Chemical Analysis Report

WQAP-2016-10-18-01

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

Event Description: **Reference Lake - blue cypress**
Request ID: **RQ-2016-10-17-19**
Customer: **WQAP**
Project ID: **LAKESREF**

Send Reports to:
FL Dept. of Environmental Protection
2199 South Rock Road
Fort pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Environmental Administrator

Date Certified: 14-NOV-2016 12:27

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: BLUE CYPRESS LAKE **Collection Date/Time: 10/17/2016 13:00**

Field ID: 20010099 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1841400	EPA 300.0	Bromide**	0.024	I	mg Br/L	P314701	MS
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P313972	
		Sulfate	2.2	A	mg SO4/L	P313971	
	SM 2120 B	Color (true)	300		PCU	P313394	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P313518	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P313521	
1841401	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P314397	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1	V	mg N/L	P314286	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P313542	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P314128	
1841402	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P313426	
1841409	EPA 200.7 Rev. 4.4	Calcium	12.0		mg/L	9313405	
		Iron	600		ug/L	9313405	
		Magnesium	2.40		mg/L	9313405	
		Potassium	1.2		mg/L	9313405	
		Sodium	9.9		mg/L	9313405	
		Zinc	5.0	U	ug/L	9313405	
	EPA 200.8 Rev. 5.4	Arsenic	0.38		ug/L	P313405	
		Cadmium	0.020	U	ug/L	P313405	
		Chromium	0.47		ug/L	P313405	
		Copper	0.53		ug/L	P313405	
		Lead	0.37		ug/L	P313405	
		Nickel	0.22		ug/L	P313405	
		Silver	0.0050	U	ug/L	P313405	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Kjeldahl Nitrogen detected in method blank at 0.17 I mg N/L.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: 9313405

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: P313405

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313405

Component	Result	Code	Units
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 300.0
Batch ID: P314701

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313971

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313972

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314397

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314286

Component	Result	Code	Units
Kjeldahl Nitrogen	0.17	I	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313542

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314128

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313426

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313426

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

Reference Method: SM 2120 B
Batch ID: P313394

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313518

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

Reference Method: SM 4500 F-C-97
Batch ID: P313521

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: 9313405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	108		P	85 - 115
Iron	106		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	102		P	85 - 115
Sodium	102		P	85 - 115
Zinc	99.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.1		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	99.1		P	85 - 115
Copper	95.0		P	85 - 115
Lead	95.3		P	85 - 115
Nickel	97.3		P	85 - 115
Silver	96.4		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P314701

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	105		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313972

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314397

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314286

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314128

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: P313426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P313518

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P313521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: 9313405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1840888	Calcium	108	104	P/P	80 - 120
1840888	Iron	107	106	P/P	80 - 120
1840888	Magnesium	109	108	P/P	80 - 120
1840888	Potassium	101	97.6	P/P	80 - 120
1840888	Sodium	101		P	80 - 120
1840888	Zinc	103	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1840888	Arsenic	98.9	98.8	P/P	80 - 120
1840888	Cadmium	101	106	P/P	80 - 120
1840888	Chromium	99.8	98.8	P/P	80 - 120
1840888	Copper	94.8	95.4	P/P	80 - 120
1840888	Lead	94.9	94.2	P/P	80 - 120
1840888	Nickel	96.2	96.3	P/P	80 - 120
1840888	Silver	95.5	94.2	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P314701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1840469	Bromide	108	111	P/F	90 - 110
1841400	Bromide	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841400	Sulfate	96.0		P	90 - 110
1841512	Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841400	Chloride	99.1		P	90 - 110
1841512	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841311	Ammonia-N	101	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841395	NO2NO3-N	93.4	91.8	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841373	Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841313	O-Phosphate-P	96.8	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841519	Fluoride	101	101	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: 9313405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840888	Calcium	2.22	Spike	P	0 - 20
1840888	Iron	1.06	Spike	P	0 - 20
1840888	Magnesium	0.792	Spike	P	0 - 20
1840888	Potassium	2.44	Spike	P	0 - 20
1840888	Sodium	0.386	Spike	P	0 - 20
1840888	Zinc	1.31	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840888	Arsenic	0.0614	Spike	P	0 - 20
1840888	Cadmium	5.22	Spike	P	0 - 20
1840888	Chromium	0.930	Spike	P	0 - 20
1840888	Copper	0.657	Spike	P	0 - 20
1840888	Lead	0.789	Spike	P	0 - 20
1840888	Nickel	0.0386	Spike	P	0 - 20
1840888	Silver	1.39	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P314701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840469	Bromide	3.10	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841400	Sulfate	0.392	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841400	Chloride	0.141	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841311	Ammonia-N	1.55	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841395	Kjeldahl Nitrogen	2.83	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841395	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841373	Total-P	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841313	O-Phosphate-P	0.256	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841499	Color (true)	11.9	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P313518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841519	Total Alkalinity	0.268	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P313521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841519	Fluoride	0.484	Spike	P	0 - 3.0

* 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: SM 2120 B
Run ID: A72289
Included Lab Sample IDs: 1841400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72303
Included Lab Sample IDs: 1841402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A72322
Included Lab Sample IDs: 1841400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A72322
Included Lab Sample IDs: 1841400

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72337
Included Lab Sample IDs: 1841401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.0	95.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A72357
Included Lab Sample IDs: 1841409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Sodium	101	100	P/P	90 - 110
Zinc	97.2	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A72363
Included Lab Sample IDs: 1841409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.2	97.9	P/P	90 - 110
Cadmium	98.1	100	P/P	90 - 110
Chromium	98.6	101	P/P	90 - 110
Copper	94.7	92.3	P/P	90 - 110
Lead	92.9	92.6	P/P	90 - 110
Nickel	97.7	94.7	P/P	90 - 110
Silver	94.6	94.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A72453
Included Lab Sample IDs: 1841400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	100	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72547
Included Lab Sample IDs: 1841401

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72578
Included Lab Sample IDs: 1841401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	100	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A72589
Included Lab Sample IDs: 1841400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.7	105	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72665
Included Lab Sample IDs: 1841401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	90.9	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	108	108	104			2.22
	Iron	106	107	106			1.06
	Magnesium	109	109	108			0.792
	Potassium	102	101	97.6			2.44
	Sodium	102	101				0.386
	Zinc	99.4	103	102			1.31
EPA 200.8 Rev. 5.4	Arsenic	98.1	98.9	98.8			0.0614
	Cadmium	103	101	106			5.22
	Chromium	99.1	99.8	98.8			0.930
	Copper	95.0	94.8	95.4			0.657
	Lead	95.3	94.9	94.2			0.789
	Nickel	97.3	96.2	96.3			0.0386
	Silver	96.4	95.5	94.2			1.39
EPA 300.0	Bromide	105	108	111	105		3.10
EPA 300.0 Rev. 2.1	Chloride	100	99.1	101		0.141	
	Sulfate	97.1	96.0	97.1		0.392	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	104			1.55
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.6					2.83
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	93.4	91.8			1.45
EPA 365.1 Rev. 2.0	Total-P	100	99.0	100			1.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.8	97.3			0.256
SM 2120 B	Color (true)					11.9	
SM 2320 B-97	Total Alkalinity	104				0.268	
SM 4500 F-C-97	Fluoride	98.7	101	101			0.484

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	1841409
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1841409
EPA 300.0 / E31780	Bromide in aqueous matrices	1841400
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1841400
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1841400
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1841401

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1841401
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1841401
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1841401
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1841402
SM 2120 B / E31780	True Color measured at 450 nm	1841400
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1841400
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1841400

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	10/18/2016	10/18/2016	Elliott D. Healy	10/20/2016	Joshua Ayres	1841409
EPA 200.8 Rev. 5.4	10/18/2016	10/18/2016	Elliott D. Healy	10/20/2016	Charles J. Peterson	1841409
EPA 300.0	10/18/2016			11/02/2016	Ping Hua	1841400
EPA 300.0 Rev. 2.1	10/18/2016			10/27/2016	Ping Hua	1841400
EPA 350.1 Rev. 2.0	10/18/2016			11/01/2016	Sofia Elnemr	1841401
EPA 351.2 Rev. 2.0	10/18/2016	11/01/2016	Adrian Shelby	11/04/2016	Joseph Suarez	1841401
EPA 353.2 Rev. 2.0	10/18/2016			10/20/2016	Beverly Y. Sanders	1841401
EPA 365.1 Rev. 2.0	10/18/2016	10/28/2016	Vijayalakshmi Reddy	10/31/2016	Lipi Saha	1841401
EPA 365.1 Rev. 2.0 dissolved	10/18/2016			10/18/2016 17:37	Virginia P. Brown	1841402
SM 2120 B	10/18/2016			10/18/2016 15:35	Jared I. Manley	1841400
SM 2320 B-97	10/18/2016			10/20/2016	Dale L. Simmons	1841400
SM 4500 F-C-97	10/18/2016			10/20/2016	Dale L. Simmons	1841400