

Chemical Analysis Report

BSSP-2021-08-11-01

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-2021-08-09-40**
Customer: **BSSP**
Project ID: **LAKESREF**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
Attn: Jennifer Piacente

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 03-SEP-2021 12:17



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: Fishing Fool Lake

Collection Date/Time: 08/11/2021 11:40

Field ID: FISHFOOLLK

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268954	EPA 300.0 Rev. 2.1	Chloride	270		mg Cl/L	P402926	
		Sulfate	26		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	69	A	PCU	P402423	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P402617	
	SM 4500 F-C-2011	Fluoride	0.045	I	mg F/L	P402621	
2268956	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P402581	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P402884	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402503	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P402512	
2268958	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402398	
2268964	EPA 200.7 Rev. 4.4	Calcium	4.87		mg/L	P402557	
		Iron	120	I	ug/L	P402557	
		Magnesium	14.7		mg/L	P402557	
		Potassium	5.8		mg/L	P402557	
		Sodium	156		mg/L	P402557	
		Zinc	30		ug/L	P402557	
	EPA 200.8 Rev. 5.4	Arsenic	0.43		ug/L	P402557	
		Beryllium	0.010	U	ug/L	P402557	
		Cadmium	0.020	U	ug/L	P402557	
		Chromium	0.40	U	ug/L	P402557	
		Copper	0.40	U	ug/L	P402557	
		Lead	0.45		ug/L	P402557	
		Nickel	0.50	U	ug/L	P402557	
		Silver	0.010	U	ug/L	P402557	

Sample Location: Low Flying Plane Lake

Collection Date/Time: 08/11/2021 14:15

Field ID: LOWFLYPLN

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268955	EPA 300.0 Rev. 2.1	Chloride	70		mg Cl/L	P402926	
		Sulfate	4.2		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	170		PCU	P402423	
	SM 2320 B-2011	Total Alkalinity	6.1		mg CaCO3/L	P402617	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P402621	
2268957	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P402581	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P402884	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402503	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P402512	
2268959	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402398	
2268965	EPA 200.7 Rev. 4.4	Calcium	2.25		mg/L	P402557	
		Iron	170		ug/L	P402557	
		Magnesium	4.71		mg/L	P402557	
		Potassium	1.7		mg/L	P402557	
		Sodium	42.2		mg/L	P402557	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P402557	
		Arsenic	0.11	I	ug/L	P402557	
		Beryllium	0.010	U	ug/L	P402557	
		Cadmium	0.020	U	ug/L	P402557	
		Chromium	0.40	U	ug/L	P402557	
		Copper	0.40	U	ug/L	P402557	
		Lead	0.20	U	ug/L	P402557	
		Nickel	0.50	U	ug/L	P402557	
		Silver	0.010	U	ug/L	P402557	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P402557

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: P402557

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
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402926

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402581

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402884

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402503

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: P402512

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402398

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

Reference Method: SM 2120 B-2011
Batch ID: P402423

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P402617

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

Reference Method: SM 4500 F-C-2011
Batch ID: P402621

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: P402557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	108		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	104		P	85 - 115
Sodium	102		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.3		P	85 - 115
Beryllium	94.3		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	96.1		P	85 - 115
Copper	95.2		P	85 - 115
Lead	102		P	85 - 115
Nickel	98.4		P	85 - 115
Silver	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402926

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402581

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402884

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: P402503

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402512

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: P402398

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

Reference Method: SM 2120 B-2011
Batch ID: P402423

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

Reference Method: SM 2320 B-2011
Batch ID: P402617

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

Reference Method: SM 4500 F-C-2011
Batch ID: P402621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	93 - 104

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P402557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268535	Calcium	101		P	80 - 120
2268535	Iron	107	107	P/P	80 - 120
2268535	Magnesium	106	107	P/P	80 - 120
2268535	Potassium	103	104	P/P	80 - 120
2268535	Sodium	99.9		P	80 - 120
2268535	Zinc	105	106	P/P	80 - 120
2269248	Calcium	101		P	80 - 120
2269248	Iron	108		P	80 - 120
2269248	Magnesium	101		P	80 - 120
2269248	Potassium	101		P	80 - 120
2269248	Sodium	103		P	80 - 120
2269248	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268535	Arsenic	98.5	98.3	P/P	80 - 120
2268535	Beryllium	95.9	98.5	P/P	80 - 120
2268535	Cadmium	100	103	P/P	80 - 120
2268535	Chromium	103	102	P/P	80 - 120
2268535	Copper	95.5	96.0	P/P	80 - 120
2268535	Lead	102	103	P/P	80 - 120
2268535	Nickel	96.2	95.9	P/P	80 - 120
2268535	Silver	101	102	P/P	80 - 120
2269248	Arsenic	99.3		P	80 - 120
2269248	Beryllium	96.5		P	80 - 120
2269248	Cadmium	102		P	80 - 120
2269248	Chromium	97.5		P	80 - 120
2269248	Copper	94.9		P	80 - 120
2269248	Lead	104		P	80 - 120
2269248	Nickel	97.3		P	80 - 120
2269248	Silver	102		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268465	Sulfate	101		P	90 - 110
2268944	Sulfate	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269094	Chloride	98.3		P	90 - 110
2269240	Chloride	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P402581

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
---------------	-----------	---------	---------	-----------	----------------

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402581

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269167	Ammonia-N	95.6	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268946	Kjeldahl Nitrogen	114	109	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268956	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268956	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268958	O-Phosphate-P	94.2	93.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P402621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268971	Fluoride	101	101	P/P	92 - 107

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P402557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268535	Calcium	1.62	Spike	P	0 - 20
2268535	Iron	0.256	Spike	P	0 - 20
2268535	Magnesium	0.129	Spike	P	0 - 20
2268535	Potassium	0.621	Spike	P	0 - 20
2268535	Sodium	1.48	Spike	P	0 - 20
2268535	Zinc	0.377	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268535	Arsenic	0.192	Spike	P	0 - 20
2268535	Beryllium	2.69	Spike	P	0 - 20
2268535	Cadmium	2.14	Spike	P	0 - 20
2268535	Chromium	0.259	Spike	P	0 - 20
2268535	Copper	0.432	Spike	P	0 - 20
2268535	Lead	0.443	Spike	P	0 - 20
2268535	Nickel	0.300	Spike	P	0 - 20
2268535	Silver	1.16	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268944	Sulfate	1.98	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269240	Chloride	0.198	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P402581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269167	Ammonia-N	1.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P402884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268946	Kjeldahl Nitrogen	4.41	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P402503

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268956	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402512

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268956	Total-P	2.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402398

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268958	O-Phosphate-P	0.532	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P402423

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268954	Color (true)	2.42	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P402617

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268971	Total Alkalinity	0.0120	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011

Batch ID: P402621

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268971	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: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107220

Included Lab Sample IDs: 2268958, 2268959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.7	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A107231

Included Lab Sample IDs: 2268954, 2268955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	99.9	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107268

Included Lab Sample IDs: 2268956, 2268957

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107288

Included Lab Sample IDs: 2268954, 2268955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	99.6	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107292

Included Lab Sample IDs: 2268956, 2268957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	99.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107310

Included Lab Sample IDs: 2268954, 2268955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107310

Included Lab Sample IDs: 2268954, 2268955

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107347

Included Lab Sample IDs: 2268964, 2268965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	94.4	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107347

Included Lab Sample IDs: 2268964, 2268965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	90.9	92.0	P/P	90 - 110
Cadmium	98.2	98.8	P/P	90 - 110
Chromium	91.6	97.1	P/P	90 - 110
Copper	90.2	93.1	P/P	90 - 110
Lead	97.1	96.8	P/P	90 - 110
Nickel	94.1	93.4	P/P	90 - 110
Silver	95.6	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107361

Included Lab Sample IDs: 2268956, 2268957

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107416

Included Lab Sample IDs: 2268964, 2268965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	98.8	P/P	90 - 110
Iron	101	99.9	P/P	90 - 110
Magnesium	101	99.1	P/P	90 - 110
Potassium	101	100	P/P	90 - 110
Sodium	98.8	98.8	P/P	90 - 110
Zinc	103	98.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107449

Included Lab Sample IDs: 2268954, 2268955

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107481

Included Lab Sample IDs: 2268956, 2268957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	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 SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Calcium	103	101	101			1.62
	Iron	108	107	107	108		0.256
	Magnesium	108	106	107	101		0.129
	Potassium	104	103	104	101		0.621
	Sodium	102	99.9	103			1.48
	Zinc	105	105	106	101		0.377
EPA 200.8 Rev. 5.4	Arsenic	98.3	99.3	98.5	98.3		0.192
	Beryllium	94.3	96.5	95.9	98.5		2.69
	Cadmium	102	102	100	103		2.14
	Chromium	96.1	97.5	103	102		0.259
	Copper	95.2	94.9	95.5	96.0		0.432
	Lead	102	104	102	103		0.443
	Nickel	98.4	97.3	96.2	95.9		0.300
	Silver	104	102	101	102		1.16
EPA 300.0 Rev. 2.1	Chloride	101	98.8	98.3		0.198	
	Sulfate	101	98.9	101		1.98	
EPA 350.1 Rev. 2.0	Ammonia-N	101	95.6	97.4			1.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	109	114			4.41
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	106	105	107			2.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	94.2	93.7			0.532
SM 2120 B-2011	Color (true)	100				2.42	
SM 2320 B-2011	Total Alkalinity	102				0.0120	
SM 4500 F-C-2011	Fluoride	99.9	101	101			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	2268964, 2268965
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2268964, 2268965
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2268954, 2268955
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2268954, 2268955
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2268956, 2268957
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2268956, 2268957
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2268956, 2268957
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2268956, 2268957
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2268958, 2268959
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2268954, 2268955
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2268954, 2268955
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2268954, 2268955

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	08/11/2021	08/17/2021 15:35	Elliott D. Healy	08/23/2021 18:54	Josef B Mick	2268964
	08/11/2021	08/17/2021 15:35	Elliott D. Healy	08/23/2021 19:02	Josef B Mick	2268965
EPA 200.8 Rev. 5.4	08/11/2021	08/17/2021 15:35	Elliott D. Healy	08/19/2021 16:20	Alexander Thompson	2268964
	08/11/2021	08/17/2021 15:35	Elliott D. Healy	08/19/2021 16:30	Alexander Thompson	2268965
EPA 300.0 Rev. 2.1	08/11/2021			08/17/2021 10:01	Lipi Saha	2268954
	08/11/2021			08/17/2021 10:13	Lipi Saha	2268955
	08/11/2021			08/24/2021 01:00	Lipi Saha	2268954
	08/11/2021			08/24/2021 01:36	Lipi Saha	2268955
EPA 350.1 Rev. 2.0	08/11/2021			08/17/2021 13:53	Roberta Tatti	2268956
	08/11/2021			08/17/2021 13:54	Roberta Tatti	2268957
EPA 351.2 Rev. 2.0	08/11/2021	08/24/2021 17:15	Benjamin T. Nordmann	08/25/2021 16:09	Virginia P. Brown	2268956
	08/11/2021	08/24/2021 17:15	Benjamin T. Nordmann	08/25/2021 16:10	Virginia P. Brown	2268957
EPA 353.2 Rev. 2.0	08/11/2021			08/16/2021 10:21	Beverly Y. Sanders	2268956
	08/11/2021			08/16/2021 10:22	Beverly Y. Sanders	2268957
EPA 365.1 Rev. 2.0	08/11/2021	08/16/2021 13:39	Simonne.V. Calhoun	08/20/2021 12:48	Shengyu Ding	2268956
	08/11/2021	08/16/2021 13:39	Simonne.V. Calhoun	08/20/2021 12:49	Shengyu Ding	2268957
EPA 365.1 Rev. 2.0 dissolved	08/11/2021			08/12/2021 14:21	Blanca Fach	2268958
	08/11/2021			08/12/2021 14:26	Blanca Fach	2268959
SM 2120 B-2011	08/11/2021			08/12/2021 16:32	Sarah A Nixon	2268954
	08/11/2021			08/12/2021 17:03	Sarah A Nixon	2268955
SM 2320 B-2011	08/11/2021			08/17/2021 17:38	Dale L. Simmons	2268954
	08/11/2021			08/17/2021 17:48	Dale L. Simmons	2268955
SM 4500 F-C-2011	08/11/2021			08/17/2021 17:38	Dale L. Simmons	2268954
	08/11/2021			08/17/2021 17:48	Dale L. Simmons	2268955