

Chemical Analysis Report

SO-DIST-2020-01-17-01

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

Event Description: **2020 SMP : Canals**
Request ID: **RQ-2020-01-13-36**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-FEB-2020 13:04

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long, sweeping underline.

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: C-19 @ US 27

Collection Date/Time: 01/16/2020 11:25

Field ID: G3SD0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150153	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P377773	
	EPA 300.0 Rev. 2.1	Chloride	53		mg Cl/L	P377877	
		Sulfate	21		mg SO4/L	P377880	
	SM 2120 B-2011	Color (true)	84		PCU	P377481	
	SM 2320 B-2011	Total Alkalinity	170		mg CaCO3/L	P377698	
	SM 2540 C-2011	TDS	334		mg/L	P377790	
	SM 2540 D-2011	TSS	8	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P377703	
2150156	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P377379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P377889	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P377670	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P377539	
2150159	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P377434	

Ref. Method and Comment:

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

Sample Location: Lake Hicpochee Canal

Collection Date/Time: 01/16/2020 12:00

Field ID: G3SD0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150154	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P377773	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P377877	
		Sulfate	26		mg SO4/L	P377880	
	SM 2120 B-2011	Color (true)	66		PCU	P377481	
	SM 2320 B-2011	Total Alkalinity	100		mg CaCO3/L	P377698	
	SM 2540 C-2011	TDS	254	A	mg/L	P377792	
	SM 2540 D-2011	TSS	9	IA	mg/L	P377579	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P377703	
2150157	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P378010	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P377890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P377670	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P377477	
2150160	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P377435	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low 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: Nine Mile Canal @SR80

Collection Date/Time: 01/16/2020 12:35

Field ID: G3SD0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150162	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P377773	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P377877	
		Sulfate	26		mg SO4/L	P377880	
		Color (true)	65		PCU	P377481	
	SM 2320 B-2011	Total Alkalinity	113		mg CaCO3/L	P377698	
	SM 2540 C-2011	TDS	286		mg/L	P377790	
	SM 2540 D-2011	TSS	6	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P377703	
2150164	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P378010	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P377890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.090		mg N/L	P377671	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P377477	
2150166	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P377435	
2150178	EPA 200.7 Rev. 4.4	Barium	27.4		ug/L	P377529	
		Calcium	45.1		mg/L	P377529	
		Iron	110	I	ug/L	P377529	
		Magnesium	9.85		mg/L	P377529	
		Potassium	6.5		mg/L	P377529	
		Sodium	28.7		mg/L	P377529	
		Zinc	5.0	U	ug/L	P377529	
	EPA 200.8 Rev. 5.4	Aluminum	45		ug/L	P377529	
		Antimony	0.11	I	ug/L	P377529	
		Arsenic	1.03		ug/L	P377529	
		Boron**	48.2		ug/L	P377529	
		Cadmium	0.020	U	ug/L	P377529	
		Chromium	0.40	U	ug/L	P377529	
		Copper	0.49	I	ug/L	P377529	
		Lead	0.20	U	ug/L	P377529	
		Nickel	0.50	U	ug/L	P377529	
		Selenium	0.20	U	ug/L	P377529	
		Silver	0.010	U	ug/L	P377529	
		Thallium	0.10	U	ug/L	P377529	
	SM 2340B	Hardness	153		mg/L	P377529	

Ref. Method and Comment:

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

Sample Location: Nine Mile Canal @SR80

Collection Date/Time: 01/16/2020 12:40

Field ID: G3SD0088_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150163	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P377773	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P377877	
		Sulfate	26		mg SO4/L	P377880	
		Color (true)	65	A	PCU	P377481	
	SM 2320 B-2011	Total Alkalinity	112		mg CaCO3/L	P377698	
	SM 2540 C-2011	TDS	285		mg/L	P377790	
	SM 2540 D-2011	TSS	6	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P377703	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P378010	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P377890	
2150165	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P377671	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P377477	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P377436	
	EPA 200.7 Rev. 4.4	Barium	27.1		ug/L	P377529	
2150179	EPA 200.8 Rev. 5.4	Calcium	46.4		mg/L	P377529	
		Iron	120	I	ug/L	P377529	
		Magnesium	10.1		mg/L	P377529	
		Potassium	6.7		mg/L	P377529	
		Sodium	29.5		mg/L	P377529	
		Zinc	5.0	U	ug/L	P377529	
		Aluminum	54		ug/L	P377529	
		Antimony	0.10	I	ug/L	P377529	
		Arsenic	1.04		ug/L	P377529	
		Boron**	48.5		ug/L	P377529	
		Cadmium	0.020	U	ug/L	P377529	
		Chromium	0.40	U	ug/L	P377529	
		Copper	0.47	I	ug/L	P377529	
		Lead	0.20	U	ug/L	P377529	
		Nickel	0.50	U	ug/L	P377529	
		Selenium	0.20	U	ug/L	P377529	
		Silver	0.010	U	ug/L	P377529	
		Thallium	0.10	U	ug/L	P377529	
	SM 2340B	Hardness	157		mg/L	P377529	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of analytical difficulties.

Sample Location: C-139Annex@DeerFenceRd

Collection Date/Time: 01/16/2020 13:45

Field ID: G1SD0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150155	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P377773	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P377877	
		Sulfate	8.9		mg SO4/L	P377880	
	SM 2120 B-2011	Color (true)	82		PCU	P377481	
	SM 2320 B-2011	Total Alkalinity	228		mg CaCO3/L	P377698	
	SM 2540 C-2011	TDS	348		mg/L	P377790	
	SM 2540 D-2011	TSS	9	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.30		mg F/L	P377703	
2150158	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P378010	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P377890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P377670	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P377477	
2150161	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P377436	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of analytical difficulties.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377773

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377529

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: P377529

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: P377877

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378010

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377889

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377890

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377671

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377436

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: P377481

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P377698

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

Reference Method: SM 2540 C-2011
Batch ID: P377790

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P377792

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P377577

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P377579

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P377703

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P377477

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

Reference Method: SM 5310 B-2011
Batch ID: P377539

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: P377529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	97.1		P	85 - 115
Calcium	103		P	85 - 115
Iron	103		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	99.9		P	85 - 115
Sodium	103		P	85 - 115
Zinc	96.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.0		P	85 - 115
Antimony	97.6		P	85 - 115
Arsenic	95.9		P	85 - 115
Boron	96.6		P	85 - 115
Cadmium	93.8		P	85 - 115
Chromium	92.7		P	85 - 115
Copper	93.8		P	85 - 115
Lead	100		P	85 - 115
Nickel	93.8		P	85 - 115
Selenium	89.2		P	85 - 115
Silver	105		P	85 - 115
Thallium	98.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378010

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377889

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377890

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

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: P377671

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: P377635

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P377481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P377698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P377703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P377477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P377539

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150329	Barium	97.0	98.4	P/P	80 - 120
2150329	Calcium	106		P	80 - 120
2150329	Iron	99.3	102	P/P	80 - 120
2150329	Magnesium	98.6	102	P/P	80 - 120
2150329	Potassium	98.0	100	P/P	80 - 120
2150329	Sodium	97.4	101	P/P	80 - 120
2150329	Zinc	96.7	99.0	P/P	80 - 120
2150400	Barium	104		P	80 - 120
2150400	Calcium	110		P	80 - 120
2150400	Iron	109		P	80 - 120
2150400	Magnesium	111		P	80 - 120
2150400	Potassium	107		P	80 - 120
2150400	Sodium	108		P	80 - 120
2150400	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150329	Aluminum	95.8	96.3	P/P	80 - 120
2150329	Antimony	97.6	98.2	P/P	80 - 120
2150329	Arsenic	94.8	95.7	P/P	80 - 120
2150329	Boron	95.5	96.7	P/P	80 - 120
2150329	Cadmium	95.0	95.4	P/P	80 - 120
2150329	Chromium	95.9	96.9	P/P	80 - 120
2150329	Copper	95.7	98.5	P/P	80 - 120
2150329	Lead	101	102	P/P	80 - 120
2150329	Nickel	93.9	95.2	P/P	80 - 120
2150329	Selenium	90.2	91.1	P/P	80 - 120
2150329	Silver	104	105	P/P	80 - 120
2150329	Thallium	101	102	P/P	80 - 120
2150400	Aluminum	96.0		P	80 - 120
2150400	Antimony	98.1		P	80 - 120
2150400	Arsenic	96.1		P	80 - 120
2150400	Boron	98.3		P	80 - 120
2150400	Cadmium	95.1		P	80 - 120
2150400	Chromium	94.7		P	80 - 120
2150400	Copper	94.7		P	80 - 120
2150400	Lead	102		P	80 - 120
2150400	Nickel	94.3		P	80 - 120
2150400	Selenium	90.5		P	80 - 120
2150400	Silver	103		P	80 - 120
2150400	Thallium	99.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150138	Chloride	102		P	90 - 110
2150202	Chloride	90.4		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150138	Sulfate	101		P	90 - 110
2150202	Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150094	Ammonia-N	102	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150108	Ammonia-N	98.9	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150128	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150204	NO2NO3-N	94.7	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150140	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150144	O-Phosphate-P	96.8	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150025	O-Phosphate-P	93.2	95.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P377703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150202	Fluoride	98.2	98.8	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P377477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150157	Organic Carbon	113	115	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P377539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150016	Organic Carbon	105	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150127	Turbidity	1.58	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150329	Barium	1.38	Spike	P	0 - 20
2150329	Calcium	2.48	Spike	P	0 - 20
2150329	Iron	2.29	Spike	P	0 - 20
2150329	Magnesium	2.11	Spike	P	0 - 20
2150329	Potassium	2.22	Spike	P	0 - 20
2150329	Sodium	2.27	Spike	P	0 - 20
2150329	Zinc	2.33	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150329	Aluminum	0.512	Spike	P	0 - 20
2150329	Antimony	0.613	Spike	P	0 - 20
2150329	Arsenic	0.988	Spike	P	0 - 20
2150329	Boron	1.14	Spike	P	0 - 20
2150329	Cadmium	0.487	Spike	P	0 - 20
2150329	Chromium	1.01	Spike	P	0 - 20
2150329	Copper	2.93	Spike	P	0 - 20
2150329	Lead	0.725	Spike	P	0 - 20
2150329	Nickel	1.36	Spike	P	0 - 20
2150329	Selenium	1.02	Spike	P	0 - 20
2150329	Silver	1.46	Spike	P	0 - 20
2150329	Thallium	0.826	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150202	Chloride	2.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150202	Sulfate	2.61	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150094	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150108	Ammonia-N	0.730	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150156	Kjeldahl Nitrogen	2.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150157	Kjeldahl Nitrogen	4.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150128	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150204	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150140	Total-P	0.185	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150144	O-Phosphate-P	1.44	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150025	O-Phosphate-P	2.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150291	O-Phosphate-P	0.703	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P377481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150163	Color (true)	1.91	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P377698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150202	Total Alkalinity	0.623	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P377790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150127	TDS	1.12	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P377792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150154	TDS	0.394	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P377577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150127	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P377703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150202	Fluoride	0.473	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P377477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150157	Organic Carbon	1.18	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P377539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150016	Organic Carbon	1.92	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96977

Included Lab Sample IDs: 2150156

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96994

Included Lab Sample IDs: 2150159, 2150160, 2150161, 2150166, 2150167

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	98.2	P/P	90 - 110
O-Phosphate-P	98.5	97.9	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97018

Included Lab Sample IDs: 2150157, 2150158, 2150164, 2150165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	99.6	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A97023

Included Lab Sample IDs: 2150153, 2150154, 2150155, 2150162, 2150163

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115

Reference Method: SM 5310 B-2011

Run ID: A97050

Included Lab Sample IDs: 2150156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	107	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97081

Included Lab Sample IDs: 2150178, 2150179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Barium	97.0	101	P/P	95 - 105
Calcium	101	99.3	P/P	95 - 105
Calcium	99.3	103	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	102	101	P/P	95 - 105
Magnesium	102	102	P/P	95 - 105
Magnesium	102	103	P/P	90 - 110
Potassium	101	101	P/P	95 - 105
Potassium	101	101	P/P	90 - 110
Sodium	100	101	P/P	90 - 110
Sodium	101	100	P/P	95 - 105
Zinc	101	101	P/P	90 - 110
Zinc	96.3	101	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97091

Included Lab Sample IDs: 2150156, 2150157, 2150158, 2150164, 2150165

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97098

Included Lab Sample IDs: 2150157, 2150165

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

Reference Method: SM 2320 B-2011

Run ID: A97099

Included Lab Sample IDs: 2150153, 2150154, 2150155, 2150162, 2150163

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

Reference Method: SM 4500 F-C-2011

Run ID: A97099

Included Lab Sample IDs: 2150153, 2150154, 2150155, 2150162, 2150163

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97102

Included Lab Sample IDs: 2150156, 2150158, 2150164

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97139

Included Lab Sample IDs: 2150153, 2150154, 2150155, 2150162, 2150163

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97154

Included Lab Sample IDs: 2150178, 2150179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	96.7	97.4	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Boron	98.0	99.4	P/P	90 - 110
Cadmium	98.7	99.8	P/P	90 - 110
Chromium	98.3	98.5	P/P	90 - 110
Copper	97.6	97.4	P/P	90 - 110
Lead	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97154

Included Lab Sample IDs: 2150178, 2150179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	98.4	97.5	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Silver	108	109	P/P	90 - 110
Thallium	97.0	97.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97170

Included Lab Sample IDs: 2150153, 2150154, 2150155, 2150162, 2150163

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97208

Included Lab Sample IDs: 2150156

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97209

Included Lab Sample IDs: 2150157, 2150158, 2150164, 2150165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	107	P/P	90 - 110
Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97220

Included Lab Sample IDs: 2150157, 2150158, 2150164, 2150165

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97279

Included Lab Sample IDs: 2150178, 2150179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	95.5	96.4	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					1.58	
EPA 200.7 Rev. 4.4	Barium	97.1	97.0	98.4	104		1.38
	Calcium	103	106	110			2.48
	Iron	103	99.3	102	109		2.29
	Magnesium	103	98.6	102	111		2.11
	Potassium	99.9	98.0	100	107		2.22
	Sodium	103	97.4	101	108		2.27
	Zinc	96.3	96.7	99.0	103		2.33
EPA 200.8 Rev. 5.4	Aluminum	96.0	95.8	96.3	96.0		0.512
	Antimony	97.6	97.6	98.2	98.1		0.613
	Arsenic	95.9	94.8	95.7	96.1		0.988
	Boron	96.6	95.5	96.7	98.3		1.14
	Cadmium	93.8	95.0	95.4	95.1		0.487
	Chromium	92.7	95.9	96.9	94.7		1.01
	Copper	93.8	95.7	98.5	94.7		2.93
	Lead	100	101	102	102		0.725
	Nickel	93.8	93.9	95.2	94.3		1.36
	Selenium	89.2	90.2	91.1	90.5		1.02
	Silver	105	104	105	103		1.46
	Thallium	98.9	101	102	99.7		0.826
EPA 300.0 Rev. 2.1	Chloride	103	102	90.4		2.04	
	Sulfate	102	96.4	101		2.61	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	102	99.4			1.34
	Ammonia-N	102	99.7	98.9			0.730
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106					2.46
	Kjeldahl Nitrogen	109					4.79
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5	98.5			0.0
	NO2NO3-N	102	94.7	95.7			1.01
EPA 365.1 Rev. 2.0	Total-P	106	106	107			0.185
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	96.8	98.2			1.44
	O-Phosphate-P	99.5	93.2	95.7			2.25
	O-Phosphate-P	99.3					0.703
SM 2120 B-2011	Color (true)	99.6				1.91	
SM 2320 B-2011	Total Alkalinity	105				0.623	
SM 2540 C-2011	TDS					1.12	
	TDS					0.394	
SM 2540 D-2011	TSS					0.0	
SM 4500 F-C-2011	Fluoride	99.0	98.2	98.8			0.473
SM 5310 B-2011	Organic Carbon	97.6	113	115			1.18
	Organic Carbon	101	105	103			1.92

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2150153, 2150154, 2150155, 2150162, 2150163
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2150178, 2150179
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2150178, 2150179
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2150153, 2150154, 2150155, 2150162, 2150163
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2150153, 2150154, 2150155, 2150162, 2150163

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2150156, 2150157, 2150158, 2150164, 2150165
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2150156, 2150157, 2150158, 2150164, 2150165
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2150156, 2150157, 2150158, 2150164, 2150165
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2150156, 2150157, 2150158, 2150164, 2150165
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2150159, 2150160, 2150161, 2150166, 2150167
SM 2120 B-2011 / E31780	True Color measured at 450 nm (not valid for NPDES monitoring)	2150153, 2150154, 2150155, 2150162, 2150163
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2150153, 2150154, 2150155, 2150162, 2150163
SM 2340B / E31780	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2150178, 2150179
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2150153, 2150154, 2150155, 2150162, 2150163
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2150153, 2150154, 2150155, 2150162, 2150163
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2150153, 2150154, 2150155, 2150162, 2150163
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2150156, 2150157, 2150158, 2150164, 2150165

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	01/17/2020			01/17/2020 16:48	Yen Ta	2150153, 2150154, 2150155, 2150162, 2150163
EPA 200.7 Rev. 4.4	01/17/2020	01/22/2020 14:45	Elliott D. Healy	01/23/2020 12:58	Betina Topolski	2150178
	01/17/2020	01/22/2020 14:45	Elliott D. Healy	01/23/2020 13:29	Betina Topolski	2150179
EPA 200.8 Rev. 5.4	01/17/2020	01/22/2020 14:45	Elliott D. Healy	01/28/2020 22:44	Alexander Thompson	2150178
	01/17/2020	01/22/2020 14:45	Elliott D. Healy	01/28/2020 22:54	Alexander Thompson	2150179
	01/17/2020	01/22/2020 14:45	Elliott D. Healy	02/04/2020 02:26	Alexander Thompson	2150178
	01/17/2020	01/22/2020 14:45	Elliott D. Healy	02/04/2020 02:36	Alexander Thompson	2150179
EPA 300.0 Rev. 2.1	01/17/2020			01/29/2020 02:08	Lipi Saha	2150153
	01/17/2020			01/29/2020 02:20	Lipi Saha	2150154
	01/17/2020			01/29/2020 02:32	Lipi Saha	2150155
	01/17/2020			01/29/2020 02:44	Lipi Saha	2150162
	01/17/2020			01/29/2020 02:56	Lipi Saha	2150163
EPA 350.1 Rev. 2.0	01/17/2020			01/17/2020 15:05	Ping Hua	2150156
	01/17/2020			01/29/2020 12:07	Ping Hua	2150157
	01/17/2020			01/29/2020 12:14	Ping Hua	2150158
	01/17/2020			01/29/2020 12:16	Ping Hua	2150164
	01/17/2020			01/29/2020 12:17	Ping Hua	2150165
EPA 351.2 Rev. 2.0	01/17/2020	01/29/2020 14:30	Jhamieka S. Greenwood	01/30/2020 09:34	Jhamieka S. Greenwood	2150156
	01/17/2020	01/29/2020 14:30	Jhamieka S. Greenwood	01/30/2020 14:22	Jhamieka S. Greenwood	2150157
	01/17/2020	01/29/2020 14:30	Jhamieka S. Greenwood	01/30/2020 14:30	Jhamieka S. Greenwood	2150158
	01/17/2020	01/29/2020 14:30	Jhamieka S. Greenwood	01/30/2020 14:32	Jhamieka S. Greenwood	2150164
	01/17/2020	01/29/2020 14:30	Jhamieka S. Greenwood	01/30/2020 14:33	Jhamieka S. Greenwood	2150165
EPA 353.2 Rev. 2.0	01/17/2020			01/24/2020 09:34	Beverly Y. Sanders	2150156
	01/17/2020			01/24/2020 09:36	Beverly Y. Sanders	2150157
	01/17/2020			01/24/2020 09:37	Beverly Y. Sanders	2150158
	01/17/2020			01/24/2020 09:51	Beverly Y. Sanders	2150164
	01/17/2020			01/24/2020 09:52	Beverly Y. Sanders	2150165
EPA 365.1 Rev. 2.0	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 12:49	Benjamin T. Nordmann	2150156
	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 12:53	Benjamin T. Nordmann	2150158
	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 12:54	Benjamin T. Nordmann	2150164
	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 16:07	Benjamin T. Nordmann	2150157
	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 16:15	Benjamin T. Nordmann	2150165
EPA 365.1 Rev. 2.0 dissolved	01/17/2020			01/17/2020 12:35	Carlos Miranda	2150159
	01/17/2020			01/17/2020 12:36	Carlos Miranda	2150160
	01/17/2020			01/17/2020 12:37	Carlos Miranda	2150166
	01/17/2020			01/17/2020 13:02	Carlos Miranda	2150167
	01/17/2020			01/17/2020 13:03	Carlos Miranda	2150161
SM 2120 B-2011	01/17/2020			01/17/2020 17:10	Madeline Funaro	2150153
	01/17/2020			01/17/2020 17:11	Madeline Funaro	2150154

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B-2011	01/17/2020			01/17/2020 17:12	Madeline Funaro	2150155
	01/17/2020			01/17/2020 17:13	Madeline Funaro	2150162
	01/17/2020			01/17/2020 17:14	Madeline Funaro	2150163
SM 2320 B-2011	01/17/2020			01/25/2020 11:18	Dale L. Simmons	2150153
	01/17/2020			01/25/2020 11:30	Dale L. Simmons	2150154
	01/17/2020			01/25/2020 11:44	Dale L. Simmons	2150155
	01/17/2020			01/25/2020 11:57	Dale L. Simmons	2150162
	01/17/2020			01/25/2020 12:09	Dale L. Simmons	2150163
SM 2340B	01/17/2020			01/23/2020 12:58	Betina Topolski	2150178
	01/17/2020			01/23/2020 13:29	Betina Topolski	2150179
SM 2540 C-2011	01/17/2020			01/21/2020 15:30	Sima Feizi	2150153, 2150154, 2150155, 2150162, 2150163
SM 2540 D-2011	01/17/2020			01/21/2020 15:30	Sima Feizi	2150153, 2150154, 2150155, 2150162, 2150163
SM 4500 F-C-2011	01/17/2020			01/25/2020 11:18	Dale L. Simmons	2150153
	01/17/2020			01/25/2020 11:30	Dale L. Simmons	2150154
	01/17/2020			01/25/2020 11:44	Dale L. Simmons	2150155
	01/17/2020			01/25/2020 11:57	Dale L. Simmons	2150162
	01/17/2020			01/25/2020 12:09	Dale L. Simmons	2150163
SM 5310 B-2011	01/17/2020			01/21/2020 08:38	Madeline Funaro	2150157
	01/17/2020			01/21/2020 09:33	Madeline Funaro	2150158
	01/17/2020			01/21/2020 10:01	Madeline Funaro	2150164
	01/17/2020			01/21/2020 10:17	Madeline Funaro	2150165
	01/17/2020			01/22/2020 12:47	Madeline Funaro	2150156