2176987
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2176982, 2176983, 2176988, 2176989

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	06/16/2020			06/16/2020 15:55	Yen Ta	2176980, 2176981, 2176986, 2176987
EPA 200.7 Rev. 4.4	06/16/2020	06/17/2020 15:35	Elliott D. Healy	06/23/2020 17:59	Betina Topolski	2177021
	06/16/2020	06/17/2020 15:35	Elliott D. Healy	06/23/2020 18:18	Betina Topolski	2177022
EPA 200.8 Rev. 5.4	06/16/2020	06/17/2020 15:35	Elliott D. Healy	06/24/2020 01:37	Justin Cutchin	2177021
	06/16/2020	06/17/2020 15:35	Elliott D. Healy	06/24/2020 02:48	Justin Cutchin	2177022
	06/16/2020	06/26/2020 14:45	Justin Cutchin	07/02/2020 21:19	Alexander Thompson	2177021
	06/16/2020	06/26/2020 14:45	Justin Cutchin	07/02/2020 21:24	Alexander Thompson	2177022
EPA 300.0 Rev. 2.1	06/16/2020			06/18/2020 17:29	Elliott Rodriguez	2176980
	06/16/2020			06/18/2020 18:47	Elliott Rodriguez	2176981
	06/16/2020			06/18/2020 19:39	Elliott Rodriguez	2176986
	06/16/2020			06/18/2020 19:53	Elliott Rodriguez	2176987
EPA 350.1 Rev. 2.0	06/16/2020			06/20/2020 11:46	Ping Hua	2176982
	06/16/2020			06/20/2020 11:53	Ping Hua	2176983
	06/16/2020			06/20/2020 11:55	Ping Hua	2176988
	06/16/2020			06/20/2020 11:56	Ping Hua	2176989
EPA 351.2 Rev. 2.0	06/16/2020	06/18/2020 11:00	Sima Feizi	06/19/2020 10:45	Jhamieka S. Greenwood	2176982
	06/16/2020	06/18/2020 11:00	Sima Feizi	06/19/2020 10:58	Jhamieka S. Greenwood	2176983
	06/16/2020	06/18/2020 11:00	Sima Feizi	06/19/2020 11:00	Jhamieka S. Greenwood	2176988
	06/16/2020	06/18/2020 11:00	Sima Feizi	06/19/2020 11:01	Jhamieka S. Greenwood	2176989
EPA 353.2 Rev. 2.0	06/16/2020			06/17/2020 09:30	Beverly Y. Sanders	2176982
	06/16/2020			06/17/2020 10:06	Beverly Y. Sanders	2176983
	06/16/2020			06/17/2020 10:07	Beverly Y. Sanders	2176988
	06/16/2020			06/17/2020 10:09	Beverly Y. Sanders	2176989
EPA 365.1 Rev. 2.0	06/16/2020	06/17/2020 12:24	Yen Ta	06/19/2020 09:04	Lipi Saha	2176982
	06/16/2020	06/17/2020 12:24	Yen Ta	06/19/2020 09:05	Lipi Saha	2176983
	06/16/2020	06/17/2020 12:24	Yen Ta	06/19/2020 09:06	Lipi Saha	2176988
	06/16/2020	06/17/2020 12:24	Yen Ta	06/19/2020 09:07	Lipi Saha	2176989
EPA 365.1 Rev. 2.0 dissolved	06/16/2020			06/16/2020 16:14	Jhamieka S. Greenwood	2176984
	06/16/2020			06/16/2020 16:16	Jhamieka S. Greenwood	2176985
	06/16/2020			06/16/2020 16:17	Jhamieka S. Greenwood	2176990
	06/16/2020			06/16/2020 16:18	Jhamieka S. Greenwood	2176991
SM 2120 B-2011	06/16/2020			06/16/2020 16:59	Benjamin T. Nordmann	2176980
	06/16/2020			06/16/2020 17:00	Benjamin T. Nordmann	2176981, 2176986
	06/16/2020			06/16/2020 17:01	Benjamin T. Nordmann	2176987
SM 2320 B-2011	06/16/2020			06/22/2020 20:24	Dale L. Simmons	2176981
	06/16/2020			06/22/2020 20:33	Dale L. Simmons	2176986
	06/16/2020			06/22/2020 20:43	Dale L. Simmons	2176987
	06/16/2020			06/30/2020 04:39	Dale L. Simmons	2176980
SM 2340B	06/16/2020			06/23/2020 17:59	Betina Topolski	2177021
	06/16/2020			06/23/2020 18:18	Betina Topolski	2177022

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2011	06/16/2020			06/18/2020 14:01	Yijie Li	2176980, 2176981, 2176986, 2176987
SM 2540 D-2011	06/16/2020			06/18/2020 14:01	Yijie Li	2176980, 2176981, 2176986, 2176987
SM 4500 F-C-2011	06/16/2020			06/17/2020 21:01	Dale L. Simmons	2176980
	06/16/2020			06/22/2020 20:24	Dale L. Simmons	2176981
	06/16/2020			06/22/2020 20:33	Dale L. Simmons	2176986
	06/16/2020			06/22/2020 20:43	Dale L. Simmons	2176987
SM 5310 B-2011	06/16/2020			06/17/2020 18:52	David Boose	2176982
	06/16/2020			06/17/2020 19:09	David Boose	2176983
	06/16/2020			06/17/2020 19:21	David Boose	2176988
	06/16/2020			06/17/2020 19:35	David Boose	2176989