Chemical Analysis Report

SW-DIST-2018-07-20-02

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

Event Description: **Reference Lake-Arbuckle**
Request ID: **RQ-2018-07-16-06**
Customer: **SW-DIST**
Project ID: **LAKESREF**

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13051 N. Telecom Parkway
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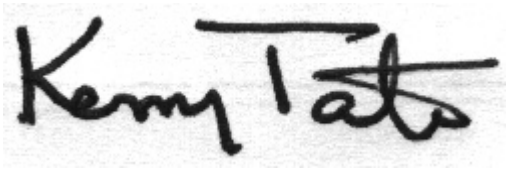
Date Certified: 09-AUG-2018 14:13



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: LAKE ARBUCKLE 274119812344 **Collection Date/Time: 07/19/2018 14:40**

Field ID: ARBUCKL Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009563	EPA 300.0	Bromide	0.052		mg Br/L	P349580	
	EPA 300.0 Rev. 2.1	Chloride	14	A	mg Cl/L	P349260	
		Sulfate	18	A	mg SO4/L	P349264	
	SM 2120 B	Color (true)	210		PCU	P348887	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P349027	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P349031	
2009564	EPA 350.1 Rev. 2.0	Ammonia-N	0.093		mg N/L	P349159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P349002	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P348975	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P349308	
2009565	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P348885	
2009569	EPA 200.7 Rev. 4.4	Calcium	10.0		mg/L	P348964	
		Iron	450		ug/L	P348964	
		Magnesium	5.21		mg/L	P348964	
		Potassium	5.3		mg/L	P348964	
		Sodium	6.4		mg/L	P348964	
		Zinc	5.0	U	ug/L	P348964	
	EPA 200.8 Rev. 5.4	Arsenic	0.55		ug/L	P348964	
		Cadmium	0.020	U	ug/L	P348964	
		Chromium	0.40	I	ug/L	P348964	
		Copper	0.41	I	ug/L	P348964	
		Lead	0.33		ug/L	P348964	
		Nickel	1.24		ug/L	P348964	
		Silver	0.010	U	ug/L	P348964	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P348964

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: P348964

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: P349580

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

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: P348975

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

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

Reference Method: SM 2120 B
Batch ID: P348887

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P349027

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

Reference Method: SM 4500 F-C-97
Batch ID: P349031

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: P348964

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	104		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	101		P	85 - 115
Sodium	99.0		P	85 - 115
Zinc	99.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348964

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	98.4		P	85 - 115
Chromium	96.7		P	85 - 115
Copper	96.4		P	85 - 115
Lead	94.6		P	85 - 115
Nickel	98.2		P	85 - 115
Silver	100		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P349580

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

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: P349002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

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

Reference Method: SM 2120 B
Batch ID: P348887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P349027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P348964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009018	Calcium	102		P	80 - 120
2009018	Iron	102		P	80 - 120
2009018	Magnesium	103		P	80 - 120
2009018	Potassium	95.9		P	80 - 120
2009018	Sodium	96.3		P	80 - 120
2009018	Zinc	102		P	80 - 120
2009245	Calcium	103		P	80 - 120
2009245	Iron	101	101	P/P	80 - 120
2009245	Magnesium	104	105	P/P	80 - 120
2009245	Potassium	96.3	96.7	P/P	80 - 120
2009245	Sodium	98.0		P	80 - 120
2009245	Zinc	99.2	98.5	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009018	Arsenic	98.4		P	80 - 120
2009018	Cadmium	96.9		P	80 - 120
2009018	Chromium	96.7		P	80 - 120
2009018	Copper	93.2		P	80 - 120
2009018	Lead	94.6		P	80 - 120
2009018	Nickel	96.7		P	80 - 120
2009018	Silver	98.6		P	80 - 120
2009245	Arsenic	94.2	100	P/P	80 - 120
2009245	Cadmium	94.2	100	P/P	80 - 120
2009245	Chromium	92.7	98.9	P/P	80 - 120
2009245	Copper	88.5	94.6	P/P	80 - 120
2009245	Lead	90.9	96.4	P/P	80 - 120
2009245	Nickel	90.0	96.8	P/P	80 - 120
2009245	Silver	97.5	102	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P349580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009563	Bromide	100	96.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009563	Chloride	107		P	90 - 110
2009601	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009563	Sulfate	106		P	90 - 110
2009601	Sulfate	98.6		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009373	Ammonia-N	98.5	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009578	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009547	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009577	Total-P	97.3	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009607	O-Phosphate-P	99.3	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009225	Fluoride	98.4	96.3	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P348964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009245	Calcium	0.144	Spike	P	0 - 20
2009245	Iron	0.208	Spike	P	0 - 20
2009245	Magnesium	0.256	Spike	P	0 - 20
2009245	Potassium	0.293	Spike	P	0 - 20
2009245	Sodium	0.441	Spike	P	0 - 20
2009245	Zinc	0.734	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009245	Arsenic	5.99	Spike	P	0 - 20
2009245	Cadmium	6.27	Spike	P	0 - 20
2009245	Chromium	6.55	Spike	P	0 - 20
2009245	Copper	6.35	Spike	P	0 - 20
2009245	Lead	5.91	Spike	P	0 - 20
2009245	Nickel	7.10	Spike	P	0 - 20
2009245	Silver	4.62	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P349580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009563	Bromide	3.44	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009563	Chloride	2.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009563	Sulfate	2.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009373	Ammonia-N	0.348	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009578	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009547	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009577	Total-P	0.326	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009607	O-Phosphate-P	1.11	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P348887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009575	Color (true)	2.53	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P349027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009225	Total Alkalinity	0.239	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009225	Fluoride	1.92	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 365.1 Rev. 2.0 dissolved
Run ID: A85382
Included Lab Sample IDs: 2009565

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	97.5	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A85384
Included Lab Sample IDs: 2009563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85414
Included Lab Sample IDs: 2009564

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A85417
Included Lab Sample IDs: 2009563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	104	P/P	90 - 110
Sulfate	101	107	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A85430
Included Lab Sample IDs: 2009563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A85430
Included Lab Sample IDs: 2009563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A85442
Included Lab Sample IDs: 2009569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	99.6	P/P	90 - 110
Iron	99.3	100	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	97.0	98.2	P/P	90 - 110
Sodium	97.7	95.5	P/P	90 - 110
Zinc	99.9	98.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85448
Included Lab Sample IDs: 2009564

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85474
Included Lab Sample IDs: 2009564

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85548
Included Lab Sample IDs: 2009564

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A85598
Included Lab Sample IDs: 2009569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.0	98.3	P/P	90 - 110
Cadmium	97.3	97.4	P/P	90 - 110
Chromium	97.5	98.4	P/P	90 - 110
Copper	95.5	97.2	P/P	90 - 110
Lead	95.7	96.3	P/P	90 - 110
Nickel	96.5	97.0	P/P	90 - 110
Silver	99.3	99.0	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A85655
Included Lab Sample IDs: 2009563

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.7 Rev. 4.4	Calcium	101	102	103				0.144
	Iron	104	102	101	101			0.208
	Magnesium	108	103	104	105			0.256
	Potassium	101	95.9	96.3	96.7			0.293
	Sodium	99.0	96.3	98.0				0.441
	Zinc	99.7	102	99.2	98.5			0.734
EPA 200.8 Rev. 5.4	Arsenic	100	98.4	94.2	100			5.99
	Cadmium	98.4	96.9	94.2	100			6.27
	Chromium	96.7	96.7	92.7	98.9			6.55
	Copper	96.4	93.2	88.5	94.6			6.35
	Lead	94.6	94.6	90.9	96.4			5.91
	Nickel	98.2	96.7	90.0	96.8			7.10
	Silver	100	98.6	97.5	102			4.62
EPA 300.0	Bromide	107	100	96.6				3.44
EPA 300.0 Rev. 2.1	Chloride	101	107	100			2.47	
	Sulfate	103	106	98.6			2.19	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.5	98.9				0.348
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	107	105				1.27
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	103				0.484
EPA 365.1 Rev. 2.0	Total-P	100	97.3	97.6				0.326
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	99.3	98.2				1.11
SM 2120 B	Color (true)	99.5					2.53	
SM 2320 B-97	Total Alkalinity	106					0.239	
SM 4500 F-C-97	Fluoride	96.1	98.4	96.3				1.92

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	2009569
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2009569
EPA 300.0 / E31780	Bromide in aqueous matrices	2009563
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2009563
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2009563
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2009564
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2009564
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2009564
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2009564
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2009565
SM 2120 B / E31780	True Color measured at 450 nm	2009563
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2009563
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2009563

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	07/20/2018	07/23/2018 14:40	Elliott D. Healy	07/24/2018 16:55	Betina Topolski	2009569
EPA 200.8 Rev. 5.4	07/20/2018	07/23/2018 14:40	Elliott D. Healy	07/31/2018 18:30	Robert K Palmer	2009569
EPA 300.0	07/20/2018			08/01/2018 17:02	Julia Storbeck	2009563
EPA 300.0 Rev. 2.1	07/20/2018			07/26/2018 00:08	Lipi Saha	2009563
EPA 350.1 Rev. 2.0	07/20/2018			07/25/2018 13:52	Ping Hua	2009564
EPA 351.2 Rev. 2.0	07/20/2018	07/24/2018 08:13	Adrian Shelby	07/25/2018 09:55	Joseph Suarez	2009564
EPA 353.2 Rev. 2.0	07/20/2018			07/23/2018 13:47	Lauren Bottorf	2009564
EPA 365.1 Rev. 2.0	07/20/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 09:27	Beverly Y. Sanders	2009564
EPA 365.1 Rev. 2.0 dissolved	07/20/2018			07/20/2018 14:38	Julia Storbeck	2009565
SM 2120 B	07/20/2018			07/20/2018 14:27	Tanya Welborn	2009563
SM 2320 B-97	07/20/2018			07/24/2018 03:19	Dale L. Simmons	2009563
SM 4500 F-C-97	07/20/2018			07/24/2018 03:19	Dale L. Simmons	2009563