Chemical Analysis Report

TLH-ROC-2021-06-21-01

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

Event Description: **Run 8a**
Request ID: **RQ-2021-06-21-43**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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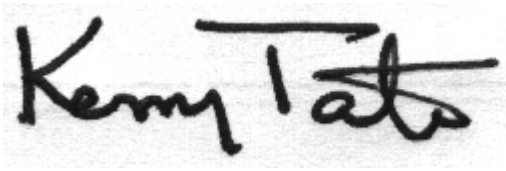
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 15-JUL-2021 09:58



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: Apalachicola Bay Center **Collection Date/Time: 06/21/2021 11:00**

Field ID: G2TLHR0026 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256112	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P400061	
	SM 2320 B-2011	Total Alkalinity	58		mg CaCO3/L	P400373	
	SM 2540 D-2011	TSS	6	I A	mg/L	P400247	
	SM 4500 F-C-2011	Fluoride	0.18	U	mg F/L	P400376	
2256114	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P400458	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P400218	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P400102	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P400297	
	SM 5310 B-2011	Organic Carbon	3.1		mg C/L	P400363	
2256116	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P400064	
2256129	EPA 200.7 Rev. 4.4	Calcium	30.1		mg/L	P400105	
		Iron	290	I	ug/L	P400105	
		Magnesium	35.5		mg/L	P400105	
		Manganese	40		ug/L	P400105	
		Zinc	15	U	ug/L	P400105	
	EPA 200.8 Rev. 5.4	Aluminum	177		ug/L	P400105	
		Antimony	0.20	U	ug/L	P400105	
		Arsenic	0.45	I	ug/L	P400105	
		Beryllium	0.040	U	ug/L	P400105	
		Cadmium	0.080	U	ug/L	P400105	
		Chromium	1.6	U	ug/L	P400105	
		Copper	1.6	U	ug/L	P400105	
		Lead	0.80	U	ug/L	P400105	
		Nickel	2.0	U	ug/L	P400105	
		Selenium	0.80	U	ug/L	P400105	
		Silver	0.040	U	ug/L	P400105	
		Thallium	0.40	U	ug/L	P400105	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Inter-Coastal 450m d-stream Pine Log Boat Ramp **Collection Date/Time: 06/21/2021 11:30**

Field ID: G2TLHR0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256118	EPA 180.1 Rev. 2.0	Turbidity	8.3		NTU	P400061	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P400506	
		Sulfate	4.8		mg SO4/L	P400507	
	SM 2120 B-2011	Color (true)	16	A	PCU	P400067	
	SM 2320 B-2011	Total Alkalinity	53		mg CaCO3/L	P400372	
	SM 2540 D-2011	TSS	12		mg/L	P400245	
	SM 4500 F-C-2011	Fluoride	0.066	I	mg F/L	P400375	
2256119	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P400335	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P400389	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P400095	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P400299	
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P400361	
2256120	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P400063	
2256131	EPA 200.7 Rev. 4.4	Barium	19.8		ug/L	P400100	
		Calcium	18.0		mg/L	P400100	
		Iron	380		ug/L	P400100	
		Magnesium	2.02		mg/L	P400100	
		Manganese	47.3		ug/L	P400100	
		Potassium	1.5		mg/L	P400100	
		Sodium	5.5		mg/L	P400100	
		Zinc	5.0	U	ug/L	P400100	
	EPA 200.8 Rev. 5.4	Aluminum	226		ug/L	P400100	
		Antimony	0.071	I	ug/L	P400100	
		Arsenic	0.39		ug/L	P400100	
		Beryllium	0.020	I	ug/L	P400100	
		Boron**	16.5		ug/L	P400100	
		Cadmium	0.024	I	ug/L	P400100	
		Chromium	0.42	I	ug/L	P400100	
		Copper	1.16		ug/L	P400100	
		Lead	0.24	I	ug/L	P400100	
		Nickel	0.79	I	ug/L	P400100	
		Selenium	0.20	U	ug/L	P400100	
		Silver	0.010	U	ug/L	P400100	
		Thallium	0.10	U	ug/L	P400100	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable because of high analyte concentration in the QC sample.

Sample Location: East Bay (Apalachicola) **Collection Date/Time: 06/21/2021 10:25**

Field ID: G2TLHR0027 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256113	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P400061	
	SM 2320 B-2011	Total Alkalinity	60		mg CaCO3/L	P400372	
	SM 2540 D-2011	TSS	14		mg/L	P400245	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P400375	
2256115	EPA 350.1 Rev. 2.0	Ammonia-N	0.066		mg N/L	P400335	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P400389	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P400095	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P400299	
	SM 5310 B-2011	Organic Carbon	3.1		mg C/L	P400361	
2256117	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400063	
2256130	EPA 200.7 Rev. 4.4	Calcium	33.2		mg/L	P400100	
		Iron	580		ug/L	P400100	
		Magnesium	47.7		mg/L	P400100	
		Manganese	41.6		ug/L	P400100	
		Zinc	5.0	U	ug/L	P400100	
	EPA 200.8 Rev. 5.4	Aluminum	409		ug/L	P400100	
		Antimony	0.072	I	ug/L	P400100	
		Arsenic	0.70		ug/L	P400100	
		Beryllium	0.031	I	ug/L	P400100	
		Cadmium	0.020	U	ug/L	P400100	
		Chromium	0.71	I	ug/L	P400100	
		Copper	0.96		ug/L	P400100	
		Lead	0.42		ug/L	P400100	
		Nickel	0.60	I	ug/L	P400100	
		Selenium	0.20	U	ug/L	P400100	
		Silver	0.010	U	ug/L	P400100	
		Thallium	0.10	U	ug/L	P400100	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400061

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400100

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
Manganese	1.0	U	ug/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400105

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400100

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	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 200.8 Rev. 5.4
Batch ID: P400105

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Component	Result	Code	Units
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: P400506

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400507

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400335

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400218

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

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

Reference Method: SM 2120 B-2011
Batch ID: P400067

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P400372

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

Reference Method: SM 2320 B-2011
Batch ID: P400373

Component	Result	Code	Units
Total Alkalinity	0.89	I	mg CaCO3/L

Reference Method: SM 2540 D-2011
Batch ID: P400245

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P400247

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400376

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400361

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

Reference Method: SM 5310 B-2011
Batch ID: P400363

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: P400100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	80 - 120
Calcium	99.3		P	80 - 120
Iron	106		P	80 - 120
Magnesium	98.3		P	80 - 120
Manganese	102		P	80 - 120
Potassium	98.8		P	80 - 120
Sodium	99.4		P	80 - 120
Zinc	94.0		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	102		P	85 - 115
Magnesium	99.6		P	85 - 115
Manganese	100		P	85 - 115
Zinc	92.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	110		P	85 - 115
Antimony	110		P	85 - 115
Arsenic	104		P	85 - 115
Beryllium	101		P	85 - 115
Boron	111		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	101		P	85 - 115
Copper	104		P	85 - 115
Lead	101		P	85 - 115
Nickel	105		P	85 - 115
Selenium	106		P	85 - 115
Silver	101		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	102		P	85 - 115
Beryllium	97.9		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	99.8		P	85 - 115
Copper	98.8		P	85 - 115
Lead	115		P	85 - 115
Nickel	101		P	85 - 115
Selenium	103		P	85 - 115
Silver	101		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Thallium	105		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400506

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400335

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400218

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

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: P400063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

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

Reference Method: SM 2120 B-2011
Batch ID: P400067

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

Reference Method: SM 2320 B-2011
Batch ID: P400372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P400373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P400376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P400361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P400363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256296	Barium	101	103	P/P	80 - 120
2256296	Calcium	96.6		P	80 - 120
2256296	Iron	106	106	P/P	80 - 120
2256296	Magnesium	95.9		P	80 - 120
2256296	Manganese	101	103	P/P	80 - 120
2256296	Sodium	98.4		P	80 - 120
2256296	Zinc	89.8	91.6	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256563	Iron	102	102	P/P	70 - 130
2256563	Manganese	98.0	97.6	P/P	70 - 130
2256563	Zinc	86.9	87.3	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256296	Aluminum	111	109	P/P	80 - 120
2256296	Antimony	112	112	P/P	80 - 120
2256296	Arsenic	107	106	P/P	80 - 120
2256296	Beryllium	103	103	P/P	80 - 120
2256296	Boron	112	110	P/P	80 - 120
2256296	Cadmium	104	102	P/P	80 - 120
2256296	Chromium	104	101	P/P	80 - 120
2256296	Copper	105	105	P/P	80 - 120
2256296	Lead	103	103	P/P	80 - 120
2256296	Nickel	107	105	P/P	80 - 120
2256296	Selenium	106	105	P/P	80 - 120
2256296	Silver	99.6	100	P/P	80 - 120
2256296	Thallium	109	109	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256563	Aluminum	106	107	P/P	70 - 130
2256563	Antimony	110	107	P/P	70 - 130
2256563	Arsenic	121	117	P/P	70 - 130
2256563	Beryllium	113	109	P/P	70 - 130
2256563	Cadmium	102	99.3	P/P	70 - 130
2256563	Chromium	111	106	P/P	70 - 130
2256563	Copper	121	116	P/P	70 - 130
2256563	Lead	101	99.8	P/P	70 - 130
2256563	Nickel	124	120	P/P	70 - 130
2256563	Selenium	109	107	P/P	70 - 130
2256563	Silver	98.6	98.1	P/P	70 - 130
2256563	Thallium	112	112	P/P	70 - 130

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255816	Chloride	98.6		P	90 - 110
2256031	Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255816	Sulfate	95.8		P	90 - 110
2256031	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255945	Ammonia-N	96.0	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256136	Ammonia-N	97.0	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255970	Kjeldahl Nitrogen	95.8	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256115	Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256115	NO2NO3-N	95.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255970	NO2NO3-N	98.1	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256136	Total-P	103	105	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256173	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256137	O-Phosphate-P	95.5	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256032	Fluoride	99.6	99.6	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P400376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255968	Fluoride	97.3	97.3	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255871	Organic Carbon	96.4	97.0	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P400363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255144	Organic Carbon	95.7	95.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256289	Turbidity	1.90	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256296	Barium	1.62	Spike	P	0 - 20
2256296	Calcium	2.07	Spike	P	0 - 20
2256296	Iron	0.366	Spike	P	0 - 20
2256296	Magnesium	1.39	Spike	P	0 - 20
2256296	Manganese	1.75	Spike	P	0 - 20
2256296	Potassium	1.46	Spike	P	0 - 20
2256296	Sodium	1.11	Spike	P	0 - 20
2256296	Zinc	1.94	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256563	Calcium	0.528	Spike	P	0 - 20
2256563	Iron	0.201	Spike	P	0 - 20
2256563	Magnesium	1.04	Spike	P	0 - 20
2256563	Manganese	0.353	Spike	P	0 - 20
2256563	Zinc	0.485	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256296	Aluminum	1.50	Spike	P	0 - 20
2256296	Antimony	0.209	Spike	P	0 - 20
2256296	Arsenic	1.53	Spike	P	0 - 20
2256296	Beryllium	0.717	Spike	P	0 - 20
2256296	Boron	0.930	Spike	P	0 - 20
2256296	Cadmium	1.91	Spike	P	0 - 20
2256296	Chromium	2.53	Spike	P	0 - 20
2256296	Copper	0.0126	Spike	P	0 - 20
2256296	Lead	0.554	Spike	P	0 - 20
2256296	Nickel	1.60	Spike	P	0 - 20
2256296	Selenium	1.51	Spike	P	0 - 20
2256296	Silver	0.378	Spike	P	0 - 20
2256296	Thallium	0.233	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256563	Aluminum	0.584	Spike	P	0 - 20
2256563	Antimony	2.64	Spike	P	0 - 20
2256563	Arsenic	2.84	Spike	P	0 - 20
2256563	Beryllium	4.32	Spike	P	0 - 20
2256563	Cadmium	2.56	Spike	P	0 - 20
2256563	Chromium	4.52	Spike	P	0 - 20
2256563	Copper	3.81	Spike	P	0 - 20
2256563	Lead	1.32	Spike	P	0 - 20
2256563	Nickel	3.51	Spike	P	0 - 20
2256563	Selenium	1.16	Spike	P	0 - 20
2256563	Silver	0.553	Spike	P	0 - 20
2256563	Thallium	0.309	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256031	Chloride	0.439	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256031	Sulfate	0.675	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255945	Ammonia-N	0.192	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256136	Ammonia-N	0.233	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255970	Kjeldahl Nitrogen	7.17	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256115	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256115	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255970	NO2NO3-N	0.436	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256136	Total-P	1.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256173	Total-P	0.0447	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256193	O-Phosphate-P	0.307	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256137	O-Phosphate-P	0.791	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P400067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256118	Color (true)	7.99	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P400372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256032	Total Alkalinity	0.267	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P400373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255968	Total Alkalinity	0.313	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256032	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P400376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255968	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255871	Organic Carbon	0.441	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P400363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255144	Organic Carbon	0.523	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: A106220
Included Lab Sample IDs: 2256112, 2256113, 2256118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A106221
Included Lab Sample IDs: 2256116, 2256117, 2256120

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.9	P/P	90 - 110
O-Phosphate-P	97.7	97.2	P/P	90 - 110
O-Phosphate-P	98.2	97.7	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A106222
Included Lab Sample IDs: 2256118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	99.3	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106232
Included Lab Sample IDs: 2256115, 2256119

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106233
Included Lab Sample IDs: 2256114

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A106270
Included Lab Sample IDs: 2256129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	103	P/P	90 - 110
Antimony	98.9	98.5	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Beryllium	94.6	94.5	P/P	90 - 110
Cadmium	97.6	97.6	P/P	90 - 110
Chromium	102	99.7	P/P	90 - 110
Copper	103	104	P/P	90 - 110
Nickel	106	106	P/P	90 - 110
Selenium	99.2	98.9	P/P	90 - 110
Silver	99.5	99.9	P/P	90 - 110
Thallium	95.1	95.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A106279
Included Lab Sample IDs: 2256129, 2256130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.8	98.4	P/P	90 - 110
Calcium	99.0	97.9	P/P	90 - 110
Iron	98.3	99.3	P/P	90 - 110
Iron	99.7	98.6	P/P	90 - 110
Magnesium	97.4	98.1	P/P	90 - 110
Magnesium	98.6	97.6	P/P	90 - 110
Manganese	100	101	P/P	90 - 110
Manganese	97.8	99.6	P/P	90 - 110
Zinc	91.6	93.8	P/P	90 - 110
Zinc	93.8	92.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A106310
Included Lab Sample IDs: 2256129

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A106324
Included Lab Sample IDs: 2256114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.0	93.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A106346
Included Lab Sample IDs: 2256115, 2256119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	97.9	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A106360
Included Lab Sample IDs: 2256114, 2256115, 2256119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.9	97.6	P/P	90 - 110
Organic Carbon	97.1	97.2	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A106363
Included Lab Sample IDs: 2256112, 2256113, 2256118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110
Total Alkalinity	99.2	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A106363
Included Lab Sample IDs: 2256112, 2256113, 2256118

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A106366
Included Lab Sample IDs: 2256114, 2256115, 2256119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A106380
Included Lab Sample IDs: 2256131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	99.2	P/P	90 - 110
Calcium	101	101	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	100	100	P/P	90 - 110
Manganese	101	100	P/P	90 - 110
Potassium	103	103	P/P	90 - 110
Sodium	100	99.9	P/P	90 - 110
Zinc	97.1	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A106396
Included Lab Sample IDs: 2256114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	97.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A106408
Included Lab Sample IDs: 2256130, 2256131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	105	P/P	90 - 110
Antimony	106	106	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Beryllium	96.1	96.6	P/P	90 - 110
Boron	105	106	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Chromium	99.9	99.6	P/P	90 - 110
Lead	97.6	97.4	P/P	90 - 110
Nickel	101	102	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Silver	98.2	97.7	P/P	90 - 110
Thallium	98.6	96.9	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A106423
Included Lab Sample IDs: 2256118

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A106442
Included Lab Sample IDs: 2256115, 2256119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	99.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A106446
Included Lab Sample IDs: 2256130, 2256131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	99.8	100	P/P	90 - 110
Copper	103	102	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		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.90	
EPA 200.7 Rev. 4.4	Barium	103	101	103			1.62
	Calcium	99.3	96.6				2.07
	Calcium	100					0.528
	Iron	106	106	106			0.366
	Iron	102	102	102			0.201
	Magnesium	98.3	95.9				1.39
	Magnesium	99.6					1.04
	Manganese	102	101	103			1.75
	Manganese	100	98.0	97.6			0.353
	Potassium	98.8					1.46
	Sodium	99.4	98.4				1.11
	Zinc	94.0	89.8	91.6			1.94
	Zinc	92.1	86.9	87.3			0.485
EPA 200.8 Rev. 5.4	Aluminum	110	111	109			1.50
	Aluminum	105	106	107			0.584
	Antimony	110	112	112			0.209
	Antimony	104	110	107			2.64
	Arsenic	104	107	106			1.53
	Arsenic	102	121	117			2.84
	Beryllium	101	103	103			0.717
	Beryllium	97.9	113	109			4.32
	Boron	111	112	110			0.930
	Cadmium	105	104	102			1.91
	Cadmium	101	102	99.3			2.56
	Chromium	101	104	101			2.53
	Chromium	99.8	111	106			4.52
	Copper	104	105	105			0.0126
	Copper	98.8	121	116			3.81
	Lead	101	103	103			0.554
	Lead	115	101	99.8			1.32
	Nickel	105	107	105			1.60
	Nickel	101	124	120			3.51
	Selenium	106	106	105			1.51
	Selenium	103	109	107			1.16
	Silver	101	99.6	100			0.378
	Silver	101	98.6	98.1			0.553
	Thallium	104	109	109			0.233
	Thallium	105	112	112			0.309
EPA 300.0 Rev. 2.1	Chloride	102	96.3	98.6		0.439	
	Sulfate	96.9	97.6	95.8		0.675	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	96.0	95.8			0.192
	Ammonia-N	99.0	97.0	96.6			0.233
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	95.8	105			7.17
	Kjeldahl Nitrogen	96.6	103	105			1.40
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	95.0				0.0
	NO2NO3-N	98.0	98.1	98.6			0.436
EPA 365.1 Rev. 2.0	Total-P	106	103	105			1.71
	Total-P	102	103	103			0.0447
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101					0.307
	O-Phosphate-P	98.1	95.5	96.5			0.791
SM 2120 B-2011	Color (true)	100				7.99	
SM 2320 B-2011	Total Alkalinity	102				0.267	
	Total Alkalinity	103				0.313	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 4500 F-C-2011	Fluoride	101	99.6	99.6			0.0
	Fluoride	101	97.3	97.3			0.0
SM 5310 B-2011	Organic Carbon	96.0	96.4	97.0			0.441
	Organic Carbon	96.6	95.7	95.1			0.523

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2256112, 2256113, 2256118
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2256129, 2256130, 2256131
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2256129, 2256130, 2256131
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2256118
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2256118
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2256114, 2256115, 2256119
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2256114, 2256115, 2256119
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2256114, 2256115, 2256119
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2256114, 2256115, 2256119
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2256116, 2256117, 2256120
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2256118
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2256112, 2256113, 2256118
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2256112, 2256113, 2256118
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2256112, 2256113, 2256118
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2256114, 2256115, 2256119

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	06/21/2021			06/22/2021 15:04	Sarah A Nixon	2256112, 2256113, 2256118
EPA 200.7 Rev. 4.4	06/21/2021	06/23/2021 12:25	Elliott D. Healy	06/24/2021 16:58	Josef B Mick	2256130
	06/21/2021	06/23/2021 12:25	Elliott D. Healy	06/30/2021 20:48	Josef B Mick	2256131
	06/21/2021	06/23/2021 14:10	Elliott D. Healy	06/24/2021 20:41	Josef B Mick	2256129
EPA 200.8 Rev. 5.4	06/21/2021	06/23/2021 12:25	Elliott D. Healy	07/01/2021 19:47	Alexander Thompson	2256130
	06/21/2021	06/23/2021 12:25	Elliott D. Healy	07/01/2021 19:57	Alexander Thompson	2256131
	06/21/2021	06/23/2021 12:25	Elliott D. Healy	07/02/2021 22:16	Alexander Thompson	2256130
	06/21/2021	06/23/2021 12:25	Elliott D. Healy	07/02/2021 22:22	Alexander Thompson	2256131
	06/21/2021	06/23/2021 14:10	Elliott D. Healy	06/24/2021 22:08	Alexander Thompson	2256129
	06/21/2021	06/23/2021 14:10	Elliott D. Healy	06/25/2021 18:40	Alexander Thompson	2256129
EPA 300.0 Rev. 2.1	06/21/2021			07/01/2021 22:44	Lipi Saha	2256118
EPA 350.1 Rev. 2.0	06/21/2021			06/29/2021 13:15	Roberta Tatti	2256115
	06/21/2021			06/29/2021 13:16	Roberta Tatti	2256119
	06/21/2021			07/01/2021 12:33	Roberta Tatti	2256114
EPA 351.2 Rev. 2.0	06/21/2021	06/25/2021 16:59	Benjamin T. Nordmann	06/28/2021 10:12	Letuzia M De Oliveira	2256114
	06/21/2021	06/30/2021 12:28	Benjamin T. Nordmann	07/02/2021 13:18	Letuzia M De Oliveira	2256115
	06/21/2021	06/30/2021 12:28	Benjamin T. Nordmann	07/02/2021 13:23	Letuzia M De Oliveira	2256119
EPA 353.2 Rev. 2.0	06/21/2021			06/23/2021 08:49	Beverly Y. Sanders	2256115
	06/21/2021			06/23/2021 08:55	Beverly Y. Sanders	2256119
	06/21/2021			06/23/2021 11:44	Beverly Y. Sanders	2256114
EPA 365.1 Rev. 2.0	06/21/2021	06/28/2021 17:29	Madeline Gruver	06/30/2021 10:36	Shengyu Ding	2256114
	06/21/2021	06/28/2021 17:29	Madeline Gruver	06/30/2021 10:58	Shengyu Ding	2256115
	06/21/2021	06/28/2021 17:29	Madeline Gruver	06/30/2021 10:59	Shengyu Ding	2256119
EPA 365.1 Rev. 2.0 dissolved	06/21/2021			06/22/2021 15:41	Ping Hua	2256120
	06/21/2021			06/22/2021 15:57	Ping Hua	2256116
	06/21/2021			06/22/2021 16:09	Ping Hua	2256117
SM 2120 B-2011	06/21/2021			06/22/2021 15:46	Benjamin T. Nordmann	2256118
SM 2320 B-2011	06/21/2021			06/29/2021 23:17	Dale L. Simmons	2256118
	06/21/2021			06/30/2021 02:48	Dale L. Simmons	2256113
	06/21/2021			06/30/2021 04:50	Dale L. Simmons	2256112
SM 2540 D-2011	06/21/2021			06/24/2021 14:15	Yijie Li	2256112, 2256113, 2256118
SM 4500 F-C-2011	06/21/2021			06/29/2021 23:17	Dale L. Simmons	2256118
	06/21/2021			06/30/2021 02:48	Dale L. Simmons	2256113
	06/21/2021			06/30/2021 03:55	Dale L. Simmons	2256112
SM 5310 B-2011	06/21/2021			06/29/2021 08:14	Madeline Gruver	2256115
	06/21/2021			06/29/2021 08:27	Madeline Gruver	2256119
	06/21/2021			06/29/2021 14:50	Madeline Gruver	2256114