Chemical Analysis Report

TLH-ROC-2020-10-26-03

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

Event Description: **Run 12**
Request ID: **RQ-2020-10-26-18**
Customer: **TLH-ROC**
Project ID: **SMP**

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2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Colin Wright, Program Administrator

Date Certified: 17-NOV-2020 09:16

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: 10/26/2020 11:40**

Field ID: G2TLHR0026 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204751	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P389349	
	EPA 300.0 Rev. 2.1	Bromide	14		mg Br/L	P389912	
	SM 2320 B-2011	Total Alkalinity	63		mg CaCO3/L	P389777	
	SM 2540 D-2011	TSS	6	I	mg/L	P389871	
	SM 4500 F-C-2011	Fluoride	0.30		mg F/L	P389779	
2204753	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P389578	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P389500	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P389461	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P389674	
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P389443	
2204755	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P389361	
2204765	EPA 200.7 Rev. 4.4	Chromium	4.4	I	ug/L	P389817	
		Iron	690		ug/L	P389817	
		Magnesium	293		mg/L	P389817	
		Zinc	15	U	ug/L	P389817	
	EPA 200.8 Rev. 5.4	Aluminum	278		ug/L	P389817	
		Antimony	0.20	U	ug/L	P389817	
		Arsenic	0.82		ug/L	P389817	
		Beryllium	0.13	I	ug/L	P389817	
		Cadmium	0.080	U	ug/L	P389817	
		Copper	1.6	U	ug/L	P389817	
		Lead	0.80	U	ug/L	P389817	
		Nickel	2.0	U	ug/L	P389817	
		Selenium	0.80	U	ug/L	P389817	
		Silver	0.040	U	ug/L	P389817	
		Thallium	0.40	U	ug/L	P389817	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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 magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: East Bay (Apalachicola) **Collection Date/Time: 10/26/2020 11:05**

Field ID: G2TLHR0027 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204752	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P389349	
	EPA 300.0 Rev. 2.1	Bromide	21		mg Br/L	P389912	
	SM 2320 B-2011	Total Alkalinity	67		mg CaCO3/L	P389777	
	SM 2540 D-2011	TSS	5	I A	mg/L	P389873	
	SM 4500 F-C-2011	Fluoride	0.41		mg F/L	P389779	
2204754	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P389578	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P389500	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P389461	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P389674	
	SM 5310 B-2011	Organic Carbon	4.8		mg C/L	P389522	
2204756	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389361	
2204766	EPA 200.7 Rev. 4.4	Chromium	5.2	I	ug/L	P389817	
		Iron	390		ug/L	P389817	
		Magnesium	401		mg/L	P389817	
		Zinc	15	U	ug/L	P389817	
	EPA 200.8 Rev. 5.4	Aluminum	171		ug/L	P389817	
		Antimony	0.20	U	ug/L	P389817	
		Arsenic	0.80	I	ug/L	P389817	
		Beryllium	0.049	I	ug/L	P389817	
		Cadmium	0.080	U	ug/L	P389817	
		Copper	1.6	U	ug/L	P389817	
		Lead	0.80	U	ug/L	P389817	
		Nickel	2.0	U	ug/L	P389817	
		Selenium	0.80	U	ug/L	P389817	
		Silver	0.040	U	ug/L	P389817	
		Thallium	0.40	U	ug/L	P389817	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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 magnesium 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: P389349

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389817

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389817

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
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: P389912

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389500

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389461

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389674

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389361

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

Reference Method: SM 2320 B-2011
Batch ID: P389777

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

Reference Method: SM 2540 D-2011
Batch ID: P389871

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389873

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389443

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

Reference Method: SM 5310 B-2011
Batch ID: P389522

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: P389817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	99.0		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Zinc	97.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	104		P	85 - 115
Beryllium	100		P	85 - 115
Cadmium	102		P	85 - 115
Copper	102		P	85 - 115
Lead	93.4		P	85 - 115
Nickel	102		P	85 - 115
Selenium	101		P	85 - 115
Silver	102		P	85 - 115
Thallium	96.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389500

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389461

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: P389674

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389361

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

Reference Method: SM 2320 B-2011
Batch ID: P389777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.3		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.5		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P389522

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: P389817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204765	Chromium	96.1	97.0	P/P	70 - 130
2204765	Iron	105	107	P/P	70 - 130
2204765	Zinc	95.4	96.3	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204765	Aluminum	120	107	P/P	70 - 130
2204765	Antimony	112	110	P/P	70 - 130
2204765	Arsenic	123	124	P/P	70 - 130
2204765	Beryllium	104	114	P/P	70 - 130
2204765	Cadmium	108	105	P/P	70 - 130
2204765	Copper	123	122	P/P	70 - 130
2204765	Lead	102	100	P/P	70 - 130
2204765	Nickel	119	116	P/P	70 - 130
2204765	Selenium	123	124	P/P	70 - 130
2204765	Silver	99.5	99.8	P/P	70 - 130
2204765	Thallium	105	104	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205470	Bromide	103		P	90 - 110
2205479	Bromide	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204753	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204753	Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204753	NO2NO3-N	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203794	Total-P	107	107	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204755	O-Phosphate-P	97.8	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205576	Fluoride	103	104	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204622	Organic Carbon	98.6	99.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P389522

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204754	Organic Carbon	98.3	98.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204724	Turbidity	0.346	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204765	Chromium	0.867	Spike	P	0 - 20
2204765	Iron	2.32	Spike	P	0 - 20
2204765	Magnesium	0.231	Spike	P	0 - 20
2204765	Zinc	0.852	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204765	Aluminum	9.99	Spike	P	0 - 20
2204765	Antimony	0.961	Spike	P	0 - 20
2204765	Arsenic	0.442	Spike	P	0 - 20
2204765	Beryllium	7.39	Spike	P	0 - 20
2204765	Cadmium	3.13	Spike	P	0 - 20
2204765	Copper	0.881	Spike	P	0 - 20
2204765	Lead	1.73	Spike	P	0 - 20
2204765	Nickel	2.66	Spike	P	0 - 20
2204765	Selenium	1.32	Spike	P	0 - 20
2204765	Silver	0.252	Spike	P	0 - 20
2204765	Thallium	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204753	Ammonia-N	0.181	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204753	Kjeldahl Nitrogen	0.846	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204753	NO2NO3-N	0.221	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203794	Total-P	0.771	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204755	O-Phosphate-P	0.977	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205576	Total Alkalinity	1.59	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P389779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205576	Fluoride	0.487	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204622	Organic Carbon	0.728	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P389522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204754	Organic Carbon	0.452	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: A101802
Included Lab Sample IDs: 2204751, 2204752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A101806
Included Lab Sample IDs: 2204755, 2204756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.6	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A101846
Included Lab Sample IDs: 2204753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A101848
Included Lab Sample IDs: 2204753, 2204754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A101872
Included Lab Sample IDs: 2204754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A101882
Included Lab Sample IDs: 2204753, 2204754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	103	P/P	90 - 110
Kjeldahl Nitrogen	99.7	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A101890
Included Lab Sample IDs: 2204753, 2204754

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

Reference Method: SM 2320 B-2011
Run ID: A101970
Included Lab Sample IDs: 2204751, 2204752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	99.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A101970
Included Lab Sample IDs: 2204751, 2204752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.4	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A101986
Included Lab Sample IDs: 2204751, 2204752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.8	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A101996
Included Lab Sample IDs: 2204753, 2204754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A102033
Included Lab Sample IDs: 2204765, 2204766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.5	97.6	P/P	90 - 110
Chromium	99.2	98.5	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Zinc	98.8	98.6	P/P	90 - 110
Zinc	100	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A102090
Included Lab Sample IDs: 2204765, 2204766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	101	102	P/P	90 - 110
Arsenic	105	104	P/P	90 - 110
Beryllium	108	106	P/P	90 - 110
Beryllium	109	108	P/P	90 - 110
Cadmium	100	99.6	P/P	90 - 110
Copper	106	105	P/P	90 - 110
Lead	94.5	93.6	P/P	90 - 110
Nickel	105	104	P/P	90 - 110
Selenium	102	103	P/P	90 - 110
Silver	107	107	P/P	90 - 110
Thallium	92.1	91.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A102116
Included Lab Sample IDs: 2204765, 2204766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	92.7	103	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					0.346	
EPA 200.7 Rev. 4.4	Chromium	99.0	96.1	97.0			0.867
	Iron	106	105	107			2.32
	Magnesium	106					0.231
	Zinc	97.3	95.4	96.3			0.852
EPA 200.8 Rev. 5.4	Aluminum	102	120	107			9.99
	Antimony	103	112	110			0.961
	Arsenic	104	123	124			0.442
	Beryllium	100	104	114			7.39
	Cadmium	102	108	105			3.13
	Copper	102	123	122			0.881
	Lead	93.4	102	100			1.73
	Nickel	102	119	116			2.66
	Selenium	101	123	124			1.32
	Silver	102	99.5	99.8			0.252
	Thallium	96.6	105	104			1.23
EPA 300.0 Rev. 2.1	Bromide	103	103	104			
EPA 350.1 Rev. 2.0	Ammonia-N	102	105	105			0.181
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	106	107			0.846
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.2				0.221
EPA 365.1 Rev. 2.0	Total-P	108	107	107			0.771
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.8	98.8			0.977
SM 2320 B-2011	Total Alkalinity	99.3				1.59	
SM 4500 F-C-2011	Fluoride	94.5	103	104			0.487
SM 5310 B-2011	Organic Carbon	99.4	98.6	99.4			0.728
	Organic Carbon	102	98.3	98.8			0.452

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2204751, 2204752
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2204765, 2204766
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2204765, 2204766
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2204751, 2204752
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2204753, 2204754
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2204753, 2204754
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2204753, 2204754
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2204753, 2204754
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2204755, 2204756
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2204751, 2204752
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2204751, 2204752
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2204751, 2204752
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2204753, 2204754

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	10/26/2020			10/27/2020 15:30	Yen Ta	2204751, 2204752
EPA 200.7 Rev. 4.4	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/06/2020 17:27	Betina Topolski	2204765
	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/06/2020 18:58	Betina Topolski	2204766
	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/06/2020 19:06	Betina Topolski	2204766
EPA 200.8 Rev. 5.4	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/10/2020 14:29	Alexander Thompson	2204765
	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/10/2020 15:14	Alexander Thompson	2204766
	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/10/2020 15:22	Alexander Thompson	2204765
	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/12/2020 12:35	Alexander Thompson	2204766
	10/26/2020	11/05/2020 15:30	Elliott D. Healy	11/12/2020 12:40	Alexander Thompson	2204765
EPA 300.0 Rev. 2.1	10/26/2020			11/06/2020 18:36	Lipi Saha	2204751
	10/26/2020			11/06/2020 18:54	Lipi Saha	2204752
EPA 350.1 Rev. 2.0	10/26/2020			10/31/2020 14:30	Ping Hua	2204753
	10/26/2020			10/31/2020 14:36	Ping Hua	2204754
EPA 351.2 Rev. 2.0	10/26/2020	10/29/2020 13:48	David Boose	10/30/2020 13:39	Elliott Rodriguez	2204753
	10/26/2020	10/29/2020 13:48	David Boose	10/30/2020 13:47	Elliott Rodriguez	2204754
EPA 353.2 Rev. 2.0	10/26/2020			10/29/2020 09:16	Beverly Y. Sanders	2204753
	10/26/2020			10/29/2020 09:27	Beverly Y. Sanders	2204754
EPA 365.1 Rev. 2.0	10/26/2020	11/03/2020 12:37	Yen Ta	11/05/2020 14:44	Shengyu Wang	2204753
	10/26/2020	11/03/2020 12:37	Yen Ta	11/05/2020 14:45	Shengyu Wang	2204754
EPA 365.1 Rev. 2.0 dissolved	10/26/2020			10/27/2020 16:49	Blanca Fach	2204755
	10/26/2020			10/27/2020 16:52	Blanca Fach	2204756
SM 2320 B-2011	10/26/2020			11/05/2020 03:24	Samantha Davila	2204751
	10/26/2020			11/05/2020 03:37	Samantha Davila	2204752
SM 2540 D-2011	10/26/2020			10/29/2020 15:08	Yijie Li	2204751, 2204752
SM 4500 F-C-2011	10/26/2020			11/04/2020 23:59	Samantha Davila	2204751
	10/26/2020			11/05/2020 00:04	Samantha Davila	2204752
SM 5310 B-2011	10/26/2020			10/28/2020 20:21	Touraj Touran	2204753
	10/26/2020			10/29/2020 22:55	Madeline Gruver	2204754