Chemical Analysis Report

WQAP-2017-08-15-05

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

Event Description: **kit C (3310 Aucilla River) , (3573B Steinhatchee River)**
Request ID: **RQ-2017-08-14-45**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Michael Eckles

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 05-SEP-2017 15:37

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: Aucilla River @ Lamont Tract **Collection Date/Time: 08/15/2017 13:45**

Field ID: G1TLHR0019-2017-04 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921636	EPA 180.1 Rev. 2.0	Turbidity	1.4	A	NTU	P330259	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P330286	
	SM 2120 B	Color (true)	550		PCU	P330273	
	SM 2320 B-97	Total Alkalinity	8.5		mg CaCO3/L	P330605	
	SM 2540 C-97	TDS	116		mg/L	P330692	
	SM 2540 D-97	TSS	2	I	mg/L	P330920	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P330801	
1921637	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P330513	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P330357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P330476	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P330418	
	SM 5310 B-00	Organic Carbon	43		mg C/L	P330561	
1921638	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P330345	
1921640	EPA 200.7 Rev. 4.4	Iron	1.34E+03		ug/L	P330325	
		Zinc	5.0	U	ug/L	P330325	
	EPA 200.8 Rev. 5.4	Arsenic	0.40		ug/L	P330325	
		Cadmium	0.020	U	ug/L	P330325	
		Chromium	0.60	I	ug/L	P330325	
		Copper	0.29	I	ug/L	P330325	
		Lead	0.56		ug/L	P330325	
		Nickel	0.67	I	ug/L	P330325	
		Silver	0.010	U	ug/L	P330325	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330259

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330325

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330325

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330325

Component	Result	Code	Units
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 Rev. 2.1
Batch ID: P330286

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330476

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

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

Reference Method: SM 2120 B
Batch ID: P330273

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330605

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P330692

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330920

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330561

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	107		P	85 - 115
Cadmium	99.3		P	85 - 115
Chromium	95.7		P	85 - 115
Copper	101		P	85 - 115
Lead	100		P	85 - 115
Nickel	103		P	85 - 115
Silver	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330286

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330476

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P330605

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330325

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921516	Iron	110		P	80 - 120
1921516	Zinc	103		P	80 - 120
1921772	Iron	107	106	P/P	80 - 120
1921772	Zinc	100	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921516	Arsenic	106		P	80 - 120
1921516	Cadmium	100		P	80 - 120
1921516	Chromium	93.2		P	80 - 120
1921516	Copper	94.9		P	80 - 120
1921516	Lead	102		P	80 - 120
1921516	Nickel	98.4		P	80 - 120
1921516	Silver	104		P	80 - 120
1921772	Arsenic	104	106	P/P	80 - 120
1921772	Cadmium	102	103	P/P	80 - 120
1921772	Chromium	92.5	94.2	P/P	80 - 120
1921772	Copper	93.8	94.6	P/P	80 - 120
1921772	Lead	101	104	P/P	80 - 120
1921772	Nickel	96.3	97.2	P/P	80 - 120
1921772	Silver	102	104	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921555	Chloride	97.8		P	90 - 110
1921557	Chloride	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921605	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921645	Kjeldahl Nitrogen	107	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921559	NO2NO3-N	105	104	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921691	Total-P	95.8	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921680	O-Phosphate-P	91.0	93.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921904	Fluoride	94.6	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P330561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921560	Organic Carbon	90.5	90.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921636	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921772	Iron	1.07	Spike	P	0 - 20
1921772	Zinc	0.343	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921772	Arsenic	1.85	Spike	P	0 - 20
1921772	Cadmium	1.21	Spike	P	0 - 20
1921772	Chromium	1.79	Spike	P	0 - 20
1921772	Copper	0.858	Spike	P	0 - 20
1921772	Lead	2.58	Spike	P	0 - 20
1921772	Nickel	0.960	Spike	P	0 - 20
1921772	Silver	2.30	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921557	Chloride	6.88	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921605	Ammonia-N	1.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921645	Kjeldahl Nitrogen	0.722	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921559	NO2NO3-N	0.727	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921691	Total-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921680	O-Phosphate-P	2.17	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921556	Color (true)	1.85	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921904	Total Alkalinity	0.908	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P330692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921664	TDS	5.50	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921904	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P330561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921560	Organic Carbon	0.230	Spike	P	0 - 20

* 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 180.1 Rev. 2.0
Run ID: A78413
Included Lab Sample IDs: 1921636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A78419
Included Lab Sample IDs: 1921636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78421
Included Lab Sample IDs: 1921636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78443
Included Lab Sample IDs: 1921638

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A78487
Included Lab Sample IDs: 1921640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	105	104	P/P	90 - 110
Zinc	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78495
Included Lab Sample IDs: 1921637

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78496
Included Lab Sample IDs: 1921637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A78513
Included Lab Sample IDs: 1921637

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

Reference Method: SM 5310 B-00
Run ID: A78526
Included Lab Sample IDs: 1921637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A78532
Included Lab Sample IDs: 1921637

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

Reference Method: SM 2320 B-97
Run ID: A78552
Included Lab Sample IDs: 1921636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A78570
Included Lab Sample IDs: 1921640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	98.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A78570
Included Lab Sample IDs: 1921640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	103	102	P/P	90 - 110
Chromium	97.6	97.3	P/P	90 - 110
Copper	99.5	98.6	P/P	90 - 110
Lead	100	101	P/P	90 - 110
Nickel	99.2	99.2	P/P	90 - 110
Silver	104	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A78604
Included Lab Sample IDs: 1921636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	99.1	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 180.1 Rev. 2.0	Turbidity						0.0	
EPA 200.7 Rev. 4.4	Iron	107	110	107	106			1.07
	Zinc	101	103	100	100			0.343
EPA 200.8 Rev. 5.4	Arsenic	107	106	104	106			1.85
	Cadmium	99.3	100	102	103			1.21
	Chromium	95.7	93.2	92.5	94.2			1.79
	Copper	101	94.9	93.8	94.6			0.858
	Lead	100	102	101	104			2.58
	Nickel	103	98.4	96.3	97.2			0.960
	Silver	104	104	102	104			2.30
EPA 300.0 Rev. 2.1	Chloride	100	103	97.8			6.88	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	101	103				1.35
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107	108				0.722
EPA 353.2 Rev. 2.0	NO2NO3-N	102	105	104				0.727
EPA 365.1 Rev. 2.0	Total-P	97.1	95.8	94.2				1.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	91.0	93.0				2.17
SM 2120 B	Color (true)						1.85	
SM 2320 B-97	Total Alkalinity	102					0.908	
SM 2540 C-97	TDS						5.50	
SM 4500 F-C-97	Fluoride	97.7	94.6	96.5				0.946
SM 5310 B-00	Organic Carbon	95.5	90.5	90.8				0.230

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1921636
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1921640
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1921640
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1921636
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1921637
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1921637
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1921637
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1921637
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1921638
SM 2120 B / E31780	True Color measured at 450 nm	1921636
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1921636
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1921636
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1921636
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1921636
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1921637

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/15/2017			08/15/2017 16:41	DeAsia Armster	1921636
EPA 200.7 Rev. 4.4	08/15/2017	08/16/2017	Elliott D. Healy	08/17/2017	Betina Topolski	1921640
EPA 200.8 Rev. 5.4	08/15/2017	08/16/2017	Elliott D. Healy	08/22/2017	Nadine Brooks	1921640
EPA 300.0 Rev. 2.1	08/15/2017			08/16/2017	Julia Storbeck	1921636
EPA 350.1 Rev. 2.0	08/15/2017			08/17/2017	Sofia Elnemr	1921637
EPA 351.2 Rev. 2.0	08/15/2017	08/17/2017	Adrian Shelby	08/21/2017	Joseph Suarez	1921637
EPA 353.2 Rev. 2.0	08/15/2017			08/18/2017	Beverly Y. Sanders	1921637
EPA 365.1 Rev. 2.0	08/15/2017	08/17/2017	Sima Feizi	08/18/2017	Lipi Saha	1921637
EPA 365.1 Rev. 2.0 dissolved	08/15/2017			08/16/2017 15:00	Megan Treadwell	1921638
SM 2120 B	08/15/2017			08/15/2017 16:53	Tanya Welborn	1921636
SM 2320 B-97	08/15/2017			08/17/2017	Dale L. Simmons	1921636
SM 2540 C-97	08/15/2017			08/18/2017	Yijie Li	1921636
SM 2540 D-97	08/15/2017			08/18/2017	Yijie Li	1921636
SM 4500 F-C-97	08/15/2017			08/24/2017	Dale L. Simmons	1921636
SM 5310 B-00	08/15/2017			08/19/2017	Ping Hua	1921637