

Chemical Analysis Report

BSSP-2021-09-14-01

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

Event Description: **54Reference Lake Sampling**
Request ID: **RQ-2021-09-13-13**
Customer: **BSSP**
Project ID: **LAKESREF**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-OCT-2021 14:54

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: Lofton Pond

Collection Date/Time: 09/14/2021 11:00

Field ID: Lofton Pond

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275890	EPA 300.0 Rev. 2.1	Chloride	2.1		mg Cl/L	P403866	
		Sulfate	0.32	I	mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	8.9		PCU	P403714	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P403859	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2275892	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P403920	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P403931	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403913	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P403838	
2275894	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403707	
2275900	EPA 200.7 Rev. 4.4	Calcium	0.20	I	mg/L	P403759	
		Iron	30	U	ug/L	P403759	
		Magnesium	0.23		mg/L	P403759	
		Potassium	0.30	U	mg/L	P403759	
		Sodium	1.1	I	mg/L	P403759	
		Zinc	5.0	U	ug/L	P403759	
		Arsenic	0.093	I	ug/L	P403759	
	EPA 200.8 Rev. 5.4	Beryllium	0.010	U	ug/L	P403759	
		Cadmium	0.020	U	ug/L	P403759	
		Chromium	0.40	U	ug/L	P403759	
		Copper	0.40	U	ug/L	P403759	
		Lead	0.20	U	ug/L	P403759	
		Nickel	0.50	U	ug/L	P403759	
		Silver	0.010	U	ug/L	P403759	

Sample Location: Lost Lake Altemate

Collection Date/Time: 09/14/2021 13:00

Field ID: Lost Lake Altemate

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275891	EPA 300.0 Rev. 2.1	Chloride	2.3		mg Cl/L	P403866	
		Sulfate	1.5		mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	8.4		PCU	P403714	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P403859	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2275893	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P403920	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P403931	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403913	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P403838	
2275895	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403707	
2275901	EPA 200.7 Rev. 4.4	Calcium	0.35		mg/L	P403759	
		Iron	120		ug/L	P403759	
		Magnesium	0.29		mg/L	P403759	
		Potassium	0.30	U	mg/L	P403759	
		Sodium	1.4	I	mg/L	P403759	
		Zinc	5.0	U	ug/L	P403759	
	EPA 200.8 Rev. 5.4	Arsenic	0.39		ug/L	P403759	
		Beryllium	0.014	I	ug/L	P403759	
		Cadmium	0.020	U	ug/L	P403759	
		Chromium	0.40	U	ug/L	P403759	
		Copper	0.40	U	ug/L	P403759	
		Lead	0.20	I	ug/L	P403759	
		Nickel	0.50	U	ug/L	P403759	
		Silver	0.010	U	ug/L	P403759	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403759

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: P403759

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: P403866

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403867

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403931

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

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: P403838

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

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

Reference Method: SM 2120 B-2011
Batch ID: P403714

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P403859

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

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

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: P403759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	108		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	103		P	85 - 115
Sodium	105		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.8		P	85 - 115
Beryllium	100		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	99.1		P	85 - 115
Copper	98.8		P	85 - 115
Lead	98.6		P	85 - 115
Nickel	100		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403866

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403867

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

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: P403838

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

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

Reference Method: SM 2120 B-2011
Batch ID: P403714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P403859

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

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P403759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275901	Calcium	108	110	P/P	80 - 120
2275901	Iron	110	112	P/P	80 - 120
2275901	Magnesium	112	114	P/P	80 - 120
2275901	Potassium	108	110	P/P	80 - 120
2275901	Sodium	105	107	P/P	80 - 120
2275901	Zinc	107	108	P/P	80 - 120
2275928	Calcium	109		P	80 - 120
2275928	Iron	111		P	80 - 120
2275928	Magnesium	113		P	80 - 120
2275928	Potassium	104		P	80 - 120
2275928	Sodium	108		P	80 - 120
2275928	Zinc	108		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P403759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275901	Arsenic	101	101	P/P	80 - 120
2275901	Beryllium	100	99.8	P/P	80 - 120
2275901	Cadmium	102	104	P/P	80 - 120
2275901	Chromium	99.6	101	P/P	80 - 120
2275901	Copper	102	102	P/P	80 - 120
2275901	Lead	99.1	99.3	P/P	80 - 120
2275901	Nickel	101	101	P/P	80 - 120
2275901	Silver	102	102	P/P	80 - 120
2275928	Arsenic	97.3		P	80 - 120
2275928	Beryllium	98.9		P	80 - 120
2275928	Cadmium	101		P	80 - 120
2275928	Chromium	99.4		P	80 - 120
2275928	Copper	96.8		P	80 - 120
2275928	Lead	98.4		P	80 - 120
2275928	Nickel	95.8		P	80 - 120
2275928	Silver	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P403866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275748	Chloride	97.7		P	90 - 110
2276023	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P403867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275748	Sulfate	98.1		P	90 - 110
2276023	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P403920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275892	Ammonia-N	96.6	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275893	Kjeldahl Nitrogen	102	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275892	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275892	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275752	O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276072	Fluoride	99.1	98.6	P/P	92 - 107

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275901	Calcium	1.99	Spike	P	0 - 20
2275901	Iron	1.37	Spike	P	0 - 20
2275901	Magnesium	1.19	Spike	P	0 - 20
2275901	Potassium	2.07	Spike	P	0 - 20
2275901	Sodium	1.87	Spike	P	0 - 20
2275901	Zinc	0.786	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275901	Arsenic	0.325	Spike	P	0 - 20
2275901	Beryllium	0.610	Spike	P	0 - 20
2275901	Cadmium	1.24	Spike	P	0 - 20
2275901	Chromium	1.08	Spike	P	0 - 20
2275901	Copper	0.182	Spike	P	0 - 20
2275901	Lead	0.185	Spike	P	0 - 20
2275901	Nickel	0.272	Spike	P	0 - 20
2275901	Silver	0.257	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275748	Chloride	0.617	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275748	Sulfate	1.00	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P403920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275892	Ammonia-N	0.395	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275893	Kjeldahl Nitrogen	4.90	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275892	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275892	Total-P	0.283	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275752	O-Phosphate-P	0.960	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P403714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275816	Color (true)	1.36	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P403859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276072	Total Alkalinity	1.27	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276072	Fluoride	0.469	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: A107781

Included Lab Sample IDs: 2275894, 2275895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	99.2	P/P	90 - 110
O-Phosphate-P	99.2	98.6	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A107783

Included Lab Sample IDs: 2275890, 2275891

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107789

Included Lab Sample IDs: 2275890, 2275891

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	99.8	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107840

Included Lab Sample IDs: 2275900, 2275901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	101	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	98.1	99.3	P/P	90 - 110
Sodium	98.8	99.5	P/P	90 - 110
Zinc	103	106	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107847

Included Lab Sample IDs: 2275890, 2275891

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107847

Included Lab Sample IDs: 2275890, 2275891

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107882

Included Lab Sample IDs: 2275892, 2275893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107885

Included Lab Sample IDs: 2275892, 2275893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107901

Included Lab Sample IDs: 2275892, 2275893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	108	P/P	90 - 110
Total-P	108	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107906

Included Lab Sample IDs: 2275892, 2275893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107918

Included Lab Sample IDs: 2275900, 2275901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.6	97.5	P/P	90 - 110
Arsenic	99.7	99.6	P/P	90 - 110
Beryllium	97.4	98.0	P/P	90 - 110
Beryllium	98.0	96.0	P/P	90 - 110
Cadmium	100	101	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Chromium	97.6	98.2	P/P	90 - 110
Chromium	98.2	97.6	P/P	90 - 110
Copper	98.1	98.8	P/P	90 - 110
Copper	98.8	95.1	P/P	90 - 110
Lead	96.0	96.5	P/P	90 - 110
Lead	96.6	96.0	P/P	90 - 110
Nickel	98.1	99.2	P/P	90 - 110
Nickel	99.2	95.1	P/P	90 - 110
Silver	95.8	95.5	P/P	90 - 110
Silver	95.9	95.8	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	107	108	110	109		1.99
	Iron	108	110	112	111		1.37
	Magnesium	109	112	114	113		1.19
	Potassium	103	108	110	104		2.07
	Sodium	105	105	107	108		1.87
	Zinc	105	107	108	108		0.786
EPA 200.8 Rev. 5.4	Arsenic	99.8	101	101	97.3		0.325
	Beryllium	100	100	99.8	98.9		0.610
	Cadmium	102	102	104	101		1.24
	Chromium	99.1	99.6	101	99.4		1.08
	Copper	98.8	102	102	96.8		0.182
	Lead	98.6	99.1	99.3	98.4		0.185
	Nickel	100	101	101	95.8		0.272
	Silver	102	102	102	101		0.257
EPA 300.0 Rev. 2.1	Chloride	98.0	97.7	98.8		0.617	
	Sulfate	96.9	98.1	99.0		1.00	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	96.6	97.0			0.395
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.6	102	108			4.90
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	104	106	106			0.283
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	99.1	100			0.960
SM 2120 B-2011	Color (true)	99.6				1.36	
SM 2320 B-2011	Total Alkalinity	102				1.27	
SM 4500 F-C-2011	Fluoride	100	99.1	98.6			0.469

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	2275900, 2275901
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2275900, 2275901
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2275890, 2275891
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2275890, 2275891
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2275892, 2275893
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2275892, 2275893
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2275892, 2275893
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2275892, 2275893
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2275894, 2275895
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2275890, 2275891
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2275890, 2275891
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2275890, 2275891

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	09/14/2021	09/15/2021 13:30	Elliott D. Healy	09/16/2021 17:20	Josef B Mick	2275900
	09/14/2021	09/15/2021 13:30	Elliott D. Healy	09/16/2021 17:26	Josef B Mick	2275901
EPA 200.8 Rev. 5.4	09/14/2021	09/15/2021 13:30	Elliott D. Healy	09/21/2021 16:44	Alexander Thompson	2275901
	09/14/2021	09/15/2021 13:30	Elliott D. Healy	09/21/2021 18:10	Alexander Thompson	2275900
EPA 300.0 Rev. 2.1	09/14/2021			09/16/2021 15:15	Roberta Tatti	2275890
	09/14/2021			09/16/2021 15:27	Roberta Tatti	2275891
EPA 350.1 Rev. 2.0	09/14/2021			09/20/2021 11:41	Ping Hua	2275892
	09/14/2021			09/20/2021 11:53	Ping Hua	2275893
EPA 351.2 Rev. 2.0	09/14/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 11:36	Alexandra J Mattheus	2275892
EPA 353.2 Rev. 2.0	09/14/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 11:37	Alexandra J Mattheus	2275893
	09/14/2021			09/20/2021 09:42	Beverly Y. Sanders	2275892
EPA 365.1 Rev. 2.0	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 09:48	Beverly Y. Sanders	2275893
	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 15:50	Virginia P. Brown	2275892
EPA 365.1 Rev. 2.0 dissolved	09/14/2021			09/20/2021 16:04	Virginia P. Brown	2275893
	09/14/2021			09/14/2021 16:08	Blanca Fach	2275894
SM 2120 B-2011	09/14/2021			09/14/2021 16:13	Blanca Fach	2275895
	09/14/2021			09/14/2021 17:45	Sarah A Nixon	2275890
SM 2320 B-2011	09/14/2021			09/14/2021 17:46	Sarah A Nixon	2275891
	09/14/2021			09/16/2021 17:14	Dale L. Simmons	2275890
SM 4500 F-C-2011	09/14/2021			09/16/2021 17:21	Dale L. Simmons	2275891
	09/14/2021			09/16/2021 17:14	Dale L. Simmons	2275890
	09/14/2021			09/16/2021 17:21	Dale L. Simmons	2275891