Chemical Analysis Report

BSSP-2021-09-23-01

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-2021-09-20-22**
Customer: **BSSP**
Project ID: **LAKESREF**

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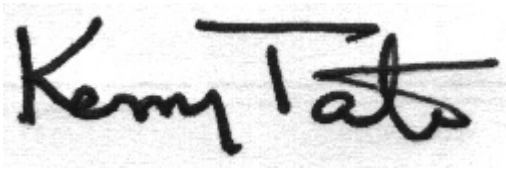
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 15-OCT-2021 09:22



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: Lake Miccosukee **Collection Date/Time: 09/23/2021 13:40**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278056	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P404318	
		Sulfate	0.20	U	mg SO4/L	P404320	
	SM 2120 B-2011	Color (true)	45		PCU	P404180	
	SM 2320 B-2011	Total Alkalinity	5.6		mg CaCO3/L	P404566	
	SM 4500 F-C-2011	Fluoride	0.043	I	mg F/L	P404570	
2278057	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P404411	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P404217	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P404265	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P404297	MS
2278058	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404181	
2278063	EPA 200.7 Rev. 4.4	Calcium	2.34		mg/L	P404252	
		Iron	1.39E+03		ug/L	P404252	
		Magnesium	0.84		mg/L	P404252	
		Potassium	0.30	U	mg/L	P404252	
		Sodium	1.6	I	mg/L	P404252	
		Zinc	5.0	U	ug/L	P404252	
	EPA 200.8 Rev. 5.4	Arsenic	0.15	I	ug/L	P404252	
		Beryllium	0.010	U	ug/L	P404252	
		Cadmium	0.020	U	ug/L	P404252	
		Chromium	0.40	U	ug/L	P404252	
		Copper	1.65		ug/L	P404252	
		Lead	0.20	U	ug/L	P404421	
		Nickel	0.50	U	ug/L	P404252	
		Silver	0.010	U	ug/L	P404252	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404252

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: P404252

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Nickel	0.50	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Component	Result	Code	Units
Lead	0.20	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404318

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404320

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404411

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404217

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: P404265

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404297

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404181

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

Reference Method: SM 2120 B-2011
Batch ID: P404180

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P404566

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

Reference Method: SM 4500 F-C-2011
Batch ID: P404570

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: P404252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	99.7		P	85 - 115
Sodium	104		P	85 - 115
Zinc	99.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	104		P	85 - 115
Beryllium	101		P	80 - 120
Cadmium	103		P	85 - 115
Chromium	97.9		P	80 - 120
Copper	98.8		P	80 - 120
Nickel	98.9		P	80 - 120
Silver	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lead	97.0		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404318

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404320

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404217

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404265

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: P404297

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404181

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

Reference Method: SM 2120 B-2011
Batch ID: P404180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P404566

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.2		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P404570

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277452	Calcium	106		P	80 - 120
2277452	Iron	110		P	80 - 120
2277452	Magnesium	110		P	80 - 120
2277452	Potassium	107		P	80 - 120
2277452	Sodium	104		P	80 - 120
2277452	Zinc	103		P	80 - 120
2278063	Calcium	107	108	P/P	80 - 120
2278063	Iron	108	108	P/P	80 - 120
2278063	Magnesium	109	108	P/P	80 - 120
2278063	Potassium	108	108	P/P	80 - 120
2278063	Sodium	104	106	P/P	80 - 120
2278063	Zinc	100	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277452	Arsenic	96.5		P	80 - 120
2277452	Beryllium	97.9		P	80 - 120
2277452	Cadmium	98.0		P	80 - 120
2277452	Chromium	100		P	80 - 120
2277452	Copper	102		P	80 - 120
2277452	Nickel	98.9		P	80 - 120
2277452	Silver	105		P	80 - 120
2278063	Arsenic	100	96.0	P/P	80 - 120
2278063	Beryllium	98.5	95.9	P/P	80 - 120
2278063	Cadmium	98.6	94.5	P/P	80 - 120
2278063	Chromium	99.7	96.8	P/P	80 - 120
2278063	Copper	91.8	88.8	P/P	80 - 120
2278063	Nickel	99.2	95.4	P/P	80 - 120
2278063	Silver	106	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278649	Lead	98.0	98.6	P/P	80 - 120
2278895	Lead	96.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278044	Chloride	101	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278044	Sulfate	103	103	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278057	Ammonia-N	96.4	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278045	Kjeldahl Nitrogen	93.9	93.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277913	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277935	Total-P	111	108	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278058	O-Phosphate-P	99.3	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P404570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278044	Fluoride	98.2	98.2	P/P	92 - 107

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278063	Calcium	0.393	Spike	P	0 - 20
2278063	Iron	0.261	Spike	P	0 - 20
2278063	Magnesium	0.700	Spike	P	0 - 20
2278063	Potassium	0.492	Spike	P	0 - 20
2278063	Sodium	1.92	Spike	P	0 - 20
2278063	Zinc	3.85	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278063	Arsenic	4.28	Spike	P	0 - 20
2278063	Beryllium	2.62	Spike	P	0 - 20
2278063	Cadmium	4.30	Spike	P	0 - 20
2278063	Chromium	2.93	Spike	P	0 - 20
2278063	Copper	3.11	Spike	P	0 - 20
2278063	Nickel	3.92	Spike	P	0 - 20
2278063	Silver	4.52	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278649	Lead	0.542	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278044	Chloride	1.06	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278044	Sulfate	0.166	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278057	Ammonia-N	0.784	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278045	Kjeldahl Nitrogen	0.600	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2277913	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2277935	Total-P	2.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278058	O-Phosphate-P	0.101	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P404180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278227	Color (true)	0.804	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P404566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278044	Total Alkalinity	1.83	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P404570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278044	Fluoride	0.0	Spike	P	0 - 2.1

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B-2011
Run ID: A107985
Included Lab Sample IDs: 2278056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	98.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A107986
Included Lab Sample IDs: 2278058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A108024
Included Lab Sample IDs: 2278056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.5	P/P	90 - 110
Sulfate	101	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108029
Included Lab Sample IDs: 2278057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A108048
Included Lab Sample IDs: 2278063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	98.8	99.2	P/P	90 - 110
Chromium	97.0	98.7	P/P	90 - 110
Copper	99.0	98.3	P/P	90 - 110
Nickel	99.1	97.9	P/P	90 - 110
Silver	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108054
Included Lab Sample IDs: 2278057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A108062
Included Lab Sample IDs: 2278063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Magnesium	101	100	P/P	90 - 110
Potassium	99.5	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A108062
Included Lab Sample IDs: 2278063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	101	100	P/P	90 - 110
Zinc	102	98.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A108068
Included Lab Sample IDs: 2278063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	103	P/P	90 - 110
Cadmium	99.3	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108075
Included Lab Sample IDs: 2278057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A108078
Included Lab Sample IDs: 2278057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	96.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A108124
Included Lab Sample IDs: 2278063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	95.5	93.3	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A108145
Included Lab Sample IDs: 2278056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.9	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A108145
Included Lab Sample IDs: 2278056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	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 200.7 Rev. 4.4	Calcium	104	106	107	108			0.393
	Iron	106	110	108	108			0.261
	Magnesium	106	110	109	108			0.700
	Potassium	99.7	107	108	108			0.492
	Sodium	104	104	104	106			1.92
	Zinc	99.6	103	100	104			3.85
EPA 200.8 Rev. 5.4	Arsenic	104	100	96.0	96.5			4.28
	Beryllium	101	98.5	95.9	97.9			2.62
	Cadmium	103	98.6	94.5	98.0			4.30
	Chromium	97.9	100	99.7	96.8			2.93
	Copper	98.8	91.8	88.8	102			3.11
	Lead	97.0	98.0	98.6	96.4			0.542
	Nickel	98.9	99.2	95.4	98.9			3.92
	Silver	105	106	101	105			4.52
EPA 300.0 Rev. 2.1	Chloride	101	101	102				1.06
	Sulfate	101	103	103				0.166
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	96.4	97.4				0.784
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.6	93.9	93.3				0.600
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103				0.0
EPA 365.1 Rev. 2.0	Total-P	106	111	108				2.57
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	99.3	99.4				0.101
SM 2120 B-2011	Color (true)	99.4					0.804	
SM 2320 B-2011	Total Alkalinity	98.2					1.83	
SM 4500 F-C-2011	Fluoride	101	98.2	98.2				0.0

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2278063
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2278063
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2278056
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2278056
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2278057
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2278057
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2278057
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2278057
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2278058
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2278056
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2278056
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2278056

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	09/23/2021	09/28/2021 10:40	Emily M Philpot	09/29/2021 18:43	Josef B Mick	2278063
EPA 200.8 Rev. 5.4	09/23/2021	09/28/2021 10:40	Emily M Philpot	09/28/2021 17:52	McKinley C Carter	2278063
	09/23/2021	09/28/2021 10:40	Emily M Philpot	09/29/2021 18:11	McKinley C Carter	2278063
	09/23/2021	10/01/2021 10:00	Emily M Philpot	10/01/2021 23:20	McKinley C Carter	2278063
EPA 300.0 Rev. 2.1	09/23/2021			09/28/2021 20:32	Roberta Tatti	2278056
EPA 350.1 Rev. 2.0	09/23/2021			09/30/2021 14:18	Ping Hua	2278057
EPA 351.2 Rev. 2.0	09/23/2021	09/27/2021 11:20	Benjamin T. Nordmann	09/29/2021 10:12	Alexandra J Mattheus	2278057
EPA 353.2 Rev. 2.0	09/23/2021			09/28/2021 09:44	Beverly Y. Sanders	2278057
EPA 365.1 Rev. 2.0	09/23/2021	09/28/2021 14:14	Simonne.V. Calhoun	09/30/2021 12:06	Lipi Saha	2278057
EPA 365.1 Rev. 2.0 dissolved	09/23/2021			09/24/2021 14:46	James L Waggerby	2278058
SM 2120 B-2011	09/23/2021			09/24/2021 15:53	Benjamin T. Nordmann	2278056
SM 2320 B-2011	09/23/2021			10/02/2021 01:47	Dale L. Simmons	2278056
SM 4500 F-C-2011	09/23/2021			10/02/2021 01:47	Dale L. Simmons	2278056