Chemical Analysis Report

BSSP-2018-06-26-01

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

Event Description: **Reference Lake Sampling**
Request ID: **RQ-2018-06-25-17**
Customer: **BSSP**
Project ID: **LAKESREF**

Send Reports to:
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2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-JUL-2018 10:24

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 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: Otter Lake **Collection Date/Time: 06/26/2018 12:20**

Field ID: Otter Ref Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003336	EPA 300.0	Bromide	0.14		mg Br/L	P348733	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P347791	
		Sulfate	5.2		mg SO4/L	P347792	
	SM 2120 B	Color (true)	450		PCU	P347604	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P347808	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347812	
2003337	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P347940	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P348026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P347684	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P347837	
2003338	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P347570	
2003341	EPA 200.7 Rev. 4.4	Calcium	4.31		mg/L	P347583	
		Iron	420		ug/L	P347583	
		Magnesium	3.20		mg/L	P347583	
		Potassium	0.93	I	mg/L	P347583	
		Sodium	26.2		mg/L	P347583	
		Zinc	5.0	U	ug/L	P347583	
	EPA 200.8 Rev. 5.4	Arsenic	0.32		ug/L	P347583	
		Cadmium	0.020	U	ug/L	P347583	
		Chromium	0.40	U	ug/L	P347583	
		Copper	0.20	U	ug/L	P347583	
		Lead	0.72		ug/L	P347583	
		Nickel	0.26	I	ug/L	P347583	
		Silver	0.010	U	ug/L	P347583	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 07/25/2018.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347583

Component	Result	Code	Units
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: P347583

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0
Batch ID: P348733

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347791

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347792

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347940

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348026

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347684

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347837

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347570

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

Reference Method: SM 2120 B
Batch ID: P347604

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P347808

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

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	104		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	101		P	85 - 115
Sodium	104		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P347583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	94.0		P	85 - 115
Cadmium	98.0		P	85 - 115
Chromium	93.4		P	85 - 115
Copper	91.9		P	85 - 115
Lead	93.3		P	85 - 115
Nickel	94.3		P	85 - 115
Silver	98.3		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P348733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	94.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347791

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347792

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347940

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348026

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347684

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347570

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

Reference Method: SM 2120 B
Batch ID: P347604

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

Reference Method: SM 2320 B-97
Batch ID: P347808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003131	Calcium	106	103	P/P	80 - 120
2003131	Iron	105	102	P/P	80 - 120
2003131	Magnesium	110	106	P/P	80 - 120
2003131	Potassium	106	104	P/P	80 - 120
2003131	Sodium	105	101	P/P	80 - 120
2003131	Zinc	105	101	P/P	80 - 120
2003284	Calcium	105		P	80 - 120
2003284	Iron	107		P	80 - 120
2003284	Magnesium	104		P	80 - 120
2003284	Potassium	100		P	80 - 120
2003284	Sodium	103		P	80 - 120
2003284	Zinc	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P347583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003131	Arsenic	94.8	94.5	P/P	80 - 120
2003131	Cadmium	98.7	96.5	P/P	80 - 120
2003131	Chromium	95.2	94.6	P/P	80 - 120
2003131	Copper	93.7	92.6	P/P	80 - 120
2003131	Lead	95.1	93.4	P/P	80 - 120
2003131	Nickel	94.6	93.0	P/P	80 - 120
2003131	Silver	97.8	96.9	P/P	80 - 120
2003284	Arsenic	96.4		P	80 - 120
2003284	Cadmium	98.3		P	80 - 120
2003284	Chromium	94.0		P	80 - 120
2003284	Copper	90.6		P	80 - 120
2003284	Lead	95.0		P	80 - 120
2003284	Nickel	94.5		P	80 - 120
2003284	Silver	98.2		P	80 - 120

Reference Method: EPA 300.0
Batch ID: P348733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003336	Bromide	95.8	99.9	P/P	90 - 110
2003914	Bromide	91.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003262	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003262	Sulfate	102		P	90 - 110
2003448	Sulfate	97.9		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003281	Ammonia-N	96.3	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003452	Kjeldahl Nitrogen	97.2	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003294	NO2NO3-N	98.1	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003431	Total-P	97.5	94.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003338	O-Phosphate-P	97.1	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003212	Fluoride	96.3	97.4	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003131	Calcium	2.64	Spike	P	0 - 20
2003131	Iron	2.84	Spike	P	0 - 20
2003131	Magnesium	3.03	Spike	P	0 - 20
2003131	Potassium	2.61	Spike	P	0 - 20
2003131	Sodium	2.87	Spike	P	0 - 20
2003131	Zinc	3.26	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P347583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003131	Arsenic	0.315	Spike	P	0 - 20
2003131	Cadmium	2.20	Spike	P	0 - 20
2003131	Chromium	0.663	Spike	P	0 - 20
2003131	Copper	1.13	Spike	P	0 - 20
2003131	Lead	1.86	Spike	P	0 - 20
2003131	Nickel	1.65	Spike	P	0 - 20
2003131	Silver	0.904	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P348733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003336	Bromide	3.31	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003448	Chloride	2.60	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003448	Sulfate	2.69	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003281	Ammonia-N	1.66	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003452	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003294	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003431	Total-P	2.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003338	O-Phosphate-P	0.164	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P347604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003448	Color (true)	2.75	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P347808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003212	Total Alkalinity	0.951	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003212	Fluoride	0.988	Spike	P	0 - 3.5

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84847
Included Lab Sample IDs: 2003336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	97.3	P/P	90 - 110
Sulfate	100	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A84856
Included Lab Sample IDs: 2003338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	98.6	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A84873
Included Lab Sample IDs: 2003336

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84911
Included Lab Sample IDs: 2003337

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A84920
Included Lab Sample IDs: 2003341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	103	101	P/P	90 - 110
Potassium	99.8	100	P/P	90 - 110
Sodium	103	104	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A84928
Included Lab Sample IDs: 2003341

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A84947
Included Lab Sample IDs: 2003341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	94.1	93.7	P/P	90 - 110
Cadmium	94.0	93.5	P/P	90 - 110
Chromium	94.1	93.4	P/P	90 - 110
Copper	93.0	92.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A84947
Included Lab Sample IDs: 2003341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	94.3	93.8	P/P	90 - 110
Nickel	92.2	91.2	P/P	90 - 110
Silver	95.3	94.6	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A84959
Included Lab Sample IDs: 2003336

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

Reference Method: SM 4500 F-C-97
Run ID: A84959
Included Lab Sample IDs: 2003336

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85013
Included Lab Sample IDs: 2003337

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85037
Included Lab Sample IDs: 2003337

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85090
Included Lab Sample IDs: 2003337

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

Reference Method: EPA 300.0
Run ID: A85326
Included Lab Sample IDs: 2003336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.7	100	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 200.7 Rev. 4.4	Calcium	106	106	103	105			2.64
	Iron	104	105	102	107			2.84
	Magnesium	108	110	106	104			3.03
	Potassium	101	106	104	100			2.61
	Sodium	104	105	101	103			2.87
	Zinc	104	105	101	105			3.26
EPA 200.8 Rev. 5.4	Arsenic	94.0	96.4	94.8	94.5			0.315
	Cadmium	98.0	98.7	96.5	98.3			2.20
	Chromium	93.4	95.2	94.6	94.0			0.663
	Copper	91.9	93.7	92.6	90.6			1.13
	Lead	93.3	95.1	93.4	95.0			1.86
	Nickel	94.3	94.6	93.0	94.5			1.65
	Silver	98.3	97.8	96.9	98.2			0.904
EPA 300.0	Bromide	94.9	95.8	99.9	91.8			3.31
EPA 300.0 Rev. 2.1	Chloride	100	103				2.60	
	Sulfate	100	97.9	102			2.69	
EPA 350.1 Rev. 2.0	Ammonia-N	96.9	96.3	98.0				1.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	97.2	94.8				1.48
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.1	98.1				0.0
EPA 365.1 Rev. 2.0	Total-P	94.6	97.5	94.7				2.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	97.1	97.3				0.164
SM 2120 B	Color (true)	100					2.75	
SM 2320 B-97	Total Alkalinity	103					0.951	
SM 4500 F-C-97	Fluoride	98.2	96.3	97.4				0.988

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2003341
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2003341
EPA 300.0 / E31780	Bromide in aqueous matrices	2003336
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2003336
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2003336
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2003337
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2003337
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2003337
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2003337
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2003338
SM 2120 B / E31780	True Color measured at 450 nm	2003336
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2003336
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2003336

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	06/26/2018	06/27/2018 14:40	Elliott D. Healy	06/28/2018 16:58	Betina Topolski	2003341
	06/26/2018	06/27/2018 14:40	Elliott D. Healy	06/29/2018 10:58	Betina Topolski	2003341
EPA 200.8 Rev. 5.4	06/26/2018	06/27/2018 14:40	Elliott D. Healy	06/29/2018 20:01	Robert K Palmer	2003341
EPA 300.0	06/26/2018			07/18/2018 11:22	Lipi Saha	2003336
EPA 300.0 Rev. 2.1	06/26/2018			06/28/2018 16:24	Lipi Saha	2003336
EPA 350.1 Rev. 2.0	06/26/2018			07/03/2018 14:25	Julia Storbeck	2003337
EPA 351.2 Rev. 2.0	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:45	Joseph Suarez	2003337
EPA 353.2 Rev. 2.0	06/26/2018			06/28/2018 13:00	Lauren Bottorf	2003337
EPA 365.1 Rev. 2.0	06/26/2018	07/02/2018 12:00	Sima Feizi	07/03/2018 12:09	Beverly Y. Sanders	2003337
EPA 365.1 Rev. 2.0 dissolved	06/26/2018			06/26/2018 17:22	Megan Treadwell	2003338
SM 2120 B	06/26/2018			06/27/2018 15:24	Tanya Welborn	2003336
SM 2320 B-97	06/26/2018			07/01/2018 01:17	Dale L. Simmons	2003336
SM 4500 F-C-97	06/26/2018			07/01/2018 01:17	Dale L. Simmons	2003336